

Final Submittal
TURKEY POINT DEC. 2003
EXAM 50-250/2003-301

DECEMBER 3 - 15, 2003

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)

Administrative Questions/JPMs

Job Classification: RO
JPM Title: Perform a Reactivity Management Calculation
JPM Number: Admin. #1 Conduct of Ops. #1
JPM Type: Normal Path
JPM Rev. Date: 11/03/03
Time Validation: 15 minutes
Time Critical: NO
KA: G.2.1.7 (3.7/4.4) pg. 2-1

The applicable method(s) of testing which may be used:
PERFORM IN CONTROL ROOM OR CLASSROOM

Task Standards:

1. All numerical values determined to within + or – 5% of numbers shown on Answer Key.

Required Materials:

1. Attachment 5 of 0-OP-046, "CVCS – Boron Concentration Control"
2. Unit 3 Plant Curve Book

References:

1. 0-OP-046, "CVCS – Boron Concentration Control"
2. 3-GOP-103, "Power Operation to Hot Standby", Step 5.4.1
3. Unit 3 Plant Curve Book

Terminating Cues:

Applicant returns completed Attachment 5 of 0-OP-046 to examiner.

Initial Conditions Sheet (To be given to Applicant)

TASK:

Perform a Reactivity Management Calculation.

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 was at 95% power when the decision was made to reduce power to 40% to perform the turbine valve test.
2. The following conditions exist before the power change:
 - a. Reactor Power: 95%
 - b. Core Age: 4,000 MWD/MTU
 - c. Boron Concentration: 1500 ppm
 - d. Rod Height: D-200
3. The following conditions are desired after the power change:
 - a. Reactor Power: 40%
 - b. Rod Height: D-110

INITIATING CUE:

You are the Unit 3 RCO.

3-GOP-103, "Power Operation to Hot Standby", Step 5.4.1, directs you to calculate the reactivity addition necessary for the required power reduction using 0-OP-046, CVCS-BORON CONCENTRATION CONTROL, Attachment 5.

PERFORM A REACTIVITY MANAGEMENT CALCULATION

Examiner Instructions:

Hand the:

- (1) Initial Conditions Sheet,
- (2) Blank copy of Attachment 5 of 0-OP-046
- (3) Unit 3 Plant Curve Book
- (4) calculator
- (5) pencils

to the Applicant and read the following:

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 was at 95% power when the decision was made to reduce power to 40% to perform the turbine valve test.
2. The following conditions exist before the power change:
 - a. Reactor Power: 95%
 - b. Core Age: 4,000 MWD/MITU
 - c. Boron Concentration: 1,500 ppm
 - d. Rod Height: D-200
3. The following conditions are desired after the power change:
 - a. Reactor Power: 40%
 - b. Rod Height: D-110

INITIATING CUE:

You are the Unit 3 RCO.

3-GOP-103, "Power Operation to Hot Standby", Step 5.4.1, directs you to calculate the reactivity addition necessary for the required power reduction using 0-OP-046, CVCS-BORON CONCENTRATION CONTROL, Attachment 5.

**PERFORM A REACTIVITY
MANAGEMENT CALCULATION**

(C) ELEMENT 1: Calculate Change in Rod Worth.

Time Start: _____

STANDARDS:

1. Performs Calculation #1 as follows:

- a. Reviews PCB Section 2, Figure 5 (4,000 MWD/MTU) to determine rod worth at D-200: 40 pcm
(Acceptable Range = 38 to 42)
- b. Reviews PCB Section 2, Figure 5 (4,000 MWD/MTU) to determine rod worth at D-110: 376 pcm
(Acceptable Range = 357 to 395)
- c. Subtracts 376 pcm from 40 pcm to determine reactivity insertion from change in rod height: -336 pcm.
(Acceptable Range = -319 to -353)

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COMMENTS:

NOTE: Acceptable range for responses is +/- 5% of optimal value.

**PERFORM A REACTIVITY
MANAGEMENT CALCULATION**

(C) ELEMENT 2: Calculate Change in Power Defect

STANDARDS:

1. Performs Calculation #2 as follows:
 - a. Reviews PCB Section 2, Figure 6A (4,000 MWD/MTU & 1500 ppm) to determine power defect at 95% power: 1320 pcm
(Acceptable Range = 1254 to 1386)
 - b. Reviews PCB Section 2, Figure 6A (4,000 MWD/MTU & 1500 ppm) to determine power defect at 40% power: 598 pcm
(Acceptable Range = 568 to 628)
 - c. Subtracts 598 pcm from 1320 pcm to determine reactivity insertion from change in power: +722 pcm.
(Acceptable Range = 686 to 758)

COMMENTS:

NOTE: Acceptable range for responses is +/- 5% of optimal value.

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**PERFORM A REACTIVITY
MANAGEMENT CALCULATION**

(C) ELEMENT 3: Calculate Combined Effects of Rods and Power Defect

STANDARDS:

1. Performs Calculation #3 as follows:
 - a. Adds + 722 pcm reactivity change due to Δ power defect to -336 pcm change due to Δ rod position to get: +386 pcm
(Acceptable Range = 366 to 405)

COMMENTS:

NOTE: Acceptable range for response a. is +/- 5% of optimal value.

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**PERFORM A REACTIVITY
MANAGEMENT CALCULATION**

(C) ELEMENT 4: Calculate Desired Boron Concentration

STANDARDS:

- | | |
|--|-----------------------------------|
| <p>1. Performs Calculation #4 as follows:</p> <p style="margin-left: 20px;">a. Fills in current boron concentration: 1500 ppm
(given in Initial Conditions)</p> <p style="margin-left: 20px;">b. Reviews PCB Section 2, Figure 7A (4,000
MWD/MTU) to determine boron worth at
1500 ppm: -12,541 pcm
(Acceptable Range = -11,914 to -13,168)</p> <p style="margin-left: 20px;">c. Subtracts combined effects of rods and power
defect (+386 pcm) from present boron worth
(-12,541 pcm) to determine desired boron
worth: -12, 927 pcm
(Acceptable Range = -12,281 to -13,573)</p> <p style="margin-left: 20px;">d. Reviews PCB Section 2, Figure 7A (4,000
MWD/MTU) to determine boron concentration
at boron worth of -12,927 pcm: 1550 ppm
(Acceptable Range = -1472 to -1628)</p> | <p>_____SAT</p> <p>_____UNSAT</p> |
|--|-----------------------------------|

COMMENTS:

NOTE: Standard 1.a is not critical for this element.

NOTE: Acceptable range for responses is +/- 5% of optimal value.

**PERFORM A REACTIVITY
MANAGEMENT CALCULATION**

(C) ELEMENT 5: Calculate Gallons of Boric Acid
Required

STANDARDS:

1. Recognizes that desired boron concentration is higher than the current boron concentration and calculation #5 is N/A.
2. Performs Calculation #6 as follows:

$$50,790 \times \text{Ln} \frac{[\text{BAST ppm}] - [\text{Present RCS ppm}]}{[\text{BAST ppm}] - [\text{Desired RCS ppm}]}$$

$$50,790 \times \text{Ln} \frac{[5664] - [1500]}{[5664] - [1550]} = 614 \text{ gallons of Boric Acid}$$

(Acceptable Range = 583 to 645)

COMMENTS:

NOTE: Acceptable range for responses is +/- 5% of optimal value.

END OF JPM

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Job Classification: Shift Manager
JPM Title: Analyze Tech Specs with a Startup Transformer OOS
JPM Number: Admin. #2 Conduct of Ops. #2
JPM Type: Normal Path
JPM Rev. Date: 11/03/03
Time Validation: 30 minutes
Time Critical: NO
KA: 2.1.12 (2.9/4.0) pg. 2-2

The applicable method(s) of testing which may be used:
PERFORM IN CONTROL ROOM OR CLASSROOM

Task Standards:

1. Tech. Specs. Applicable LCOs and Action Statements evaluated correctly and Required Actions identified for both Units.

Required Materials:

1. Technical Specifications, Section 3.8.1.1.

References:

1. Technical Specifications, Section 3.8.1.1.
2. 0-ADM-536, "Technical Specification Bases Control Program"
3. 5610-T-E-1591, Sheet 1, Operating Diagram – Electrical Distribution.

Terminating Cues:

Actions required per Tech Specs for Startup Transformer inoperability identified for Unit 3 and Unit 4.

Initial Conditions Sheet (To be given to Applicant)

TASK:

Analyze Tech. Specs for Unit 4 Startup Transformer inoperability with:
Unit 4 initially at 100% power and
Unit 3 initially in Mode 4.

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 is at 100% power.
2. Unit 3 is in Mode 4 with $T_{avg} = 348^{\circ}F$ and heating up for plant startup.

INITIATING CUE:

You are the Shift Manager and you have been informed that inspection of switchyard disconnect switch 8G67 has revealed severe degradation due to corrosion and 8G67 must be isolated and replaced immediately causing Unit 4 Startup Transformer to be inoperable.

Station Area Operations (SAO) predicts the Unit 4 Startup Transformer will be inoperable for 5 days.

On the Applicant Answer Sheets provided, as the Shift Manager you are to:

- 1) Determine if the applicable Limiting Condition(s) for Operation (LCO(s)) are satisfied for each unit.
- 2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.
- 3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.
- 4) For Unit 3, identify any other operator actions required by Tech. Specs. related to the unit heat-up.

ANALYZE TECH SPECS WITH UNIT 4 STARTUP TRANSFORMER OOS

Examines Instructions:

Hand the Initial Conditions Sheet and Applicant Answer Sheets to the Applicant and read the following:

Analyze Tech. Specs for Unit 4 Startup Transformer inoperability with:
Unit 4 initially at 100% power and
Unit 3 initially in Mode 4.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 is at 100% power.
2. Unit 3 is in Mode 4 with Tavg = 348°F and heating up for plant startup.

INITIATING CUE:

You are the Shift Manager and you have been informed that inspection of switchyard disconnect switch 8G67 has revealed severe degradation due to corrosion and 8G67 must be isolated and replaced immediately causing Unit 4 Startup Transformer to be inoperable.

Station Area Operations (SAO) predicts the Unit 4 Startup Transformer will be inoperable for 5 days.

On the Applicant Answer Sheets provided, as the Shift Manager you are to:

- 1) Determine if the applicable Limiting Condition(s) for Operation (LCO(s)) are satisfied for each unit.
- 2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.
- 3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.
- 4) For Unit 3, identify any other operator actions required by Tech. Specs. related to the unit heat-up.

**ANALYZE TECH SPECS WITH
UNIT 4 STARTUP TRANSFORMER OOS**

ELEMENT 1: Obtain Required Materials.

Time Start:

STANDARDS:

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1. Obtains copy of Technical Specifications.

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Examiner CUE:

If this JPM is performed in a classroom setting, each of the applicants will be supplied with the following:

- 1) *Copy of Technical Specifications*
- 2) *Copy of 0-ADM-536, "Technical Specification Bases Control Program"*
- 3) *Copy of System Prints including 5610-T-E-1591, Sheet 1*
- 4) *Applicant Answer Sheets for Units 3 and 4.*

_____ :

NOTE: The applicant must analyze applicable Tech. Spec. 3.8.1.1 on Page 3/4 8-1.

**ANALYZE TECH SPECS WITH
UNIT 4 STARTUP TRANSFORMER OOS**

(C) ELEMENT 2: Evaluate Tech. Spec. 3.8.1.1 for applicability to Unit 4.

STANDARDS:

1. Determines LCO 3.8.1.1.a is not satisfied for Unit 4.
2. Applies Action Statement a. (page 3/4 8-2) as follows:
 - *(Surveillance 4.8.1.1.a. to)# demonstrate operability of the Unit 3 SU transformer, must be performed within 1 hour and at least once per 8 hours thereafter.*
 - Based on estimated return to service, opts to reduce power to <30% within 24 hours.*
 - Recognizes that based on this option, power operation may continue for up to 30 days from the time of the SU Transformer inoperability *(and if after 30 days, the SU Transformer is still not operable, Unit 4 must be shut down to Hot Standby within 12 hours and in Cold Shutdown within the following 30 hours)#.*

NOTE: # *Italicized Information in parenthesis () not critical.*

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(C) ELEMENT 2: Evaluate Tech. Spec. 3.8.1.1 for applicability to Unit 4. (continued)

COMMENTS:

NOTE: * Because Unit 4 is in Mode 1, two choices are available regarding continued operation:

- Reduce power to <30% within 24 hours and power operation may continue for up to 30 days from the time of the SU Transformer inoperability.

OR

- Continue operation at >30 % power for a total of 72 hours (24 plus an additional 48).

In either case when the 30 days or 72 hours is up, if the SU Transformer is not yet restored to operability, Unit 4 must be shut down to Hot Standby within 12 hours and in Cold Shutdown within the following 30 hours.

Note that Option 1 is the correct choice for this situation with the estimated OOS time of the SU Transformer being 5 days. Option 2 would force unit shutdown to Mode 3 within 72 hours which would put the unit in natural circulation cooling. This undesirable situation is discussed in O-ADM-536, Page 94.

**ANALYZE TECH SPECS WITH
UNIT 4 STARTUP TRANSFORMER OOS**

(C) ELEMENT 3: Evaluate Tech. Spec. 3.8.1.1 for applicability to Unit 3.

STANDARDS:

1. Determines LCO 3.8.1.1.a is not satisfied for Unit 3.
2. Applies Action Statement a. (page 3/4 8-2) as follows:
 - *(Surveillance 4.8.1.1.a, to)# demonstrate operability of the Unit 3 SU transformer, must be performed within 1 hour and at least once per 8 hours thereafter.*
 - Recognizes that Unit 3 is in a 30 day Action Statement starting when the SU Transformer is declared inoperable. *(If the SU Transformer is not returned to operability at the end of those 30 days, the unit must be placed in Cold Shutdown within the following 30 hours)#.*
 - Recognizes that the Unit 3 heatup must be stopped prior to the imminent Mode change to Mode 3. *(This is required by Tech. Spec. 3.0.4, pg. 3/4 0-1)#*

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COMMENTS:

NOTE: # *Italicized Information in parenthesis () not critical.*

(C) ELEMENT 3: Evaluate Tech. Spec. 3.8.1.1 for applicability to Unit 3.

COMMENTS: (continued)

NOTE: TS requirement 4.8.1.1.a may have already been listed under Unit 4 requirements. Requirement does not have to be repeated twice.

END OF JPM

**Admin. JPM #2 – Analyze Tech. Specs. With Unit 4 SU
Transformer OOS**

Applicant Answer Sheet for Unit 4

- 1) For Unit 4, identify any LCO(s) number(s) that are not satisfied.
- 2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.
- 3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.

1)

2)

3)

**Admin. JPM #2 – Analyze Tech. Specs. With Unit 4 SU
Transformer OOS**

Applicant Answer Sheet for Unit 3

- 1) For Unit 3, identify any LCO(s) number(s) that are not satisfied.
- 2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.
- 3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.
- 4) Identify any other operator actions required by Tech. Specs. related to the unit heat-up.

1)

2)

3)

4)

**Admin. JPM #2 – Analyze Tech. Specs. With Unit 4 SU
Transformer OOS**

Master Answer Sheet for Unit 4

DO NOT GIVE TO APPLICANT!

1) For Unit 4, identify any LCOs that are not satisfied.

- LCO 3.8.1.1.a. is not satisfied for Unit 4.

2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.

- demonstrate operability of the Unit 3 SU transformer within 1 hour and at least once per 8 hours thereafter.
- Because Unit 4 is in Mode 1, two choices are available regarding continued operation:
 - Option 1: Reduce power to <30% within 24 hours and power operation may continue for up to 30 days from the time of the SU Transformer inoperability.

(OR)

- Option 2: Continue operation at >30 % power for a total of 72 hours 24 plus an additional 48)#.

(In either case when the 30 days or 72 hours is up if the SU Transformer is not yet restored to operability, Unit 4 must be shut down to Hot Standby within 12 hours and in Cold Shutdown within the following 30 hours)#.

3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.

- Option 1 is the correct choice *(for this situation with the estimated GOS time of the SU Transformer being 5 days. Option 2 would force unit shutdown to Mode 3 within 72 hours which would put the unit in natural circulation cooling. This undesirable situation is discussed in O-ADM-536, Page 94.) #*

Italicized information in parenthesis is () not critical.

**Admin. JPM #2 – Analyze Tech. Specs. With Unit 4 SU
Transformer OOS**

Master Answer Sheet for Unit 3

DO NOT GYVE TO APPLICANT!

1) For Unit 3, identify any LCOs that are not satisfied.

- LCO 3.8.1.1.a. is not satisfied for Unit 3

2) For any LCO(s) that are not satisfied, describe all actions per the applicable Action Statements.

- demonstrate operability of the Unit 3 SU transformer within 1 hour and at least once per 8 hours thereafter.
- Recognizes that Unit 3 is in a 30 day Action Statement starting when the SU Transformer is declared inoperable. *(If the SU Transformer is not returned to operability at the end of those 30 days, the unit must be placed in Cold shutdown within the following 30 hours)#.*

3) For any options that may be provided within the applicable Action Statements, select the option that would prevent intentionally relying on an Engineered Safety Feature based on the conditions provided in the Initial Conditions and the Initiating Cue.

- Not Applicable No options offered.

4) Identify any other operator actions required by Tech. Specs. related to the unit heat-up.

- Recognizes that the Unit 3 heatup must be stopped prior to the imminent Mode change to Mode 3. *(This is required by Tech. Spec. 3 0.4). (page 3/4 0-1) #*

Italicized information in parenthesis is () not critical.

Job Classification: Shift Manager
JPM Title: Determine Contingency Actions in the Event of the Loss of a
CCW Pump During Reduced Inventory Operations
JPM Number: Admin. #3 Equipment Control
JPM Type: Normal Path
JPM Rev. Date: 11/03/03
Time Validation: 15 minutes
Time Critical: NO
KA: G.2.2.18 (2.3/3.6) pg. 2-7

The applicable method(s) of testing which may be used:
PERFORM IN CONTROL ROOM OR CLASSROOM

Task Standards:

1. Correct Contingency Actions Identified (Ref. Enclosure 6, Page 1 of 9).

Required Materials:

1. 0-ADM-051, "Outage Risk Assessment and Control"

References:

1. 0-ADM-051, "Outage Risk Assessment and Control"
2. 0-OP-041.9, "Reduced Inventory Operations"
3. 4-ONOP-030, "Component Cooling Water Malfunction"

Terminating Cues:

1. Correct Contingency Actions Identified

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Determine Contingency Actions for Loss of 4A CCW Pump.

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was shutdown 11 days ago.
2. The RCS is in Reduced Inventory Operations.
3. Unit 4 is in normal electrical alignment for the shutdown conditions.
4. 4A CCW Pump motor fails and the CCW pump is declared OOS.
5. Plant conditions do not allow for realignment of plant electrical buses.

INITIATING CUE:

You are the Shift Manager.

Identify applicable Contingency Action(s) (if any) provided in 0-ADM-051, "Outage Risk Assessment and Control" based on the loss of the 4A CCW pump.

DETERMINE CONTINGENCY ACTIONS DUE TO LOSS OF CCW PUMP

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and a copy of 0-ADM-051.
Read the following:

The task you are to perform is Determine Contingency Actions for loss of 4A CCW pump.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was shutdown 11 days ago.
2. The RCS is in Reduced Inventory Operations.
3. Unit 4 is in normal electrical alignment for the shutdown conditions.
4. 4A CCW Pump motor fails and the CCW pump is declared GOS.
5. Plant conditions do not allow for realignment of plant electrical buses.

INITIATING CUE:

You are the Shift Manager.

Identify applicable Contingency Action(s) (if any) provided in 0-ADM-051, "Outage Risk Assessment and Control" based on the loss of the 4A CCW pump.

**DETERMINE CONTINGENCY ACTIONS
DUE TO LOSS OF CCW PUMP**

(C) ELEMENT 1: Identify Correct Enclosure of ADM-051.

STANDARDS:

1. Identifies Enclosure 6 as the correct enclosure.

COMMENTS:

NOTE: Enclosure 6 is the correct enclosure based on the following:

- a. Enclosure 6 is for Phase II which is defined in Step 4.12.1 as > 240 hours following unit shutdown.

Note that the IC stated the Unit had been shutdown for 11 days.

- b. Enclosure 6 is for RCS temperature <200°F without RCS Loops available.

Note that the IC stated Reduced Inventory, a condition that requires temperature be < 200°F and renders RCS loops not available.

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**DETERMINE CONTINGENCY ACTIONS
DUE TO LOSS OF CCW PUMP**

ELEMENT 2: Identify CCW System Condition NOT Meeting Enclosure 6 Criteria.

STANDARDS:

1. Reviews Enclosure 6 and discovers under "Decay Heat Removal" Function that two CCW Pumps are required. (Encl. 6, pg. 1 of 9)
2. Notes that 2 CCW pumps are operable (4B and 4C) but the associated asterisk * further requires both pumps be powered from independent power sources if RCS level is lower than 3 feet below the vessel flange.
3. Determines that the plant condition does not satisfy the "Required Equipment" column in spite of having two CCW pumps operable.

COMMENTS:

NOTE: * 4B and 4C CCW pumps are not powered from independent power sources per the IC which stated "normal electrical alignment for the shutdown conditions". This implies 4D Bus is aligned to 4B Bus and the 4B and 4C pumps are both powered from the same "B" electrical train.

Additionally, the IC stated "Reduced Inventory" which is defined in Step 4.13.1 as a condition with fuel in the vessel and RCS drained to lower than 3 feet below the vessel flange.

Therefore the asterisk applies and the plant condition does not satisfy the "Required Equipment" column in spite of having two CCW pumps operable.

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**DETERMINE CONTINGENCY ACTIONS
DUE TO LOSS OF CCW PUMP**

(C) ELEMENT 3: Determine Applicable Contingency Actions

STANDARDS:

1. Reviews Enclosure 6, Page 1 of 9 and identifies the following Contingency Actions:

From CCW Section:

1. Contingency Actions 1 and 2

From RHR Section:

1. Contingency Actions 1 through 11.

COMMENTS:

NOTE:

END OF JPM

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Job Classification: Shift Manager
JPM Title: Review Radioactive Liquid Release Permit
JPM Number: Admin. #4 Radiation Control
JPM Type: Normal Path
JPM Rev. Date: 11/03/03
Time Validation: 15 minutes
Time Critical: NO
KA: G.2.3.6 (2.1/3.1) pg. 2-9

The applicable method(s) of testing which may be used:
PERFORM IN CONTROL ROOM OR CLASSROOM

Task Standards:

1. Radioactive Liquid Release Permit reviewed for approval.
2. Tank Recirculation and Sampling Verification Sheet reviewed for approval.
3. Embedded errors identified.
4. Release Permit and Sampling Verification Sheet not Approved.

Required Materials:

1. 0-OP-061.11, "Waste Disposal System, Controlled Radiological Liquid Release"
2. 0-NCOP-003, "Preparation of Liquid Release Permits"
3. Completed Radioactive Liquid Release Permit
4. Completed Tank Recirculation and Sampling Verification Sheet

References:

1. 0-OP-061.11, "Waste Disposal System, Controlled Radiological Liquid Release"
2. 0-NCOP-003, "Preparation of Liquid Release Permits"

Terminating Cues:

Embedded errors on Liquid Release Permit identified and permit returned to examiner.

Initial Conditions Sheet (To be given to Applicant)

TASK:

Review a completed Radioactive Liquid Release Permit and Tank Recirculation and Sampling Verification Sheet

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. The "A" Waste Monitor Tank is full and ready to be released.
2. The "A" Waste Monitor Tank has been sampled following recirculation on mini recirc.

INITIATING CUE:

You are the Shift Manager.

The Unit 3 RCO has presented to you the attached:

- (1) Radioactive Liquid Release Permit and
- (2) Tank Recirculation and Sampling Verification Sheet

The attached permit and/or verification sheet contain one or more errors.

As the Shift Manager you are to;

Review the Radioactive Liquid Release Permit and Tank Recirculation and Sampling Verification Sheet.

Identify the error(s) by circling the error(s) and annotating on the form(s) what the error(s) is (are). When complete, return the forms to the examiner.

REVIEW RADIOACTIVE LIQUID RELEASE PERMIT

Examiner Instructions:

Hand the:

- (1) Initial Conditions Sheet,
- (2) Completed Radioactive Liquid Release Permit
- (3) Completed Tank Recirculation and Sampling Verification Sheet
- (4) Copy of O-OP-061.11, "Waste Disposal System Controlled Radiological Liquid Release"
- (5) Copy of O-NCOP-003, "Preparation of Liquid Release Permits"

to the Applicant and read the following:

The task you are to perform is review the completed Radioactive Liquid Release Permit and Tank Recirculation and Sampling Verification Sheet.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. The "A" Waste Monitor Tank is full and ready to be released
2. The "A" Waste Monitor Tank has been sampled following recirculation on mini recirc.

INITIATING CUE:

You are the Shift Manager. The Unit 3 RCO has presented to you the attached (1) Radioactive Liquid Release Permit and (2) Tank Recirculation and Sampling Verification Sheet.

The attached permit and/or verification sheet contain one or more errors.

As the Shift Manager you are to:

- 1) **Review the Radioactive Liquid Release Permit and Tank Recirculation and Sampling Verification Sheet.**

Identify the error(s) by circling the error(s) and annotating on the form(s) what the error(s) is (are). When complete, return the forms to the examiner.

REVIEW RADIOACTIVE LIQUID RELEASE PERMIT

ELEMENT 1: Obtain Required Materials.

Time Start:

STANDARDS:

1. Obtains copy of:
 - a. Completed Radioactive Liquid Release Permit
 - b. Completed Tank Recirculation and Sampling Verification Sheet
 - c. Copy of O-OP-061.11, "Waste Disposal System Controlled Radiological Liquid Release"
 - d. Copy of O-NCOP-003, "Preparation of Liquid Release Permits"

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Examiner CUE:

If this JPM is performed in a classroom setting, each of the applicants will be supplied with the following:

- (1) Initial Conditions Sheet
- (2) Completed Radioactive Liquid Release Permit
- (3) Completed Tank Recirculation and Sampling Verification Sheet
- (4) Copy of O-OP-061.11, "Waste Disposal System Controlled Radiological Liquid Release"
- (5) Copy of O-NCOP-003, "Preparation of Liquid Release Permits"

Examiner Cue: Tell the candidates that if any error(s) are discovered, they should circle the error(s) and annotate on the form(s) what the error(s) is (are).

COMMENTS:

NOTE: The applicant must review the completed forms and identify 3 embedded errors (Note, one error appears on both forms.)

REVIEW RADIOACTIVE LIQUID RELEASE PERMIT

(C) ELEMENT 2: Evaluate Radioactive Liquid Release Permit

STANDARDS:

1. Circles and **describes** three embedded errors:
 - a. Radiochemistry Supervisor signature required and missing.
 - b. Total Estimated Dose after this Release exceeds the monthly administrative release limit.
 - c. The time the tank was sampled was too soon following the time the tank was put on recirculation.

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COMMENTS:

- NOTE:
- a. Radiochemistry Supervisor signature required because the tank specific activity in Part 1 exceeds $1 \times 10^{-4} \mu\text{Ci/ml}$.
 - b. Monthly administrative release limit is 0.25 mR/month.
 - c. The tank was sampled $1\frac{3}{4}$ hours after the start of recirculation instead of the required 2 hours.
This is the same error that appears on the sampling verification sheet. Identification of the error on either form is acceptable to satisfy the standard.

REVIEW RADIOACTIVE LIQUID RELEASE PERMIT

(C) ELEMENT 3: Evaluate Tank Recirculation and Sampling Verification Sheet

STANDARDS:

1. **Circles** and describes one embedded error:

recirculation.

COMMENTS:

NOTE: a. This is the same error that appears on the liquid release permit. Identification of the error on either form is acceptable to satisfy the standard.

NOTE: b. The WMT is on mini recirc and must be recirculated for a minimum of two hours prior to sampling.

END OF JPM

____ SAT

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Job Classification: Shift Manager
JPM Title: Review Florida Nuclear Plant Emergency Notification Form
JPM Number: Admin. #5 Emergency Plan
JPM Type: Normal Path
JPM Rev. Date: 11/03/03
Time Validation: 20 minutes
Time Critical: NO
KA: 2.4.40 (2.3/4.0) pg. 2-15

The applicable method(s) of testing which may be used:
PERFORM IN CONTROL ROOM OR CLASSROOM

Task Standards:

1. Florida Nuclear Plant Emergency Notification Form reviewed for approval.
2. Embedded errors identified and corrected.

Required Materials:

1. 0-EPIP-20101, "Duties of Emergency Coordinator"
2. Completed Florida Nuclear Plant Emergency Notification Form

References:

1. 0-EPIP-20101, "Duties of Emergency Coordinator"

Terminating Cues:

Embedded errors on Notification Form identified and corrected form returned to examiner.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Review a completed Florida Nuclear Plant Emergency Notification Form

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Both Units were initially at 100% power when operators were forced to evacuate the Control Room due to armed intruders who quickly gained access to and occupied the Control Room.
2. 0-ONOP-105, "Control Room Evacuation" has been implemented and local control of shutdown systems was established from local stations after 20 minutes.
3. All operators are at their assigned local stations as described in 0-ONOP-105.
4. Based on these conditions a General Emergency Classification was declared on December 1, 2003 at 1400.
5. Wind direction is from 170°. Wind speed is 12 mph.
South Dade (60 meter) Tower $\Delta T = +1.0^{\circ}F$
Ten Meter Tower Sigma Theta = 9.5
6. ERDADS reveals:
 - a. no evidence of a radioactive release at this time.
 - b. normal post-shutdown RCS temperatures, levels and pressures.

INITIATING CUE:

You are the Emergency Coordinator. The Communicator has filled out the attached Florida Nuclear Plant Emergency Notification Form and presented it to you for approval.

The attached form contains one or more errors.

As the Emergency Coordinator you are to:

Review the Florida Nuclear Plant Emergency Notification Form.

Identify the error(s) by circling it (them). Correct the error(s) and return the corrected form to the examiner.

REVIEW FLORIDA NUCLEAR PLANT EMERGENCY NOTIFICATION FORM

Examiner Instructions:

Hand the (1) Initial Conditions Sheet, (2) completed Florida Nuclear Plant Emergency Notification Form and (3) copy of 0-EPNP-20101, "Duties of Emergency Coordinator" to the Applicant and read the following:

The task you are to perform is review the completed Florida Nuclear Plant Emergency Notification Form.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Both Units were initially at 100% power when operators were forced to evacuate the Control Room due to armed intruders who quickly gained access to and occupied the Control Room.
2. 0-ONOP-105, "Control Room Evacuation" has been implemented and local control of shutdown systems was established from local stations after 20 minutes.
3. All operators are at their assigned local stations as described in 0-ONOP-105.
4. Based on these conditions a General Emergency Classification was declared on December 1, 2003 at 1400.
5. Wind direction is from 170°. Wind speed is 12 mph.
South Dade (60 meter) Tower $\Delta T = -1.0^{\circ}\text{F}$
Ten Meter Tower Sigma Theta = 9.5
6. ERDADS reveals:
 - a. no evidence of a radioactive release at this time.
 - b. normal post-shutdown RCS temperatures, levels and pressures.

INITIATING CUE:

You are the Emergency Coordinator. The Communicator has filled out the attached Florida Nuclear Plant Emergency Notification Form and presented it to you for approval.

The attached form contains one or more errors.

As the Emergency Coordinator you are to:
Review the Florida Nuclear Plant Emergency Notification Form.
Identify the error(s) by circling it (them). Correct the error(s) and return the corrected form to the examiner.

**REVIEW FLORIDA PLANT NUCLEAR
EMERGENCY NOTIFICATION FORM**

ELEMENT 1: Obtain Required Materials.

Time Start: ____

STANDARDS:

1. Obtains copy of:

____ SAT

- a. Completed Florida Nuclear Plant
Emergency Notification Form
- b. 0-EPIP-20101, "Duties of Emergency
Coordinator" to the Applicant

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Examiner CUE:

If this JPM is performed in a classroom setting, each of the applicants will be supplied with the following:

- (1) Initial Conditions Sheet,
- (2) Completed Florida Nuclear Plant Emergency
Notification Form,
- (3) Copy of 0-EPIP-20101, "Duties of Emergency
Coordinator"

Examiner Cue: Tell the candidates that if any error(s) are discovered, they should circle the error(s) and then correct the identified error(s) on the completed form.

COMMENTS:

NOTE: The applicant must review the completed form and identify and correct 3 embedded errors.

**REVIEW FLORIDA PLANT NUCLEAR
EMERGENCY NOTIFICATION FORM**

(C) ELEMENT 2: Evaluate Florida Nuclear Plant
Emergency Notification Form

STANDARDS:

1. **Identifies** and corrects three embedded errors:

- a. Item 8: Wind direction is from 170°. Downwind sectors affected should be RAB, not QRA.
- b. Item 11: Utility recommended PARs are incorrect. QRA should be RAB as discussed in Item a. There should be no entries in the "No Action" column. "All" should be entered in the 5 – 10 mile row of the "Shelter Sectors" column.
- c. Item 13.B: Stability Class "D" is incorrect. Correct Stability Class is "E".

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COMMENTS:

NOTE: Bases for errors/corrections is as follows:

- a. Item 8: Page 2, "Meteorological Worksheet" of the Florida Nuclear Plant Emergency Notification Form, reveals that for wind direction from 170°F, Sectors affected are RAB.

(C) ELEMENT 2: Evaluate Florida Nuclear Plant
Emergency Notification Form

COMMENTS: (continued)

- b. Item 11: Attachment 3, "Guidance for Determining Protective Action Recommendations (PARs)" reveals that for a loss of physical control of the plant, the correct PARs are 0-2: E(CR), 2-5: E(DW) + S(RS), 5-10: S(CR).
- c. Item 13B: Page 2, "Meteorological Worksheet" of the Florida Nuclear Plant Emergency Notification Form, reveals that for a ΔT of +1.0, the correct Stability Class is "E".

END OF JPM

In-plant JPMs

Job Classification: SNPO
JPM Title: Locally Place Unit 4 Hydrogen Monitor in Service Post-LOCA
JPM Number: B.1.5
JPM Type: Normal Path
JPM Rev. Date: 11/06/03
Time Validation: 20 minutes
Time Critical: NO
System/KA: 028/028A2.02 (3.5/3.9) pg. 3.5-17

The applicable method(s) of testing which may be used: SIMULATE IN PLANT

Task Standards:

1. PAHMS Alignment Completed per Section 7.1 of 4-OP-094

Required Materials:

1. Two way radio (optional communications device).
2. 4-OP-094, "Containment Post-Accident Monitoring Systems"
3. "A" Key
4. Valve Operating Handle

References:

1. 4-OP-094, "Containment Post-Accident Monitoring Systems"

Terminating Cues:

Alignment completed per Section 7.1 of 4-OP-094.

Examiner Note: Due to the length of this JPM, Run this JPM on the same day we perform two back-to-back simulator JPMs.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Locally Place Unit 4 Hydrogen Monitor in Service Post-I.OCA

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 has experienced a valid Safety Injection signal.
2. All applicable procedure prerequisites are satisfied.
3. Post Accident Hydrogen Monitoring system is in normal standby alignment.

INITIATING CUE:

You are the SNPO and you have been given directions from the Unit 4 RCO to place the Post Accident Hydrogen Monitor in service per 4-OP-094, Section 7.1.

LOCALLY PLACE UNIT 3 HYDROGEN MONITOR IN SERVICE POST-LOCA

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Locally Place Unit 4 Hydrogen Monitor in Service Post-LOCA.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 has experienced a valid Safety Injection signal.
2. All applicable procedure prerequisites are satisfied.
3. Post Accident Hydrogen Monitoring system is in normal standby alignment.

INITIATING CUE:

You are the SNPO and you have been given directions from the Unit 4 RCO to place the Post Accident Hydrogen Monitor in service per 4-OP-094, Section 7.1.

PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

ELEMENT 1: Obtain Required Materials.

Time Start: ____

STANDARDS:

1. Obtains copy of 4-OP-094, "Containment Post Accident Hydrogen Monitoring System".
2. Verifies latest revision and no outstanding OTSCs.

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Examiner CUE:

When the procedure has been correctly identified and the need to verify the procedure against the OTSC index has been expressed, provide the operator with the procedure and state "This is the latest revision and there are no outstanding OTSCs."

3. Reviews Section 4.0 for applicable P&Ls.
4. Transitions to Section 7.1 and reviews the NOTE prior to Step 7.1.1. Notes the statement to complete the task within 30 minutes.
5. Signs off the Initial Conditions as complete.
6. Proceeds to the Aux. Bldg. east-west hallway and describes how to unlock* and to obtain a T-handle tool from its rack.

COMMENTS:

NOTE: None of the Precautions and Limitations in Section 4.0 specifically apply to this task.

NOTE: * The lock for the T-handle tools requires an "A" key, - normally carried by operators.

PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

(C) ELEMENT 2: Align PASS and PAHM valves near the junction of the North/South and East/West Hallways. (Step 7.1.2)

STANDARDS:

1. Reviews the NOTE prior to Step 7.1.2.1 and proceeds to the junction of N/S and E/W hallways.
2. Inserts tool & removes floor cap for PASS-4-008. (Rotates cap counter clockwise until cap is removed.)

Examiner CUE: When the applicant identifies how to remove the floor cap, state "The floor cap is removed."

(Rotates tool counter clockwise until resistance is felt.)

Examiner CUE: When the applicant identifies how to open PASS-4-008, state "The tool has been rotated fully counter clockwise."

4. Inserts tool and removes floor cap for PAHM-4-001A. (Rotates cap counter clockwise until cap is removed.)

Examiner CUE: When the applicant identifies how to remove the floor cap, state "The floor cap is removed."

5. Inserts tool and opens PAHM-4-001A. (Step 7.1.2.1.b) (Rotates tool counter clockwise until resistance is felt.)

Examiner CUE: When the applicant identifies how to open PAHM-4-001A, state "The tool has been rotated fully counter clockwise."

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<p>(C) <u>ELEMENT 2</u>: Align PASS and PAHM valves near the junction of the North/South and East/West Hallways. (Step 7.1.2)</p>	
<p><u>STANDARDS: (continued)</u></p>	
<p>6. Inserts tool and removes floor cap for PAHM-4-001B. (Rotates cap counter clockwise until cap is removed.)</p>	SAT
<p><i>Examiner CUE: When the applicant identifies how to remove the floor cap, state "The floor cap is removed."</i></p>	UNSAT
<p>7. Inserts tool and opens PAHM-4-001B. (Step 7.1.2.1.c) (Rotates tool counter clockwise until resistance is felt.)</p>	
<p><i>Examiner CUE: When the applicant identifies how to open PAHM-4-001B, state "The tool has been rotated fully counter clockwise."</i></p>	
<p>8. Inserts tool and removes floor cap for PAHM-4-002A. (Rotates cap counter clockwise until cap is removed.)</p>	
<p><i>Examiner CUE: When the applicant identifies how to remove the floor cap, state "The floor cap is removed."</i></p>	
<p>9. Inserts tool and opens PAHM-4-002A. (Step 7.1.2.1.d) (Rotates tool counter clockwise until resistance is felt.)</p>	
<p><i>Examiner CUE: When the applicant identifies how to open PAHM-4-002A, state "The tool has been rotated fully counter clockwise."</i></p>	
<p>10. Inserts tool and removes floor cap for PAHM-4-002B. (Rotates cap counter clockwise until cap is removed.)</p>	
<p><i>Examiner CUE: When the applicant identifies how to remove the floor cap, state "The floor cap is removed."</i></p>	

(C) ELEMENT 2: Align PASS and PAHM valves near the junction of the North/South and East/West Hallways. (Step 7.1.2)

STANDARDS: (continued)

11. Inserts tool and opens PAHM-4-002B. (Step 7.1.2.1.e)
(Rotates tool counter clockwise until resistance is felt.)

Examiner CUE: When the applicant identifies how to open PAHM-4-002B, state "The tool has been rotated fully counter clockwise."

COMMENTS:

NOTE: Standards 3, 5, 7, 9, and 11 critical for this element.

PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

(C) **ELEMENT 3:** Open Post Accident Containment Ventilation System Containment Penetration Isolation Valves.

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STANDARDS:

1. Unlocks* HV-4-3 outside the Unit 4 Pipe and Valve Room.
2. Opens IIV-4-3 outside the Unit 4 Pipe and Valve Room. (Step 7.1.2.2)
(Rotates fully handwheel counter clockwise)

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Examiner CUE: When the applicant describes how to open HV-4-3, state "The handwheel has been unlocked and rotated fully counterclockwise."

3. Unlocks* IIV-4-1 outside the Unit 4 Pipe and Valve Room.
4. Opens HV-4-1 outside the Unit 4 Pipe and Valve Room. (Step 7.1.2.3)
(Rotates handwheel fully counter clockwise)

Examiner CUE: When the applicant describes how to open HV-4-3, state "The handwheel has been unlocked and rotated fully counterclockwise."

COMMENTS:

NOTE: *An "A" key is required to unlock HV-4-3 and HV-4-1.

NOTE: Standards 2 and 4 are critical to this element.

PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

(C) ELEMENT 4: Notify RCO to Place PAHMs in Service.

STANDARDS:

1. Calls Unit 4 RCO (on radio or plant page) to perform 4-OP-094, Step 7.1.2.4 and to notify the applicant when Step 7.1.2.4 is complete. (Step 7.1.2.4)

Examiner CUE: Role play as the Unit 4 RCO and acknowledge the direction to perform Step 7.1.2.4 of 4-OP-094." After the direction is given and acknowledged, state "Step 7.1.2.4 of 4-OP-094 is complete. Continue with Step 7.1.2.5 "

COMMENTS:

NOTE:

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PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

(C) ELEMENT 5: Isolate WHT Waste Transfer Pump Discharge to RAD Waste Building.

STANDARDS:

1. Attempts to remove floor cap to close MPAS-001 located outside the Unit 3 BA Evaporator Room. (Step 7.1.2.5)

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Examiner CUE: When the applicant describes how to remove the floor cap, state "The floor cap is jammed and cannot be removed."

2. Leaves the Aux. Building and proceeds to the Waste Evaporator Feed Pump room in the Radwaste building. (Step 7.1.2.5)
3. Closes valve 1731 located at the south end of the Waste Evaporator Feed Pump room in the Radwaste building. (Rotates handwheel fully clockwise until valve stem is fully inserted.) (Step 7.1.2.5)

Examiner CUE: When the applicant describes how to close valve 1731, state "The handwheel has been rotated fully clockwise and the valve stem is inserted."

COMMENTS:

NOTE: Standards 1 and 2 are not critical for this element.

PLACE UNIT 4 HYDROGEN MONITOR IN SERVICE

**(C) ELEMENT 6: Align Waste Holdup Tank
Pump-Back System to Containment**

STANDARDS:

1. Leaves the Radwaste building and proceeds to the Aux. Building Roof. (Step 7.1.2.6)
2. Unlocks* MPAS-4-004 on the Aux. Building roof near the Unit 4 Containment wall.
3. Opens MPAS-4-004 on the Aux. Building roof near the Unit 4 Containment wall. (Rotates handwheel fully counter clockwise until valve stem is fully withdrawn.) (Step 7.1.2.6.a)

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Examiner CUE: When the applicant describes how to open MPAS-4-004, state "The handwheel has been unlocked and rotated fully counterclockwise and the valve stem is fully withdrawn."

4. Closes MPAS-4-005 on the Aux. Building roof near the Unit 4 Containment wall. (Rotates handwheel fully clockwise until the valve stem is fully inserted.) (Step 7.1.2.6.b)

Examiner CUE: When the applicant describes how to close MPAS-4-005, state "The handwheel has been rotated fully clockwise and the valve stem is fully inserted."

(C) ELEMENT 6: Align Waste Holdup Tank
Pump-Back System to Containment
(continued)

COMMENTS:

NOTE: *An "A" key is required to unlock
MPAS-4-004.

NOTE: Standards 3 and 4 are critical for this
element.

END OF JPM

Job Classification: SNPO
JPM Title: Split CCW Headers in Response to Leakage on 4A CCW Header
JPM Number: B.1.j
JPM Type: Normal Path
JPM Rev. Date: 11/06/03
Time Validation: 20 minutes
Time Critical: NO
System/KA: 008/026 AA2.03 (2.6/2.9) pg. 4.2-19

The applicable method(s) of testing which may be used: SIMULATE IN PLANT

Task Standards:

1. CCW Headers split in accordance with 4-ONOP-030, Step 14 a. RNO and Cask Wash Area Component Cooling Water piping isolated in accordance with 4-ONOP-030, Step 24 RNO g.

Required Materials:

1. Two way radio (optional communications device).
2. 4-ONOP-030, "Component Cooling Water Malfunction"

References:

1. 4-ONOP-030, "Component Cooling Water Malfunction"

Terminating Cues:

Alignment completed per Steps 14 and 24 of 4-ONOP-030.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Locally Split CCW Headers in Response to Leakage on 4A CCW Header

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was at 100% power with normal system alignments except for the Unit 4 CCW cask wash area piping which was aligned to 4A CCW header.
2. A large CCW leak developed in the cask wash area piping.
3. Operators implemented 4-ONOP-030, "Component Cooling Water Malfunction".

INITIATING CUE:

You are the SNPO.

You have been given directions from the Unit 4 RCO to locally perform Step 14 RNO and Step 24 g. RNO of 4-ONOP-030, "Component Cooling Water Malfunction".

SPLIT CCW HEADERS IN RESPONSE TO LEAKAGE ON 4A CCW HEADER

Examiner Instructions:

Hand the initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is locally split CCW Headers in response to leakage on 4A CCW Header.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was at 100% power with normal system alignments except for the Unit 4 CCW cask wash area piping which was aligned to 4A CCW header.
2. A large CCW leak developed in the cask wash area piping.
3. Operators implemented 4-ONOP-030, "Component Cooling Water Malfunction".

INITIATING CUE:

You are the SNPO.

You have been given directions from the Unit 4 RCO to locally perform Step 14 RNO and Step 24 g. RNO of 4-ONOP-030, "Component Cooling Water Malfunction".

**SPLIT CCW HEADERS IN RESPONSE
TO LEAKAGE ON 4A CCW HEADER**

ELEMENT 1: Obtain 4-ONOP-030.

Time Start: ____

STANDARDS:

1. Proceeds to SNPO Workstation and logs onto Lotus Notes to verify latest revision and no outstanding OTSCs and to print out a copy of 4-ONOP-030.

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Examiner Cue: When the applicant describes how to obtain a working copy of 4-ONOP-030, provide a copy to the applicant.

COMMENTS:

NOTE:

**SPLIT CCW HEADERS IN RESPONSE
TO LEAKAGE ON 4A CCW HEADER**

Time Start: _____	SAT	UNSAT
(C) ELEMENT 2: Split CCW Headers.		
STANDARDS:		
<p>1. Proceeds to Aux. Building Roof (Unit 4 Side - Directly above Unit 4 CCW Pump Room) and locally closes 4-787F. (Southernmost Reach rod hand wheel) - Turn clockwise until local position indicator points to "C")</p> <p><i>Examiner Cue: When the applicant describes how to close 787E, state: "The valve is fully clockwise."</i></p>	OR	<p>Proceeds to Unit 4 CCW Pump Room and locally closes 4-787F. (Chainfall located on south side of 4B HX - Pull on side of chain that causes valve to rotate clockwise until closed)</p> <p><i>Examiner Cue: When the applicant describes how to close 787F, state: "The valve is fully clockwise."</i></p>
<p>2. Proceeds to Aux. Building Roof (Unit 4 Side - Directly above Unit 4 CCW Pump Room) and locally closes 4-787C. (4th from the north reach rod hand wheel - Turn clockwise until local position indicator points to "C")</p> <p><i>Examiner Cue: When the applicant describes how to close 787C, state: "The valve is fully clockwise."</i></p>		

(C) ELEMENT 2: Split CCW Headers.

STANDARDS: (continued)

3. Proceeds to Aux. Building Roof (Unit 4 Side - Directly above Unit 4 CCW Pump Room) and locally closes 4-787A. (2nd from the north reach rod hand wheel – Turn clockwise until local position indicator points to “C”)

Examiner Cue: When the applicant describes how to close 787A, state: “The valve is fully clockwise.”

4. Proceeds to Unit 4 CCW Pump room and locally closes 4-737C. (4’ Rising Stem Valve located knee-high 3 feet north of 4A HX) Turns valve handle clockwise until valve stem is fully inserted.

Examiner Cue: When the applicant describes how to close 737C, state: “The valve is fully clockwise.”

COMMENTS:

NOTE: For Standard 1, closing either 787E or 787F satisfies the standard.

**SPLIT CCW HEADERS IN RESPONSE
TO LEAKAGE ON 4A CCW HEADER**

(C) ELEMENT 3: Isolate Cask Wash Area CCW Piping

STANDARDS:

1. Proceeds to Unit 4 CCW Pump Room and locally closes 4-835E. (Chainfall located between 4B & 4C HXs at north end -- Pull on side of chain that causes valve to rotate clockwise until closed)

Examiner Cue: When the applicant describes how to close 835E, state: "The valve is fully clockwise."

2. Proceeds to Unit 4 CCW Pump Room and locally closes 4-835F. (Chainfall located west of 4A HX at the north end -- Pull on side of chain that causes valve to rotate clockwise until closed)

Examiner Cue: When the applicant describes how to close 835F, state: "The valve is fully clockwise."

3. Proceeds to Unit 4 CCW Pump Room and locally closes 4-835G. (Chainfall located 5 feet south west of 4B CCW pump -- Pull on side of chain that causes valve to rotate clockwise until closed)

Examiner Cue: When the applicant describes how to close 835G, state: "The valve is fully clockwise."

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(C) ELEMENT 3: Isolate Cask Wash Area CCW Piping

STANDARDS: (continued)

4. Proceeds to Unit 4 CCW Pump Room and locally closes 4-835H. (Chainfall located 10 feet due south of 4B CCW pump -- Pull on side of chain that causes valve to rotate clockwise until closed)

Examiner Cue: When the applicant describes how to close 835H, state: "The valve is fully clockwise."

COMMENTS:

NOTE;

END OF JPM

Job Classification: NPO
JPM Title: Respond to Loss of 120V Vital Instrument Bus 4P08
JPM Number: B.1.k
JPM Type: Normal Path
JPM Rev. Date: 11/06/03
Time Validation: 30 minutes
Time Critical: No
System/KA: 062/062A2.10 (3.0/3.3) pg. 3.6-4

The applicable method(s) of testing which may be used: SIMULATE IN PLANT

Task Standards:

1. Power Restored to 4P08 from BS Inverter per Attachment 1 of 4-ONOP-003.8.

Required Materials:

1. Two way radio (optional communications device).
2. 4-ONOP-003.8 "Loss of 120V Vital Instrument Panel 4P08"
3. "A" Key

References:

1. 4-ONOP-003.8 "Loss of 120V Vital Instrument Panel 4P08"

Terminating Cues:

Alignment completed per Attachment 1 of 4-ONOP-003.8

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Locally Restore Power to 4P08 from the BS Inverter following failure of 4B Inverter

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was at 70% power when the 4B Inverter failed resulting in loss of the 4P08 Vital Instrument Bus. The automatic swap to the CVT also failed.
2. BS Inverter is in Standby and available to power 4P08.

INITIATING CUE:

You are the NPO and you have been given directions from the Unit 4 RCO to restore power to 4P08 using Attachment 1 of 4-ONOP-003.8, "Loss of 120V Vital Instrument Panel 4P08".

RESTORE POWER TO 4P08 FROM BS INVERTER

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is locally restore power to 4P08 from the BS Inverter following failure of 4B Inverter.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 4 was at 70% power when the 4B Inverter failed resulting in loss of the 4P08 Vital Instrument Bus. The automatic swap to the CVT also failed.
2. BS Inverter is in Standby and available to power 4P08.

INITIATING CUE:

You are the NPO and you have been given directions from the Unit 4 RCO to restore power to 4P08 using Attachment 1 of 4-ONOP-003.8, "Loss of 120V Vital Instrument Panel 4P08".

RESTORE POWER TO 4P08 FROM BS INVERTER

ELEMENT 1: Obtain Required Materials.

Time Start: ____

STANDARDS:

1. Obtains copy of 4-ONOP-003.8, "Loss of 120V Vital Instrument Panel 4P08".
2. Goes directly to Attachment 1 as directed by the Unit 4 RCO.

____ SAT

____ UNSAT

Examiner CUE:

Provide the applicant with Attachment 1 of 4-ONOP-003.8.

COMMENTS:

NOTE:

RESTORE POWER TO 4P08 FROM BS INVERTER

(C) ELEMENT 2: Open 4B Inverter System Output breaker. (Attach. 1 Step 1)

STANDARDS:

1. Proceeds to 4B Inverter behind the Control Room. (Att. 1, Step 1.a)
2. Opens (down position) ~~4B~~ Inverter System Output Breaker CB6. (Att. 1, Step 1.b)

____ SAT

____ UNSAT

Examiner CUE: When the applicant identifies breaker CB6 and correctly states how to open it, state "Breaker CB6 is in the DOWN position."

COMMENTS:

NOTE: Standard 2 is critical for this element.

RESTORE POWER TO 4P08 FROM BS INVERTER

(C) ELEMENT 3: Strip 4P08 and 4P23

STANDARDS:

- 1) Proceeds to 4P08/4P23 panels in the Cable Spreading Room (CSR). (Att. 1, Step 2)
- 2) Opens all breakers on 4P08. (SW corner of CSR) (Att. 1, Step 2.a)
- 3) Opens all breakers on 4P23. (South wall of CSR) (Att. 1, Step 2.b)

____ SAT

____ UNSAT

Examiner CUE: When the applicant identifies the breakers to be opened (all) on 4P08 and 4P23 and correctly states how to open them, acknowledge by stating "All breakers on 4P08 and 4P23 are open."

COMMENTS:

NOTE: Standards 2 and 3 are critical for this element.

RESTORE POWER TO 4P08 FROM BS INVERTER

(C)ELEMENT 4: Place BS Inverter in service to 4P08.

STANDARDS:

1. Checks 3P08 not powered by BS Inverter.
(given from Initial Condition #2.)
(Att. 1, Step 3)

____ SAT

Examiner CUE: If needed, direct the applicant to review the Initial Conditions.

____ UNSAT

2. Places the Vital Instrument AC Selector Switch 4P08A at Panel 4P08A (Next to 4P08) to the ALTERNATE SUPPLY STANDBY STATIC INVERTER BS position. (Att. 1, Step 5.a)

Examiner CUE: When the applicant locates and identifies the Vital Instrument AC Selector Switch at panel 4P08A and correctly states how to manipulate it, state "The switch is in the ALTERNATE SUPPLY STANDBY STATIC INVERTER BS position."

COMMENTS:

NOTE: Attachment 1, Step 4 and the CAUTION following Step 4 are not applicable because the BS Inverter is available and not powering 3P08.

NOTE: Standard 2 is critical for this element.

RESTORE POWER TO 4P08 FROM BS INVERTER

(C) ELEMENT 5: Reclose breakers on 4P08 and 4P23.

STANDARDS:

1. Notifies Control Room that components on 4P08 are about to be energized. (Att. 1, Step 6)

Examiner CUE: When the applicant describes the notification, acknowledge the notification as the RCO.

2. Closes the Main breaker at 4P08. (Att. 1, Step 7.a)

Examiner CUE: When the applicant identifies the Main breaker at 4P08 and correctly states how to close it, state "The main breaker is closed."

SAT

UNSAT

**(C) ELEMENT 5: Reclose breakers on 4P08 and 4P23.
(Continued)**

3. Closes the remaining breakers at 4P08 using Attachment 2, allowing 5 seconds between each breaker. (Att. 1, Step 8)
4. Closes the remaining breakers at 4P23 using Attachment 3, allowing 5 seconds between each breaker. (Att. 1, Step 9)

Examiner CUE: When the applicant identifies the need to use Attach. 2 and 3, provide copies of Attach. 2 and 3.

Examiner CUE: When the applicant identifies the breakers to be closed (all) on 4P08 and 4P23 and correctly states how to close them, acknowledge by stating "All breakers on 4P08 and 4P23 are closed."

COMMENTS:

NOTE: Standards 2, 3, and 4 are critical for this element except the 5 second time delay between each breaker closure in Standards 3 and 4.

RESTORE POWER TO 4P08 FROM BS INVERTER

(C) ELEMENT 6: Realign CVT Backup to Spare Inverter

STANDARDS;

1. Proceeds to Inverter Room behind the Control Room.
(Att. 1, Step 10)
2. Unlocks* the Alternate Source Transfer Switch (4Y02B) (NE corner of CSR)
(Att. 1, Step 10.a)
3. Places the Alternate Source Transfer Switch (4Y02B) (NE corner of CSR) to the BACKUP TO SPARE INVERTER BS Position.
(Att. 1, Step 10.a)

Examiner CUE: When the applicant locates and identifies the Alternate Source Transfer Switch (4Y02B) and correctly states how to unlock and manipulate it, state "The switch is unlocked and in the BACKUP TO SPARE INVERTER BS position."

4. Places the Synch Selector Switch inside the BS inverter panel in the NORMAL (down) position.
(Att. 1, Step 11)

Examiner CUE: When the applicant locates and identifies the Synch Selector Switch and correctly states how to manipulate it, state "The switch is in the NORMAL position."

____ SAT

____ UNSAT

(C) ELEMENT 6: Realign CVT Backup to Spare Inverter (Continued)

5. Notifies the RCO that all Breakers are closed.

Examiner CUE: When the applicant makes the notification, acknowledge the notification as the RCO.

COMMENTS:

NOTE: * The lock for the Alternate Source Transfer Switch requires an "A" key, - normally carried by operators.

NOTE: Standards 3 and 4 are critical for this element.

END OF JPM

Control Room JPMs (simulator JPMs)

.....

Job Classification: RO
JPM Title: Transfer to Alternate Hot Leg Recirculation
JPM Number: B.1.8
JPM Type: Alternate Path
JPM Rev. Date: 11/05/03
Time Validation: 15 minutes
Time Critical: NO
System/KA: 006/011EAL11 (4.2/4.2) pg. 4.1-7

The applicable method(s) of testing which may be used: PERFORM IN SIMULATOR

Task Standards:

1. Safety Injection hot leg flow established per EOP-ES-1.4, Attachment 1

Required Materials:

1. Two way radio (optional communications device).
2. 3-EOP-ES-1.4, "Transfer to Hot Leg Recirculation"

References:

1. 3-EOP-ES-1.4, "Transfer to Hot Leg Recirculation"
2. 3-EOP-E-1, "Loss of Reactor or Secondary Coolant"
3. 3-EOP-ES-1.3, "Transfer to Cold Leg Recirculation"

Terminating Cues:

ES-1.4 complete through Attachment 1, Step 7.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Transfer to Hot Leg Recirculation

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is on Cold Leg Recirculation.
2. 12 hours have elapsed since the LOCA initiation.
3. 3A RHR pump is providing flow to the core.
4. No Containment Spray pumps are running.
5. No HHSI pumps are running.
6. Unit 3 HHSI Pumps are aligned to Unit 3 RWST.

INITIATING CUE:

You are the Unit 3 RCO and you have been directed by the Unit Supervisor to establish Hot Leg Recirculation.

TRANSFER TO HOT LEG RECIRCULATION

Examiner Instructions :

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Transfer to Hot Leg Recirculation.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is on Cold Leg Recirculation.
2. 12 hours have elapsed since the LOCA initiation.
3. 3A RHR pump is providing flow to the core.
4. No Containment Spray pumps are running.
5. No HHSI pumps are running.
6. Unit 3 HHSI Pumps are aligned to Unit 3 RWSY.

INITIATING CUE:

You are the Unit 3 RCO and you have been directed by the Unit Supervisor to establish Hot Leg Recirculation.

TRANSFER TO HOT LEG RECIRCULATION

ELEMENT 1: Obtain 3-EOP-ES-1.4.

Time Start: __

STANDARDS:

1. Obtains Control Room Copy of 3-EOP-ES-1.4, "Transfer to Hot Leg Recirculation".

___ SAT

___ UNSAT

COMMENTS:

NOTE: The applicant will use the copy located next to the RCO's desk.

TRANSFER TO HOT LEG RECIRCULATION

ELEMENT 2: Verify CCW/SI system alignment.

STANDARDS:

1. Observes MOV-3-749A & 749B OPEN (red lights on) on VPB. (Step 1)
2. Observes MOV-3-869 CLOSED (green light on) on VPB and attempts to open the MOV using the control switch. (Step 2)

___ SAT

___ UNSAT

COMMENTS:

MOV-3-869 is failed closed as part of the initial simulator alignment.

1

TRANSFER TO HOT LEG RECIRCULATION

(C) ELEMENT 3: Establish Alternate Hot Leg
Recirculation flow path per
Attachment 1

___SAT

STANDARDS:

1. Transitions to Attachment , **Step 1**
(Step 2 RNO)
2. Directs Primary Operator to locally close both
RHR Pump Manual Suction valves 3-752A &
3-752B. (Att. 1, Step 1.a)

___UNSAT

***//F Operator Cue 1: Acknowledge applicant's
direction to close 3-752A & 3-752B and report back
when valves are closed.***

***//F Operator Action: Close 3-752A & 3-752B as
follows:***

***SI PROCESS SYSTEM MIMIC -> RHR PROC. ->
752A -> Set TAMR1V30 = 0.0 -> 752B – Set
TAMR1V31 = 0.0***

3. Opens both MOV-3-750 and MOV-3-751 on VPB.
(Att. 1, Step 1.b)

COMMENTS:

NOTE: Both MOV-3-750 and 751 will successfully
open (red light on).

TRANSFER TO HOT LEG RECIRCULATION

(C) ELEMENT 3 Cont.: Establish Alternate Hot Leg Recirculation flow path per Attachment 1.

STANDARDS:

4. Directs Primary Operator to locally verify RHR HX Manual Outlet Valve, 3-759A, on the operating RHR Train, is OPEN. (Att. 1, Step 2)

!F Operator Cue 2: Acknowledge applicant's direction to verify 3-759A is open. Report back that 3-759A is open.

----- SAT

----- UNSAT

TRANSFER TO HOT LEG RECIRCULATION

stopped.

STANDARDS:

1. Verifies 3A & 3B Containment Spray Pumps in

on

:

NOTE: The CSPs are already in Pull-To-Lock.

____SAT

TRANSFER TO HOT LEG RECIRCULATION

ELEMENT 5: Verify Alternate Hot Leg
Recirculation flow path established
per Attachment 1

SAT

STANDARDS:

1. Verifies one or both valves MOV-3-744A and/or
MOV-3-744B OPEN (red lights on) on VPB.
(Att. 1, Step 4)
2. Verifies MOV-3-863A/B are CLOSED (green
lights on) on VPB. (Att. 1, Step 5)

UNSAT

COMMENTS:

NOTE: MOV-3-744A/744B are already open (red
lights on).

NOTE: MOV-3-863A/863B are already closed
(green lights on).

TRANSFER TO HOT LEG RECIRCULATION

(C) **ELEMENT 6:** Directs Primary Operator to complete Alternate Hot Leg Recirculation alignment.

SAT

STANDARD:

1. Directs Primary Operator to locally open RHR Recirculation Isolation valve, 3-741A.
(Att. 1, Step 6)

UNSAT

//F Operator Cue: Acknowledge applicant's direction to open 3-741A. Report back when 3-741A is open.

***//F Operator Action: Open 3-741A as follows:
741A -> Set TAMR1V29 = 1.0***

COMMENTS:

NOTE:

TRANSFER TO HOT LEG RECIRCUL

ELEMENT 7: Verify Status of Core Exit
 Thermocouples.

STANDARD:

1. CETs are verified stable or decreasing on QSPDS
 screen on VPB or next to RCO desk.
 (Att. 1, Step 7)

SAT

UNSAT

COMMENTS:

NOTE: CETs will be stable or decreasing.

END OF JPM

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-29.
2. Go to RUN. Perform the following:
 - Close MOV-869 on VPB.
 - Verify Unit 3 CSPs switches are in Pull-To-Lock on VPB.
 - Place both Unit 3 HHSI pumps switches in Standby on VPB.
 - Acknowledge annunciators.
 - Freeze the simulator.
3. Insert MOV-869 failure **closed** as follows:
 - Click on Schematics -> SAFETY SYSTEM -> SAFETY INJECTION PROC -> MOV-869 -> Click on TFMVV07C MOV-869 FAIL CLOSED -> Click on TRUE then INSERT.
3. Leave simulator frozen until ready to **begin**.

Job Classification: RO
JPM Title: Respond to Loss of Residual Heat Removal
JPM Number: B.1.b
JPM Type: Alternate Path
JPM Rev. Date: 11/05/03
Time Validation: 30 minutes
Time Critical: NO
System/KA: 005/025 AA1.03 (3.4/3.3) pg. 4.2-17

The applicable method(s) of testing which may be used: PERFORM IN SIMULATOR

Task Standards:

1. Residual Heat Removal flow restored per ONOP-050, "Loss of RHR".

Required Materials:

1. Two way radio (optional communications device).
2. 3-ONOP-050, "Loss of RHR"

References:

1. 3-ONOP-050, "Loss of RHR"
2. 3-ARP-097.CR, "Control Room Annunciator Response"

Terminating Cues:

3-ONOP-050 complete through Step 9 RNO.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Respond to 3A RHR Pump Trip

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in Mode 4 on RHR cooling.
2. RCS Loop temperature is approximately 330°F.
3. RCS pressure is approximately 300 psig.
4. "A" Standby Steam Generator Feed pump is supplying feed to steam generators.
5. 3A RHR pump was providing RIIR cooling but has just now tripped.
6. 3 CCW Heat Exchangers are in service.

INITIATING CUE:

You are the Unit 3 RCO. Respond to the trip of the 3A RIIR pump.

RESPOND TO LOSS OF RHR

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Respond to 3A RHR Pump trip.

I will explain the initial conditions of the task and will provide the initiating cue.
Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in Mode 4 on RHR cooling.
2. RCS Loop temperature is approximately 300°F.
4. RCS pressure is approximately 300 psig.
4. "A" Standby Steam Generator Feed pump is supplying feed to steam generators.
5. 3A RHR pump was providing RHR cooling but has just now tripped.
6. 3 CCW Heat Exchangers are in service.

INITIATING CUE:

You are the Unit 3 RCO. Respond to the trip of the 3A RHR pump.

RESPOND TO LOSS OF RHR

ELEMENT 1: Respond to Annunciator H 6/2, RHR HX HI/LO FLOW

Time Start: _____

STANDARDS:

_____ SAT

1. Refers to 3-ARP-097.CR, H 6/2, and observes the following:
 - a. RHR Flow on FI-3-605 at VPB at zero. (Step 1.a.)
 - b. Demanded positions on HCV-758 and FCV-605 at VPB. (Step 1.b.)
 - c. Position indicating lights for MOV-750/751 and MOV-744A/B at VPB. (Step 1.c.)
 - d. RHR pump ammeter on VPB. (Step 1.e.)
2. Refers to 3-ONOP-050 (after performing ONOP-050 Immediate Actions from memory) for this loss of RHR flow. (Step 2.a.)

_____ UNSAT

COMMENTS:

NOTE: Annunciator H 6/2 will alarm when the 3A RHR pump trips. The applicant may refer to the ARP first or the applicant may perform the Immediate Actions of ONOP-050 without referring to the ARP . The ARP will direct the applicant to ONOP-050.

RESPOND TO LOSS OF RHR

ELEMENT 2: Direct SNPO to locally monitor RHR Pumps (ONOP-050, Step 1)

Time Start: ____

STANDARDS:

____ SAT

1. Using plant page or radio, directs SNPO to perform the following:
 - a. Obtain a radio.
 - b. Monitor 3A RHR pump locally.
 - c. Maintain Communication.
 - d. Stay near RHR pump until flow is restored.

____ UNSAT

1/F Operator Cue: Respond as the SNPO. After 2 minutes, report back on the radio that there is nothing visibly wrong at the 3A RHR pump.

COMMENTS:

NOTE: Step 1 of ONOP-050 should be performed from memory without reference to ONOP-050.

RESPOND TO LOSS OF RHR

ELEMENT 3: Direct Shift Engineer to Monitor RCS Heatup Rate. (Step 2)

STANDARDS:

1. Directs Shift Engineer or available operator to perform the following:
 - a. Plot Core Exit Temps every minute for 5 minutes.
 - b. Calculate RCS heatup rate.
 - c. Determine time to reach RCS saturation.
 - d. Report results to RCO and Shift Manager.
 - e. Repeat every 15 minutes until cooling is restored.

Examiner Cue: Respond as the Shift Engineer. State: "Commencing plot of heatup rate. Will report results every 15 minutes."

COMMENTS:

NOTE: Step 2 of ONOP-050 should be performed from memory without reference to ONOP-050.

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____ UNSAT

RESPOND TO LOSS OF RHR

ELEMENT 4: Checks Loop 3C RHR Pump Suction Stop Valves to be OPEN. (Step 3)

STANDARDS:

1. Observes red light indication for MOV-750 and 751 on VPB.

COMMENTS:

NOTE: Both MOV-3-750 and 751 will be open (red lights on).

NOTE: Step 3 of ONOP-050 should be performed from memory without reference to ONOP-050.

____ SAT

____ UNSAT

RESPOND TO LOSS OF RHR

ELEMENT 5: Obtain ONOP-050 and verify IOAs complete.

STANDARDS:

1. Obtains Control Room Copy of ONOP-050.
2. Reviews Steps 1 through 3 and verifies Immediate Operator Actions complete.

COMMENTS:

NOTE: The applicant will use the Control Room copy of ONOP-050 to perform this element.

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RESPOND TO LOSS OF RHR

Isolation Valves are OPEN. (Step 4)

STANDARDS:

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RESPOND TO LOSS OF RHR

(C) ELEMENT 7: Restore Running RHR Pump.
(Step 5)

STANDARDS:

1. Observes green light indication on both RHR pumps at VPB (neither running). (Step 5)
2. Attempts to Close HCV-758 using potentiometer at VYB. (Step 5 RNO a.)

EXAMINER NOTE: HCV-758 is already closed.

3. Closes HCV-605 by placing its controller at VPB in MAN and depressing its DOWN button until controller demand indicator is at zero. (Step 5 RNO b.)

IF Operator Action: When the applicant has closed FCV-605, click on SCHEMATICS -> SAFETY SYSTEM -> RHR PROCESS -> FCV-605 -> TFMUV155 FCV-605 FAIL AS IS -> TRUE then INSERT.

IF Operator Contingency Action: If the applicant starts the 3B RHR pump without first closing FCV-605, fail FCV-605 closed as follows: click on SCHEMATICS -> SAFETY SYSTEM -> RHR PROCESS -> FCV-605 -> TFMUV15C FCV-605 FAIL CLOSED -> TRUE then INSERT.

SAT

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1

(C) ELEMENT 7: Restore Running RHR Pump.
(Step 5)

STANDARDS: (continued)

4. Observes red light indication for MOV-750 and 751 on VPB (valves open). (Step 5 RNO e.)

5. Attempts to restart 3A RHR pump at VPB using its CS (unsuccessful). (Step 5 RNO d.)

6. Starts 3B RHR pump at VPB using its CS (successful). (Step 5 RNO e.)

7. Attempts to return HCV-605 to AUTO restoring normal flow by depressing its LP button and/or depressing the AUTO button (unsuccessful). (Step 5 RNO g.)

8. After reviewing Step 5 RNO h, determines that HCV-758 does not have to be manipulated because it has remained closed. (Step 5 RNO h.)

COMMENTS:

NOTE: Standards 3 and 6 are critical to this element.

RESPOND TO LOSS OF RHR

ELEMENT 8: Verify 3B RHR pump NOT Cavitating. (Step 6)

STANDARDS:

1. Observes 3B RHR pump amps on VPB – STABLE
2. Observes RHR Flow at VPB stable at abnormally low value.
3. Contacts SNPO & inquires about 3B RHR pump noise level.

____ SAT

____ UNSAT

I/F Operator Cue: When contacted by the applicant, state: "3B RHR pump noise level is normal".

COMMENTS:

NOTE: No indication of RHR pump cavitation.

RESPOND TO LOSS OF RHR

ELEMENT 9: Check for RHR Flow Control Valve Failure. (Step 7)

STANDARDS:

1. Observes FI-605 on VPB at abnormally low value. (Step 7.a)
2. Goes to Step 8. (Step 7 RNO a.)

____ SAT

____ UNSAT

COMMENTS:



RESPOND TO LOSS OF RHR

1

ELEMENT 10: Attempt to control FCV-605
 Manually and Locally. (Step 8)

STANDARDS:

1. Attempts to control FCV-605 manually at VPB by placing controller in MAN and manipulating UP/DOWN Buttons. (Unsuccessful) (Step 8.a)
2. Directs SNPO to perform Step 8 RNO a. of 3-ONOP-050.

____ SAT

____ UNSAT

I/F Operator Cue: Acknowledge directions to perform Step 8 RNO.a. Report back after 1/2 minute that FCV-605 is not responding to local control.

3. Goes to CAUTION before Step 9 and notes the CAUTION is N/A for this condition.

COMMENTS:

NOTE: FCV-605 is failed closed.

RESPOND TO LOSS OF RHR

(C) ELEMENT 11: Restore RHR Cooling Using HCV-758 and MOVs-749A/B. (Step 9)

STANDARDS:

1. Verifies HCV-605 controller at VPB is in MAN and closed (demand meter at zero). (Step 9 RNO a.)
2. Opens HCV-758 using potentiometer at VPB until FI-605 at VPB reads between 3500 and 3700 gpm. (Step 9 RNO b.)
3. Directs field operators to locally open breakers for MOV-749A & MOV-749B: (Step 9 RNO c.)
 - a. NPO: Open breaker 30617 at MCC 3B.
 - b. SNPO: Open breaker 30721 at MCC 3C.

I/F Operator Cue: As the NPO and SNPO, acknowledge applicant's direction to open 30617 and 30721.

***I/F Operator Action: Click on CCW -> MOV-749A -> TCK1A21M MOV-749A MECH CLOSE = T -> FALSE then INSERT.
->MOV-749B -> TCK1917M MOV-749B MECH CLOSE = T -> FALSE then INSERT.***

I/F Operator Cue: As the NPO and SNPO, report back that breakers 30617 and 30721 are open.

___ SAT

___ UNSAT

(C) ELEMENT 11: Restore RHR Cooling Using HCV-758 and MOVs-749A/B. (Step 9)
(continued)

STANDARDS:

4. Directs the SNPO to locally throttle MOVs-749A&B to control RCS cooldown rate while the applicant monitors RCS temperatures on VPB. (Step 9 RNO d.)

I/F Operator Cue: As the SNPO, acknowledge applicant's order to throttle MOVs 749A & B under the applicant's direction.

I/F Operator Action: 748A -> TAKA748A 748A RHR HX A OUTLET -> adjust selected value as directed, then INSERT.

748B -> TAKA748B 748B RHR HX B OUTLET -> adjust selected value as directed, then INSERT. (0.95 maximum for maintaining temp.)

5. Coordinating with the SNPO who is throttling MOVs-749A & B, stabilizes RCS temperatures as seen on Control Room instruments (e.g. QSPDS on VPB or RCO Desk, RCS Hot/Cold recorders on VPA, RHR Temperature Recorder on VPB). (Step 9 RNO d.)

COMMENTS:

NOTE: Standard 1 is not critical to this element.

NOTE: Subsequent Procedure Steps are N/A or are not critical actions.

END OF JPM

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-30.
2. Go to RUN. Fail the operating 3A RHR Pump (prevent restart) as follows:

Click on SCHEMATICS -> MAIN POWER DISTRIBUTION -> 4KV & 480V AC -> 3A 4KV BUS -> BKR 15 (3A RHR PUMP) ->TFM1D3AT 3AA15 3A RHR PP BKR FAIL OPEN -> TRUE then INSERT.
3. Using Console pushbutton, silence, but do not acknowledge Annunciator H 6/2. Freeze simulator until ready to begin.

Job Classification: RO
JPM Title: Respond to FCV-113A Failure During Boration
JPM Number: B.1.c
JPM Type: Alternate Path
JPM Rev. Date: 11/03/03
Time Validation: 20 minutes
Time Critical: NO
System/KA: 004/004 A4.07 (3.9/3.7) pg. 3.1-19

The applicable method(s) of testing which may be used: PERFORM IN SIMULATOR

Task Standards:

1. Calculated Boric Acid Volume has been added.

Required Materials:

1. Two way radio (optional communications device).
2. 0-OP-046, "CVCS - Boron Concentration Control"
3. 3-ONOP-046.4, "Malfunction of Boron Concentration Control System".

References:

1. 0-OP-046, "CVCS - Boron Concentration Control"
2. 3-ONOP-046.4, "Malfunction of Boron Concentration Control System"

Terminating Cues:

1. Calculated Boric Acid Volume has been added.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Borate the RCS to Cold Shutdown Boron Concentration

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODE 3 with all control rods inserted.
2. The boron concentration control system is fully operational.
3. 560 gallons of boric acid need to be added to reach Cold Shutdown Boron Concentration.

INITIATING CUE:

You are the Unit 3 RCO. Borate the RCS to the Cold Shutdown Boron Concentration via the blender.

RESPOND TO FCV-113A FAILURE DURING BORATION

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Borate the RCS to Cold Shutdown Boron Concentration.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODE 3 with all control rods inserted.
2. The boron concentration control system is fully operational.
3. 560 gallons of boric acid need to be added to reach Cold Shutdown Boron Concentration.
4. All procedure prerequisites are satisfied including permission from the Operations' Supervisor obtained.

INITIATING CUE:

You are the Unit 3 RCO. Borate the RCS to the Cold Shutdown Boron Concentration via the blender.

RESPOND TO FCV-113A FAILURE DURING BORATION

ELEMENT 1: Obtain 0-OP-046.

Time Start:

STANDARDS:

1. Obtains Control Room Copy of 0-OP046, "CVCS - Boron Concentration Control".

 SAT

 UNSAT

NOTE: The applicant will use the copy located next to the RCO's desk.

RESPOND TO FCV-113A FAILURE DURING BORATION

STANDARDS:

1. Goes to Section 5.2 of O-OP-046.

____ SAT

of O-OP-046.

Examiner Cue: Respond as the Shift Manager. Sign off as Shift Manager on Page 21.

6. Adjusts Boric Acid Controller FC-3-113A potentiometer to desired flow rate at Console. (Step 5.2.2.2)
7. Places the Reactor Makeup Selector Switch to BORATE position at the Console. (Step 5.2.2.3)
8. Turns the RCS Makeup Control Switch to the START position at the Console, (Step 5.2.2.4)
9. **Verifies** expected boration **rate** by observing FR-3-113 at the Console. (Step 5.2.2.5)

(C) ELEMENT 2: Borate the RCS (Continued)

I/F Operator Action: After the applicant verifies the expected flow rate as described in Step 5.2.2.5, fail FCV-3-113A close as follows:

Click on SCHEMATICS -> CHEMICAL VOLUME CONTROL SYSTEM -> CVCS MAKE-UP -> FCV-113A -> TFBVC17 FCV-113A FAIL CLOSED -> TRUE then INSERT.

COMMENTS:

NOTE:: Standard 6: Pot setting value can be set anywhere at the applicant's discretion.
Most probable choice: 8.0 to allow boration at 40 gpm.

NOTE: Standards 7 and 8 are critical to this element.

RESPOND TO FCV-113A FAILURE DURING BORATION

ELEMENT 3: Use Guidance of 3-ARP-097.CR to Respond to FCV-113A Failed Closed.

STANDARDS:

1. Observes annunciator A2/5 BORIC ACID MAKE-UP FLOW DEVIATION, alarm on VPA.
2. Observes low flow on FR-3-113 at the console.

Observes FCV-113A closed (green light on) at the console.
4. Refers to 3-ARP-097.CR for A2/5.
5. If FCV-113B closes due to flow deviation alarm, reopens FCV-113B at the console per guidance in the ARP or in 0-OP-046.
6. Takes RCS Make-up Control Switch at the console to STOP per guidance in the ARP.
7. ARP.

____ SAT

____ UNSAT

COMMENTS:

NOTE: The applicant may opt to not refer to the ARP but go directly to 3-ONOP-046.4 where the actions discussed in the ARP will be verified in the ONOP.

RESPOND TO FCV-113A FAILURE DURING BORATION

(C) ELEMENT 4: Use Guidance of 3-ONOP-046.4 to Respond to FCV-113A Failed Closed.

STANDARDS:

1. Obtains Control Room Copy of ONOP-046.4.
2. Checks Boric Acid flow rate on FR-113 at the console -- ABNORMAL (Yes - flow went to zero) (Step 1)
3. Verifies RCS Make-up control switch is in mid position at the console with the make-up system stopped. (Places Make-up control switch to STOP if not done previously) (Step 2)
4. Checks Reactor Make-up selector switch in BORATE. (YES) (Step 3)
5. Checks if additional boric acid is needed. (YES) (Step 4)

Examiner Conditional Cue: If the applicant asks the Shift Manager to decide if the remaining boric acid should be added before the problem is fixed, state: "Additional boric acid is needed. Continue."

6. Checks if EA flow rate was less than expected before Make-up system was stopped. (YES - zero) (Step 5)
7. Calculates amount of boric acid remaining to be added. (560 gallons minus amount of acid added before FCV-113A failure:) (Step 6)

SAT

UNSAT

(C) ELEMENT 4: Use Guidance of 3-ONOP-046.4 to Respond to FCV-113A Failed Closed. (continued)

STANDARDS:

8. Adjusts FC-113A pot setting at console to obtain desired flow (Not Needed -- previously set) (Step 7)
9. Resets boric acid totalizer "Limit 1" at console to value equal to 560 gallons minus amount of acid added before FCV-113A failure) (Step 8)
10. Places Reactor **Makeup** selector switch at console to BORATE (Not needed - Already in BORATE) (Step 9)
11. Turns RCS Makeup control switch at console to START. (Step 10)
12. **Checks** one Unit 3 Boric acid pump running at console. (Yes -- **Auto Started**). (Step 11)
13. Checks FCV-113A at console to be open. (No -- FCV-113A failed closed) (Step 12)
14. Places FCV-113A control switch at console to OPEN or places FC-I 13A controller in MAN to establish **desired** flow. Observes green light indication. (Unsuccessful -- FCV-I 13A failed closed)

(C) ELEMENT 4: Use Guidance of 3-ONOP-046.4 to Respond to FCV-113A Failed Closed.
(continued)

COMMENTS:

NOTE: Stopping the MU system in Standard 3 is critical to this element **if** it was not performed earlier.

Standard 11 is critical to this element and it is not critical if a boric acid pump is already running . It ensures one boric acid pump auto-started if it had been stopped following the original FCV-113A failure.

RESPOND TO FCV-113A FAILURE DURING BORATION

**(C) ELEMENT 5 : Establish Emergency Boration Flow
(Step 12 RNO b.)**

STANDARDS:

1. Determines manual control of FCV-113A is not possible. (Step 12 RNO b.)
2. Calculates time required to add the amount of boric acid needed using MOV-350 flow path. (Step 12 RNO b.1)
3. Opens MOV-3-350 at the console. (Step 12 RNO b.3)
4. Monitors FI-3-110 at VPA for the expected flow rate. (Steps 12 RNO b.2)
5. Recognizes flow rate on FI-3-110 at VPA is different from the flow rate calculated in Step 12 RNO b.1 and recalculates time required to add amount of boric acid needed.

Examiner CUE: At the examiner's discretion, when a satisfactory amount of boric acid has been added, state: "The total amount of boric acid has been added."

6. When the total amount of boric acid is added, stops the boric acid transfer pump and closes MOV-3-350 at the console.

____ SAT

____ UNSAT

(C) ELEMENT 5 : Establish Emergency Boration Flow
(Step 12 RNO b.) (continued)

COMMENTS:

NOTE: Calculation in Standard 2 will be based on remaining boric acid to added (known quantity) and the anticipated flow rate with one boric acid pump and two charging pumps running (estimated quantity). If the applicant still needs to add 540 gallons of boric acid and chooses a flow rate of 60 gpm, the total time will be 9 minutes.

NOTE: Because the calculation made in Step 2 will prove to be inaccurate, the applicant will need to recalculate after observing a different flow rate when MOV-350 is opened. For example, if the observed flow rate is 85 gpm instead of the expected 60 gpm, the time needed for boration is shortened to 540 divided by 85 which equals 6.3 minutes total emergency boration time.

NOTE: Standards 3 and 6 are critical to this element.

END OF JPM

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-3.
2. Go to RUN. Trip the reactor and acknowledge alarms.
3. Reset boric **acid** totalizer (Limit 1) to 200 gallons.
4. **Freeze** simulator until start of **exam**,

Job Classification: RO
JPM Title; Respond to a Pressurizer Pressure Control Malfunction
JPM Number: B.1.d
JPM Type; Alternate Path
JPM Rev. Date: 11/03/03
Time Validation: 10 minutes
Time Critical: NO
System/KA: 010/027 AA1.01 (4.0/3.9) pg. 4.2-20

The applicable method(s) of testing which may be used: PERFORM IN SIMULATOR

Task Standards:

1. Actions Performed to stabilize pressure per 3-ONOP-041.5, "Pressurizer Pressure Control Malfunction"
2. Reactor tripped when pressure decreases below 2000 psig.

Required Materials:

1. 3-ONOP-041.5, "Pressurizer Pressure Control Malfunction"

References:

1. 3-ONOP-041.5, "Pressurizer Pressure Control Malfunction"
2. 3-ARP 097.CR, "Control Room Annunciator Response"

Terminating Cues:

1. Reactor is tripped in response to uncontrolled pressure reduction.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Respond to Plant Conditions

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed. The simulator will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODE 1 at 75% power.
2. All plant systems are fully operational.

INITIATING CUE:

You are the Unit 3 RCO. Respond to plant conditions.

RESPOND TO PRESSURIZER PRESSURE CONTROL MALFUNCTION

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Respond to Plant Conditions.

I will explain the initial conditions of the task. The simulator will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODF 1 at 75% power.
2. All plant systems are fully operational.

INITIATING CUE:

You are the Unit 3 RCO. Respond to plant conditions.

RESPOND TO PRZ. PRESS. CONTROL MALFUNCTION

ELEMENT 1: Respond to Annunciator A 4/1,
PORV / SAFETY VALVE OPEN
and A 9/2, PZR CONTROL HI/LO
PRESS

Time Start: ____

____ SAT

STANDARDS

____ UNSAT

A 4/1:

1. Checks PORV position indication on console (PCV-455C shows red light indication.) (Step 1.a)
2. Checks TEC relief line monitors behind RCO desk, lit. (Red diodes will be lit while PRV is open.) (Step 1.c)
3. Checks RCS pressure decreasing on VPA. (RCS pressure will be decreasing rapidly.) (Step 1.d)
4. Refers to 3-ONOP-041.5 (after performing ONOP-041.5 Immediate Actions from memory) for this PT-444 failure. (Step 2.a.)

A9/4:

1. Checks PI-3-444 and PI-3-445 on VPA to be >2310 psig or <2185 psig. (Step 1.a.)
2. Refers to 3-ONOP-041.5 (after performing ONOP-041.5 Immediate Actions from memory) for this PT-444 failure. (Step 2.a.)

ELEMENT 1: Respond to Annunciator A 4/1,
PORV / SAFETY VALVE OPEN
and A 9/2, PZR CONTROL HI/LO
PRESS (Continued)

COMMENTS:

NOTE: **Annunciators A 4/1 and A 9/2 and A 9/5** will alarm when PT-444 fails high. Due to the urgency of the associated pressure reduction, the applicant may not refer to the ARP book, but will most likely perform the Immediate Actions of ONOP-041.5 without referring to the ARP. Note that the ARP book directs the applicant to ONOF-041.5 for all three annunciators.

RESPOND TO PRZ. PRESS. CONTROL MALFUNCTION

(C) ELEMENT 2: Perform Immediate Actions to Stabilize Pressure.

Time Start: ____

STANDARDS:

SAT

1. Compares PI-444 with PI-445, **PI-455**, PI-456, and/or PI-457 on VPA and determines PT-444 has failed high. (Step 1)
2. Closes PCV-3-455C or MOV-536 using its control switch at the console. (Step 1 RNO a.1)
3. Takes manual control of PC-444J at the console by depressing its MAN button and drives the controller output toward zero by depressing its DOWN button. (Step 1 RNO a.2)
4. Recognizes manual control of PC-444J is not effective. Takes manual control of pressurizer spray valves and heaters at the console as follows: (Step 1 RNO a.3)
 - a. Depresses the MAN button for controller PCV-3-455A and attempts to drive the controller output toward zero by depressing its DOWN button. (unsuccessful)
 - b. Depresses the MAN button for controller PCV-3-455B and drives the controller output toward zero by depressing its DOWN button. (successful)
 - c. Verifies 3A and 3B Backup Heater Control Switches to ON at the console.

UNSAT

(C) ELEMENT 2: Perform Immediate Actions to Stabilize Pressure.

STANDARDS: (continued)

5. Checks PORVs Closed by observing green light indication on console. (PORVs are closed based on earlier actions) (Step 2)
6. Checks PZR Spray valves closed by observing demand meters on controllers on console. (PCV-3-455A demand meter reads 100%. PCV-3-455B demand meter should read 0% based on earlier actions.) (Step 3)
7. With pressure less than normal and decreasing, verifies at the console PCV-3-455A is in MAN and closed (NO - demand is 100%), PCV-3-455B is in MAN and closed (YES - demand is 0%) and CV-3-311 is closed (green light on). (Step 3 RNO a.)

Examiner Cue: The applicant may ask the BOP operator to verify spray valve PCV-3-455A is open as seen on ERDADS. If asked, the BOP should monitor the RCS screen on ERDADS, and should state: "PCV-455A is open."

(C) ELEMENT 2: Perform Immediate Actions to Stabilize Pressure. (continued)

COMMENTS:

NOTE: When the applicant drives PC-444J toward zero, PCV-455B controller will follow it. PCV-455A will remain at 100% output.

NOTE: Standard 2 is critical for this element. Standard 3 or Standard 4.b is critical depending on which step is performed first to close spray valve, PCV-455B.

NOTE: Standards 1 through 7 are Immediate Action steps and should be performed from memory.

RESPOND TO PRZ. PRESS. CONTROL MALFUNCTION

(C) ELEMENT 3: Obtain 3-ONOP-041.5 and continue recovery/mitigating actions.

STANDARDS:

1. Obtains Control Room copy of 3-ONOP-041.5.
2. Reviews Steps 1 through 3 to determine Immediate Actions have been performed correctly.
3. Reviews Fold-Out Page Items. Notes that FO page item # 2 applies.

Monitors RCS/Pressurizer pressure on VPA and VPB (QSPDS). If pressure is decreasing uncontrollably and is approaching 2000 psig, trips the reactor at the console. If there is significant margin to 2000 psig, may continue in ONOP-041.5 while monitoring pressure reduction before tripping the reactor.

COMMENTS:

NOTE: Tripping the reactor prior to pressure reaching 1835 psig is the critical standard for this element.

END OF JPM

____ SAT

____ UNSAT

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-16.
2. Click on SCHEMATICS -> REACTOR -> ROD CONTROL ROD POSITION -> ROD SPEED TO LOGIC CABINET -> RXB -> TFL2XBSE RXB FAIL AS IS -> TRUE then INSERT -> TFL2XBSE RXB FAIL AS IS -> FALSE enter conditional IML2CRXT OR IMLBRXT then INSERT -> RXA -> TFL2XASE RXA FAIL AS IS -> TRUE then INSERT -> TFL2XASE RXA FAIL AS IS -> FALSE enter conditional IML2CRXT OR IMLBRXT then INSERT.
3. Click on SCHEMATICS -> REACTOR COOLANT SYSTEM -> PRESSURIZER -> P444 -> PT-444 -> TFH1TU44 PT 444 TRANSMITTER FAIL HIGH -> TRUE then PENDING -> PC-444G -> TFH244GH PC444G FAIL HIGH -> TRUE then PENDING.
4. Place simulator in run.
5. When the applicant and examiner are ready, from PENDING IA SUMMARY WINDOW Insert TFH1TU44 =T, then insert TFH244GH = T.

Job Classification: RO
JPM Title: Place N-44 Power Range Drawer in Service
JPM Number: B.1.e
JPM Type: Normal Path
JPM Rev. Date: 11/06/03
Time Validation: 15 minutes
Time Critical: NO
System/KA: 015/015 A4.02 (3.9/3.9) pg. 3.7-8

The applicable method(s) of testing which may be used: *PERFORM IN SIMULATOR*

Task Standard?:

1. Power Range N-44 returned to service.
2. Rods placed to MANUAL following N-44 failure.

Required Materials:

1. 3-OSP-059.4, "Power Range Nuclear Instrumentation Analog Channel Operational Test"

References:

1. 3-OSP-059.4, "Power Range Nuclear Instrumentation Analog Channel Operational Test"
2. 3-ONOP-028, "Reactor Control System Malfunction"

Terminating Cues:

1. Control Rods Placed to MANUAL.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Place ~~Power~~ Range N-44 in Service

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODE 1 at 100% power.
2. All plant systems are fully operational except N-44 which is ready to be returned to service.

INITIATING CUE:

You are the Unit RCO.

The Unit Supervisor has directed you to complete 3-OSP-059.4, "Power Range Nuclear Instrumentation Analog Channel Operational Test" beginning at step 7.6.23.

PLACE POWER RANGE N-44 IN SERVICE

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Place Power Range N-44 in Service.

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in MODE 1 at 100% power.
2. All plant systems are fully operational except N-44 which is ready to be returned to service.

INITIATING CUE:

You are the Unit RCO.

The Unit Supervisor has directed you to complete 3-OSP-059.4, "Power Range Nuclear Instrumentation Analog Channel Operational Test" beginning at step 7.6.23.

PLACE POWER RANGE N-44 IN SERVICE

(C)ELEMENT 1: Place N 44 in Service.

Time Start:

STANDARDS:

- | | | |
|----|--|-------|
| 1. | Places the N-44 OPERATION SELECTOR switch at N-44 Drawer "B" to NORMAL. (Step 7.6.23.1) | SAT |
| 2. | Verifies CHANNEL ON TEST light at N-44 Drawer "B" is OFF (Step 7.6.23.2) | UNSAT |
| 3. | Verifies Annunciator B-7/3, NIS CHANNEL IN TEST, is OFF (Step 7.6.24) | |
| 4. | Verifies DROPPED ROD ROD STOP light at N-44 Drawer "A" is OFF (Step 7.6.25.1) | |
| 5. | Places the DROPPED ROD MODE switch at the N-44 Drawer "A" to the NORMAL position. (Step 7.6.25.2) | |
| 6. | Verifies the N-44 ROD DROP IN BYPASS status light on VPA is OFF (Step 7.6.26) | |
| 7. | Verifies Annunciator B-8/4, NIS TRIP BYPASS is OFF. (Step 7.6.27) | |
| 8. | Places the COMPARATOR CHANNEL DEFEAT switch at the Comparator and Rate Drawer to NORMAL. (Step 7.6.28.1) | |
| 9. | Verifies the COMPARATOR DEFEAT lamp at the Comparator and Rate Drawer is OFF. (Step 7.6.28.2) | |

ELEMENT 1: Place N-44 in Service. (continued)

STANDARDS:

10. Places the ROD STOPBYPASS switch associated with N-44 at the Miscellaneous Equipment Drawer to the OPERATE position. (Step 7.6.29.1)
11. Places the POWER MISMATCH BYPASS switch associated with N-44 at the Miscellaneous Equipment Drawer to OPERATE. (Step 7.6.29.2)
12. Places the UPPER SECTION comparator defeat switch at the Miscellaneous Equipment Drawer to the NORMAL position. (Step 7.6.30.1)
13. Verifies the Upper Section CHANNEL DEFEAT lamp at the Miscellaneous Equipment Drawer is OFF. (Step 7.6.30.1.a)
14. Places the LOWER SECTION comparator defeat switch at the Miscellaneous Equipment Drawer to the NORMAL position. (Step 7.6.30.2)
15. Verifies the Lower Section CHANNEL DEFEAT lamp at the Miscellaneous Equipment Drawer is OFF. (Step 7.6.30.2.a)

EXAMINER CUE: State "Place control rods in auto".

16. Places the Rod Motion Control Selector switch at the console to the AUTO position. (Step 7.6.31)

COMMENTS:

NOTE: Standards 1, 5, 8, 10, 11, 12, 14 are critical to this Element.

PLACE POWER RANGE N-44 IN SERVICE

I/F Operator: When the applicant indicates that N-44 has been returned to service, fail Power Range Channel N-44 HIGH as follows: Click on SCHEMATICS -> REACTOR -> INCORE/EXCORE DETECTORS -> DETECTOR #8 LOWER HALF -> TFN1P4BH NE301L44 LOWER DETECTOR FAIL HIGH -> TRUE then INSERT.

(C) ELEMENT 2: Respond to N-44 Failure In Accordance with ONOP-028 (or ONOP-059.8.)

STANDARDS:

1. Identifies failed NIS channel as N-44 by comparison to other Power Range channels at the console indicators or at the NIS drawers behind the RCO.
2. Places the Rod Motion Control Selector switch at the console to the MAN position prior to exceeding the Rod Insertion Limits.

COMMENTS:

NOTE: Standard 2 is critical to this Element.

END OF JPM.

SAT

UNSAT

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-1. Place Control Rods in MANUAL,
2. Realign the following **N-44** switches **as follows**:

DROPPED ROD MODE switch to BYPASS position.
N-44 ROD STOP BYPASS switch to BYPASS position.
UPPER SECTION comparator defeat switch to N-44.
LOWER SECTION comparator defeat switch to N-44.
POWER MISMATCH BYPASS switch to N-44.
COMPARATOR CHANNEL DEFEAT switch to N-44.
N-44 OPERATION SELECTOR to DET B
3. Acknowledge alarms & freeze the simulator until start of the exam.
4. When the **examiner** is ready, go to RUN.

Job Classification: RO
JPM Title: Shutdown 2 AFW Pumps with Start Signals Present While in the EOPs
JPM Number: B.1.f
JPM Type: Alternate Path
JPM Rev. Date: 11/05/03
Time Validation: 25 minutes
Time Critical: NO
System/KA: 061/061A2.04 (3.4/3.8) pg. 3.4-47

The applicable method(s) of testing which may be used: PERFORM **IN** SIMULATOR

Task Standards:

1. "C" AFW Pump shall be shutdown followed by "B" AFW Pump in accordance with Section 6.2 of 3-OP-075. OR "B" AFW Pump shall be shutdown followed by "C" AFW Pump in accordance with Section 6.2 of 3-OP-075.

Required Materials:

1. 3-OP-075, "Auxiliary Feedwater System"

References:

1. 3-OP-075, "Auxiliary Feedwater System"
2. 3-EOP-ES-0.1, "Reactor Trip Response"

Terminating Cues:

The "C" AFW Pump and the "B" AFW Pump have been shutdown.

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Perform Section 6.2 of 3-OP-075, "Auxiliary Feedwater System"

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 experienced a Loss of Off Site Power.
2. All AFW pumps automatically started and have been running for nearly 1 hour.
3. 3-EOP-ES-0.1, "Reactor Trip Response" is in progress.
4. Plant Conditions require continued use of the AFW System for S/G Feed.

INITIATING CUE:

You are the Unit 3 BOP and you have been directed by the Unit Supervisor to implement Section 6.2 of 3-OP-075, "Auxiliary Feedwater System."

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is perform Section 6.2 of 3-OP-075, "Auxiliary Feedwater System."

I will explain the initial conditions of the task and will provide the initiating cue. Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 experienced a Loss of Off Site Power.
2. All AFW pumps automatically started and have been running for nearly 1 hour.
3. 3-EOP-ES-0.1, "Reactor Trip Response" is in progress.
4. Plant Conditions require continued use of the AFW System for S/G Feed.

INITIATING CUE:

You are the Unit 3 BOP and you have been directed by the Unit Supervisor to implement Section 6.2 of 3-OP-075, "Auxiliary Feedwater System".

<u>SHUTDOWN AFW PUMPS WHILE IN THE EOPS</u>	
<p><u>ELEMENT 1:</u> Obtain 3-OP-075.</p> <p><u>STANDARDS:</u></p> <ol style="list-style-type: none"> 1. Obtains Control Room Copy of 3-OP-075, "Auxiliary Feedwater System". 2. Goes to Section 6.2, "Shutdown of AFW Pump(s) During Emergency Plant Operations". 3. Notes the CAUTION prior to Step 6.2.1 and Initial Conditions are satisfied based on adequate S/G levels and the given Initial Conditions. <p><u>COMMENTS:</u></p> <p><u>NOTE:</u> The applicant will use the copy located next to the RCO's desk.</p>	<p>Time Start: ____</p> <p>____ SAT</p> <p>____ UNSAT</p>

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

(C) ELEMENT 2: Verify AFW Actuation Signals Reset.

STANDARDS:

1. Proceeds behind VPB and observes white light status on 3QR50 and 3QR51 (white lights on) (Step 6.2.2.1)

____ SAT

Examiner CUE (If Needed): State: "I acknowledge the white lights are on. Continue with the procedure."

____ UNSAT

2. Resets active AFW Actuation signals as follows:
- Observes red AMSAC ACTUATED light illuminated on VPA and depresses AMSAC RESET PB on VPA. (Step 6.2.2.2.a)
 - Observes red flags on 3A and 3B Steam Generator Feed Pumps control switches and turns both control switches to STOP. (Step 6.2.2.2.c)

COMMENTS:

NOTE: Standard 2 is critical to this element.

NOTE: Both white lights will initially be on due to 2 AFW actuation **signals** not reset.

NOTE: Following reset of AMSAC and the SGFP switches, applicant may opt to go behind VPB again to observe white lights which should be out.

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

(C) ELEMENT 3: Shutdown AFW Pump in Train 2.

STANDARDS:

_____ SAT

1. Reads Step b.2.2.3 , notes it is N/A because Train 2 has 2 operating AFW Pump.
(Step 6.2.2.3)

----- UNSAT

2. Reviews CAUTION (N/A for this event) and NOTES prior to Step 6.2.2.4 and notes recommendation that "C" AFW pump be stopped first.

Examiner NOTE: If applicant chooses to stop "C" AFW pump first, continue with Standard 3: If "B" pump chosen first, go to Element 6.

3. Places "C" AFW Pump T&T valve (MOV-6429C) to CLOSE. (green light on/red light off at Console)
(Step 6.2.2.4)

4. Reviews Step 6.2.2.5.a, CAUTION and NOTE prior to Step 6.2.2.5.b and Step 6.2.2.5.b and notes that all are N/A.

5. Reviews Step 6.2.2.6, notes that it **docs** apply because S/G levels are >15% and stable with AFW flow controllers dialed back to zero. Reviews CAUTION and NOTES prior to Step 6.2.2.7.

COMMENTS:

NOTE: Standard 3 is critical to this element.

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

(C) ELEMENT 4: Shutdown "B" AFW Pump in Train 2,
(Assuming "C" pump was stopped
first)

SAT

STANDARDS

Examiner CUE:

When the applicant reads Step 6.2.2.7 on Page 20, tell the applicant; Stop the "B" AFW pump.

UNSAT

1. Directs field operators to stand by breakers 4D01-28 (NPO) and 30833 (SNPO) in preparation to isolate steam flow to the "B" AFW pump.
(Step 6.2.2.7.a)

I/F Operator Cue 1: Acknowledge applicant's direction to standby breakers. Respond as field operators that you are standing by the breakers.

2. Places control switches for MOV-1403 and MOV-1404 at the Console to CLOSE.
(green light on, red light off)
(Step 6.2.2.7.b)

Continued

(C) ELEMENT 4: Shutdown "B" AFW Pump in Train 2.
(continued)

STANDARDS

3. When MOV-1403 and MOV-1404 display green light-only indication, directs field operators to open breakers 4D01-28 and 30833.
(Step 6.2.2.7.c)

/F Operator Cue 2: Acknowledge applicant's direction to open breakers.

***/F Operator Action: Open breakers as follows:
Go to SCHEMATICS -> FEEDWATER -> AUX F/W
STEAM -> MOV-1403 -> TCF5MB28 MOV-1403
BREAKER 4D01-28 MECH CONT ->FALSE then
INSERT***

***MOV_1404 ->TCF5M527 MOV-1404 BREAKER
MECH CONTROL -> FALSE then INSERT.***

/F Operator Cue 3: Respond as field operators that you have opened the breakers.

COMMENTS:

NOTE: Standard 2 is critical to this element.

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

ELEMENT 5: Reset "B" AFW pump governor.
(Assuming "C" pump was stopped first)

____ SAT

STANDARDS:

1. Requests field operator be dispatched to AFW Pump cage to perform Step 6.2.2.7.d to reset "B" AFW pump governor.

____ UNSAT

Examiner CUE:

When the applicant requests the field operator be dispatched, acknowledge the request and state: The field operator will perform Step 6.2.2.7.d.

COMMENTS:

NOTE:

END OF JPM
(If "C" AFW Pump was Stopped First)

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

**(C) ELEMENT 6: Shutdown AFW Pump in Train 2.
(To be performed if "B" AFW
Pump is stopped first)**

SAT

STANDARDS:

If applicant chooses to stop "B" AFW pump first:

UNSAT

1. Places "B" AFW Pump T&T valve to CLOSE.
(green light on/red light off at Console)
(Step 6.2.2.4)
2. Reviews Step 6.2.2.5.a, CAUTION and NOTE
prior to Step 6.2.2.5.b and Step 6.2.2.5.b and notes
that all are N/A.
3. Reviews Step 6.2.2.6, notes that it does apply
because S/G levels are >15% and stable with AFW
flow controllers dialed back to zero. Reviews
CAUTION and NOTES prior to Step 6.2.2.7.

COMMENTS:

NOTE: Standard 1 is critical to this element.

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

(C) ELEMENT 7: Shutdown "C" AFW Pump in Train 2.
(Assuming "B" pump was stopped first)

___ SAT

STANDARDS

Examiner CUE:

When the applicant reads Step 6.2.2.7 on Page 20, tell the applicant; Stop the "C" AFW pump.

___ UNSAT

1. Directs field operators to stand by breakers 4D01-28 (NPO) and 30533 (SNPO) in preparation to isolate steam flow to the "C" AFW pump.
(Step 6.2.2.7.a)

I/F Operator Cue 1: Acknowledge applicant's direction to standby breakers. Respond as field operators that you are standing by the breakers.

2. Places control switches for MOV-1403 and MOV-1404 at the Console to CLOSE.
(green light on, red light off)
(Step 6.2.2.7.b)

Continued

(C) ELEMENT 7: Shutdown "C" AFW Pump in Train 2.
(continued)

STANDARDS

3. When MOV-1403 and MOV-1404 display green light-only indication, directs field operators to open breakers 4D01-28 and 30833.
(Step 6.2.2.7.c)

I/F Operator Cue 2: Acknowledge applicant's direction to open breakers.

***I/F Operator Action: Open breakers as follows:
Go to SCHEMATICS -> FEEDWATER -> AUX F/W STEAM ->MOV-1403 -> TCF5MB28 MOV-1403 BREAKER 4D01-28 MECH CONT ->FALSE then INSERT
MOV-1404 ->TCF5M527 MOV-1404 BREAKER MECH CONTROL -> FALSE then INSERT.***

I/F Operator Cue 3: Respond as field operators that you have opened the breakers.

COMMENTS:

NOTE: Standard 2 is critical to this element.

SHUTDOWN AFW PUMPS WHILE IN THE EOPS

(C) ELEMENT 8: Reset "C" AFW pump governor.
(Assuming "B" pump was stopped first)

STANDARDS:

1. Requests field operator be dispatched to AFW Pump cage to perform Step 6.2.2.7.d to reset "C" AFW pump governor.

____ SAT

____ UNSAT

Examiner CUE:

When the applicant requests the field operator be dispatched, acknowledge the request and state: The field operator will perform Step 6.2.2.7.d.

COMMENTS:

NOTE:

END OF JPM

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-80.
2. Click on SCHEMATICS -> NO-OP -> Click on red squares in UNFREEZE Column except REACTOR & REACTOR COOLING models to unfreeze **the frozen models.**
3. Run AFW flow to maximum to increase S/G levels to > 25%.
4. When S/G levels are >25%, reduce AFW flow to zero.
5. Freeze simulator. Leave frozen until ready to begin.

Job Classification: RO
JPM Title: Restore Power to 3D 4KV Bus
JPM Number: B.1.g
JPM Type: Normal Path
JPM Rev. Date: 11/05/03
Time Validation: 10 minutes
Time Critical: NO
System/KA: 062/062A2.05 (2.9/3.3) pg. 3.6-4

The applicable method(s) of testing which may be used: PERFORM IN SIMULATOR OR SIMULATE IN CONTROL ROOM

Task Standards:

1. Power Restored to 3D 4KV Bus and 3C CCW Pump Restarted In Accordance with 3-ONOP-004.5

Required Materials:

1. Two way radio (optional communications device).
2. 3-ONOP-004.5, "Loss of 3D 4KV Bus".

References:

1. 3-ONOP-004.5, "Loss of 3D 4KV Bus".

Terminating Cues:

3C CCW Pump Started.

NOTE: *Green lettering indicates Examiner Cues and Instructions to be used only if the JPM is administered in the Control Room.*

**Initial Conditions Sheet
(To be given to Applicant)**

TASK:

Restore Power to 3D 4KV Bus

DIRECTIONS:

The evaluator will explain the initial conditions of the task to be performed will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in Mode 4 on RHR cooling.
2. RCS Loop temperature is approximately 300°F
3. RCS pressure is approximately 300 psig.
4. 3A RHR pump is providing RHR cooling.
5. 3B CCW Pump is Out-of-Service. 3A and 3C CCW Pumps are running.
6. 3A and 3B ICW Pumps are running.
7. All three CCW Heat Exchangers are in service.

INITIATING CUE:

You are the Unit 3 RCO.
Breaker 3AB19, Feeder to 4KV Bus 3D, has just failed open.
Restore Power to 3D 4KV Bus

RESTORE POWER TO 3D 4KV BUS

Examiner Instructions:

Hand the Initial Conditions Sheet to the Applicant and read the following:

The task you are to perform is Restore Power to 3D 4KV Bus.

I will explain the initial conditions of the task and will provide the initiating cue.
Ensure you indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

1. Unit 3 is in Mode 4 on RHR cooling.
2. RCS Loop temperature is approximately 300°F
3. RCS pressure is approximately 300 psig.
4. 3A RHR pump is providing RHR cooling.
5. 3B CCW Pump is Out-of-Service. 3A and 3C CCW Pumps are running.
6. 3A and 3B ICW Pumps are running
7. All three CCW Heat Exchangers are in service.

INITIATING CUE:

You are the Unit 3 RCC.
Breaker 3AB19, Feeder to 4KV Bus 3D has just failed open.
Restore Power to 3D 4KV Bus.

Examiner NOTE:

The Examiner Cues shown in red are to be used if the JPM is performed in the Simulator.

Examiner NOTE:

If the JPM is performed in the Control Room, emphasize that this is a SIMULATE JPM. The applicant may not manipulate any Control Room switches.

RESTORE POWER TO 3D 4KV BUS

ELEMENT 1: Obtain 3-ONOP-004.5.

Time Start: ____

STANDARDS:

1. Obtains control room copy of 3-ONOP-004.5, "Loss of 3D 4K.VBus".

SAT

UNSAT

Examiner Cue: When the applicant identifies where to obtain ONOP-004.5 in the Control Room, hand the applicant a copy of ONOP-004.5.

COMMENTS:

NOTE: The applicant will use the copy located next to the RCO's desk (If performed in simulator).

RESTORE POWER TO 3D 4KV BUS

ELEMENT 2: Prepare to Restore Power to 3D 4KV Bus

STANDARDS:

1. Checks 3D 4KV Bus Lockout Relay reset at VPA by observing blue light not flashing. (Lockout Relay is reset.) (Step 1)

SAT

UNSAT

Examiner Cue: When the applicant correctly identifies

Examiner Cue: When the applicant correctly identifies breaker switch 3AD05 at VPA and the need to determine if the breaker is open, state: "The green light is illuminated. The red light is out."

ELEMENT 2: Prepare to Restore Power to 3D 4KV Bus

STANDARDS: (continued)

5. Opens 3C CCW pump breaker, 3AD04, using control switch at VPB. Observes green light indication when 3AD04 is opened. (Step 3.b)

Examiner Cue: When the applicant correctly identifies breaker switch 3AD04 at VPB and the need to turn the control switch to STOP and look for green light indication, state: "The control switch has been turned to stop. The green light is illuminated. The red light is out."

6. Consults with Shift Manager to determine desired source of power for 3D 4KV Bus. (Step 4.b)

Examiner Cue: As the Shift Manager, state: "Repower 3D Bus from 3A Bus."

Examiner Cue: As the Shift Manager, state: "Repower 3D Bus from 3A Bus."

COMMENTS:

NOTE:

RESTORE POWER TO 3D 4KV BUS

(C) ELEMENT 3: Re-energize 3D 4KV Bus from 3A 4KV Bus.

STANDARDS:

1. Takes control switch for 3AB19 to TRIP at VPA (Note 3AB19 is already open.). (Step 5.a)

Examiner Cue: When the applicant correctly identifies breaker switch 3AB19 at VPA and the need to turn the control switch to TRIP and look for green light indication, state: "The control switch has been turned to trip. The green light is illuminated. The red light is out."

2. Opens breaker 3AD06 by taking its control switch to TRIP at VPA. Observes green light status. (Step 5.b)

Examiner Cue: When the applicant correctly identifies breaker switch 3AD06 at VPA and the need to turn the control switch to TRIP and look for green light indication, state: "The control switch has been turned to trip. The green light is illuminated. The red light is out."

3. Closes breaker 3AD01 by taking its control switch to CLOSE at VPA. Observes red light status. (Step 5.c)

Examiner Cue: When the applicant correctly identifies breaker switch 3AD01 at VPA and the need to turn the control switch to CLOSE and look for red light indication, state: "The control switch has been turned to close. The red light is illuminated. The green light is out."

SAT

UNSAT

(C) ELEMENT 3: Re-energize 3D 4KV Bus from 3A 4KV Bus.

STANDARDS: (continued)

4. Closes breaker 3AA17 by taking its control switch to CLOSE at VPA. Observes red light status. (Step 5.d)

Examiner Cue: When the applicant correctly identifies breaker switch 3AA17 at VPA and the need to turn the control switch to CLOSE and look for red light indication, state: "The control switch has been turned to close. The red light is illuminated. The green light is out."

COMMENTS:

: NOTE: Standards 2, 3, and 4 are critical to this element.

: NUTE: **Switch** manipulations must be performed in the order presented in Step 5 of ONOP-004.5 to satisfy interlocks to allow 3AD01 and 3AA17 to close.

RESTORE POWER TO 3D 4KV BUS

(C) ELEMENT 4 : Restart 3C CCW Pump.

STANDARDS:

1. Verifies 3D 4KV Bus is aligned to 3A 4KV Bus by observing red light indication on 3AD01 and 3AA17 at VPA. [Step 8)

SAT

UNSAT

Examiner Cue: When the applicant correctly identifies the red light indication on breaker switches 3AD01 and 3AA17, state: "The red lights are illuminated on 3AD01 and 3AA17".

2. Reviews CAUTION prior to Step 9 and determines it is N/A for this condition.
3. Directs NPO to locally verify no breaker targets exist on 3D 4KV Bus Breakers. (Step 9)

I/F Operator Cue: Respond as the NPO. After 1/2 minute, report back that there are no breaker targets on the 3D 4KV Bus Breakers.

Examiner Cue: When the applicant correctly identifies how he will contact the NPO, state: "There are no breaker targets on the 3D 4KV Bus Breakers".

(C) ELEMENT 4 : Restart 3C CCW Pump.

STANDARDS: (continued)

4. Review CAUTIONS prior to Step 10 and recognizes:
 - a. that starting the 3C CCW pump will not violate the first requirement (N-1 Rule) because 3 CCW Heat Exchangers are in service.
 - b. the second requirement (Rule of 5) will not be violated because only 3 loads (NCCs + 2 RHR heat exchangers) will exist on the CCW header at once.
 - c. the third CAUTION is N/A for this condition,
5. After getting Shift Manager permission, restarts the 3C CCW pump at VPB by placing its control switch to START. Observes red light and amps indication. (Step 10)

Examiner Cue: As the Shift Manager, state: "Restart 3C CCW Pump."

Examiner Cue: As the Shift Manager, state: "Restart 3C CCW Pump."

Examiner Cue: When the applicant correctly identifies breaker 3AD04 switch at VPB and the need to turn the control switch to START and look for red light indication, state: "The control switch has been turned to start. The red light is illuminated. The green light is out."

(C) ELEMENT 4 : Restart 3C CCW Pump. (continued)

COMMENTS:

NOTE: Only starting the 3C CCW pump in
Standard 5 is critical to this element.

END OF JPM

BOOTH OPERATOR INSTRUCTIONS

1. Reset to IC-30.
2. Goto RUN.
Start 3A ICW Pump.
Stop 3C ICW Pump.
Start 3C CCW Pump.
Stop 3B CCW Pump and take its CS to Pull-to-Lock.
Hang an ECO Information Tag on 3B CCW pump control switch.
3. Click on SCHEMATICS -> MAIN POWER DISTRIBUTION -> 4KV & 480V AC -> 3B 4KV BUS -> bkr 13 -> TAK1B13P 3AB13 BREAKER POSITION -> Selected Value = 3 then INSERT.
4. Click on bkr 19 -> TFE2D18T 3AB13 BREAKER FAIL TRIP -> TRUE then INSERT.
5. Acknowledge alarms.
5. Freeze simulator until start of exam.