ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM RO A.1.a

JPM Title: Estimated Critical Condition

Approximate Time: 15 minutes Actual Time: _____

Reference(s): Fort Calhoun Technical Data Book
K/A 2.1.25 (RO 2.8)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM RO A.1.a

JPM Title: Estimated Critical Condition

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: TDB, Calculator

Safety Considerations: None

Comments:

JPM No: ADM RO A.1.a

JPM Title: Estimated Critical Condition

INITIATING CUE: **The plant has been shutdown as the result of a reactor trip and is planning a reactor startup at 1400 on 9/9/02. You are directed to determine the estimated critical boron concentration for this startup.**

The following information has been provided:

- **Shutdown from 100% power occurred at 2300 on 9/8/02**
- **Plant was operating with all rods out prior to the trip**
- **Boron concentration prior to the trip was 610 ppm**
- **Average core burnup is 4500 MWD/MTU**
- **Criticality should occur with group 4 at 85 inches**
- **Boron concentration has not been changed since the trip**
- **DEN-Nuclear states that no correction is needed for boron depletion**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Obtains TDB-V.1.B, "Estimated Critical Conditions Worksheet" from the Technical Data Book.	Locates TDB-V.1.B **NOTE: Provide procedure copy after it is located in TDB.**
2	Completes worksheet through step D.3.d.	See attached completed worksheet
3	Determines critical boron concentration.	Critical boron concentration is determined to be 686 ppm ± 20 ppm

JPM No: ADM RO A.1.a

JPM Title: Estimated Critical Condition

Termination Criteria: Critical boron concentration has been determined

JPM No: ADM RO A.1.a

INITIATING CUE: **The plant has been shutdown as the result of a reactor trip and is planning a reactor startup at 1400 on 9/9/02. You are directed to determine the estimated critical boron concentration for this startup.**

The following information has been provided:

- **Shutdown from 100% power occurred at 2300 on 9/8/02**
- **Plant was operating with all rods out prior to the trip**
- **Boron concentration prior to the trip was 610 ppm**
- **Average core burnup is 4500 MWD/MTU**
- **Criticality should occur with group 4 at 85 inches**
- **Boron concentration has not been changed since the trip**
- **DEN-Nuclear states that no correction is needed for boron depletion**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.1.b

JPM Title: Determine Operational Mode

Approximate Time: 10 minutes Actual Time: _____

Reference(s): Fort Calhoun Tech Specs
COLR
K/A 2.1.22 (RO 2.8)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.1.b

JPM Title: Determine Operational Mode

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

JPM No: RO ADM JPM A.1.b

JPM Title: Determine Operational Mode

INITIATING CUE: **The following plant conditions exist:**
RCS is intact and on shutdown cooling.
One shutdown cooling pump is in operation.
RCS temperature is 190F
RCS pressure is 18 psia
RCS boron concentration is 1975 PPM.
Burnup is 3800 MWD/MTU

Determine the plant's operational mode.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refer to technical specifications For mode definitions	Determine that the plant is either in mode 4 or 5 depending on the boron concentration.
2	Refer to COLR to determine shutdown boron concentration.	Determine that 1975 ppm is below the refueling boron concentration.
3	Identify plant operational mode	The plant is in mode 4, "Cold shutdown".

Termination Criteria: **Operational mode has been determined**

JPM No: RO ADM JPM A.1.b

INITIATING CUE: **The following plant conditions exist:**
RCS is intact and on shutdown cooling.
One shutdown cooling pump is in operation.
RCS temperature is 190F
RCS pressure is 18 psia
RCS boron concentration is 1975 PPM.
Burnup is 3800 MWD/MTU

Determine the plant's operational mode.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.2

JPM Title: Time to boil determination

Approximate Time: 10 minutes Actual Time: _____

Reference(s): AOP-19
K/A 2.1.24 (RO 2.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.2

JPM Title: Time to boil determination

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: AOP-19

Safety Considerations: None

Comments:

JPM No: RO ADM JPM A.2

JPM Title: Time to boil determination

INITIATING CUE: **It is 0600 on 5/12/02. The Plant has shutdown for a refueling outage. The reactor was shutdown on 5/6/02 at 1800. The RCS level is at the vessel flange. The pressurizer manway is removed. RCS pressure is 15 psia and CET temperatures indicate 120F. A loss of shutdown cooling has just occurred and the CRS has directed to use AOP-19 to determine the time to boil and report the results to him.**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Obtain copy of AOP-19	Obtains AOP-19 and goes to attachments B and C.
2	Record time shutdown cooling was lost and temperature.	Attachment B form. Enter 0600 and 120F in blanks 1 and 2.
3	Determine remaining time to boil	Calculate that 5.5 days have elapsed since shutdown. Use graph on page 19 to interpolate time to boil.
4	Record time to boil on time to boil worksheet.	Determines that there are 39 minutes ± 4 minutes to boil.
5	Report time to boil	Communicate results of the time to boil determination to the CRS.

Termination Criteria: **Time to boil reported to the CRS**

JPM No: RO ADM JPM A.2

INITIATING CUE:	**It is 0600 on 5/12/02. The Plant has shutdown for a refueling outage. The reactor was shutdown on 5/6/02 at 1800. The RCS level is at the vessel flange. The pressurizer manway is removed. RCS pressure is 15 psia and CET temperatures indicate 120F. A loss of shutdown cooling has just occurred and the CRS has directed to use AOP-19 to determine the time to boil and report the results to him.**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with contamination

Approximate Time: 10 minutes Actual Time: _____

Reference(s): GET-Radiation Worker Training
Standing Order G-101
K/A 2.3.1 (RO 2.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with contamination

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment:	None
Safety Considerations:	None
Comments:	This JPM is conducted in the training building using the GET training facilities

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with contamination

INITIATING CUE: YOU HAVE BEEN DIRECTED TO ENTER ROOM 13 TO CHECK FOR LEAKS IN THE CVCS SYSTEM.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Review the RWP	Reads RWP
2	Determine Radiological Conditions in Room 13.	Checks survey maps or discusses radiological conditions with RP personnel.
3	Obtains Dosimetry	Verify TLD attached to security badge. Obtain EAD.
4	Sign on to appropriate RWP.	Insert EAD in reader. Scan P ID and RWP number.
5	Enter RCA	RCA Entered
6	Enter room 13	Enters simulated room 13. **CUE: Water is dripping from letdown line.**
7	Exits room 13	Exits room
8	Monitor for personnel contamination prior to exiting RCA	Monitor for contamination using PCM. CUE: PCM Alarms

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with contamination

STEP	ELEMENT	STANDARD
9	Monitor for contamination a second time	Monitor for contamination using PCM, again. CUE: PCM Alarms again
10	Contact RP	RP Contacted CUE: RP determines that PCM is malfunctioning. Directs you to monitor for contamination using frisker.
11	Uses Frisker to monitor for contamination.	Slowly moves pancake probe over hands, shoes and body surface. CUE: Frisker reads background only.

Termination Criteria: RCA has been exited

JPM No: ADM RO A.3

INITIATING CUE: **YOU HAVE BEEN DIRECTED TO ENTER ROOM 13 TO CHECK FOR LEAKS IN THE CVCS SYSTEM.**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.4

JPM Title: EP Questions

Approximate Time: 5 minutes Actual Time: _____

Reference(s): GET Training
EPIPs
K/A 2.4.29 (RO 2.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO ADM JPM A.4

JPM Title: EP Questions

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: This Administrative JPM consists of two questions

JPM No: RO ADM JPM A.4

JPM Title: EP Questions

Question One:	You are the RO in the control room during an event when an Accountability Determination is performed per the Emergency Plan. What action do you take?
Answer:	Place your accountability card in the control room accountability box.
Question Two:	You are escorting two individual inside the protected area when an ALERT is declared. What action do you take?
Answer:	Take the escorted individuals to the security building and ensure that they exit the protected area.

JPM No: RO ADM JPM A.4

Question One

You are the RO in the control room during an event when an Accountability Determination is performed per the Emergency Plan. What action do you take?

JPM No: RO ADM JPM A.4

Question Two:

You are escorting two individual inside the protected area when an ALERT is declared. What action do you take?

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM SRO A.1.a

JPM Title: Review of faulty Estimated Critical Condition Worksheet

Approximate Time: Actual Time: _____

Reference(s): Fort Calhoun Technical Data Book
K/A 2.1.25 (SRO 3.1)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: ADM SRO A.1.a

JPM Title: Review of faulty Estimated Critical Condition Worksheet

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: Calculator

Safety Considerations: None

Comments:

JPM No: ADM SRO A.1.a

JPM Title: Review of faulty Estimated Critical Condition Worksheet

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INITIATING CUE: **The plant has been shutdown as the result of a reactor trip and is planning a reactor startup at 1400 on 9/9/02. You are directed to review the calculation of the estimated critical boron concentration for this startup.**

The following information has been provided:

- **Shutdown from 100% power occurred at 2300 on 9/8/02**
- **Plant was operating with all rods out prior to the trip**
- **Boron concentration prior to the trip was 610 ppm**
- **Average core burnup is 4500 MWD/MTU**
- **Criticality should occur with group 4 at 85 inches**
- **Boron concentration has not been changed since the trip**
- **DEN-Nuclear states that no correction is needed for boron depletion**

(There are 2 errors in this calculation)

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Reviews the ECC worksheet	
2	Identifies first error	The wrong sign is used for the change in reactivity due to xenon in step C.3.c.
3	Identifies second error	The HFP inverse boron worth was used in step D.1 rather than the HZP inverse boron worth as specified in the worksheet. (The wrong curve was used when reading TBD Figure II.A.4)

JPM No: ADM SRO A.1.a

JPM Title: Review of faulty Estimated Critical Condition Worksheet

STEP	ELEMENT	STANDARD
4	Determines correct critical boron concentration after making corrections	Critical boron concentration is 686 ppm ± 20 ppm

Termination Criteria: **Both worksheet errors have been identified and the correct estimated critical boron concentration has been determined**

JPM No: ADM SRO A.1.a

INITIATING CUE: **The plant has been shutdown as the result of a reactor trip and is planning a reactor startup at 1400 on 9/9/02. You are directed to review the calculation of the estimated critical boron concentration for this startup.**

The following information has been provided:

- **Shutdown from 100% power occurred at 2300 on 9/8/02**
- **Plant was operating with all rods out prior to the trip**
- **Boron concentration prior to the trip was 610 ppm**
- **Average core burnup is 4500 MWD/MTU**
- **Criticality should occur with group 4 at 85 inches**
- **Boron concentration has not been changed since the trip**
- **DEN-Nuclear states that no correction is needed for boron depletion**

(There are 2 errors in this calculation)

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

Approximate Time: 15 minutes Actual Time: _____

Reference(s): AOP-37
K/A 2.1.13 (SRO 2.9)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

INITIATING CUE: **You are the CRS. You have just been notified by the Central Alarm Station Operator that an armed security attack is in progress. An armed force has attacked via the river and occupied the intake structure. Take the appropriate actions.**

CRITICAL STEP	ELEMENT	STANDARD
1	Enter AOP-37	Obtains copy of AOP-37 and enters it.
2	Confirm the report of the armed attack.	Call back on extension 6991 or 6188 using 800Mhz radio subfleet 1 or 2 **CUE: Attack is confirmed**
3	Make plant announcement	Make the following announcement" Attention all Personnel. Attentioan all Personnel. The Plant is in a Security Emergency. Take cover and do not move:
4	Initiate a reactor shutdown.	Directs RO to trip the reactor and implement EOP-00, Standard Post-Trip actions. CUE: The reactor has been tripped and Standard Post Trip Actions completed. All EOP-00 safety functions are met.

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

CRITICAL STEP	ELEMENT	STANDARD
5	Directs entry into EOP-01	Refers to diagnostic actions and enters EOP-01
6	Directs that both Control room ventilation Mode selector switches placed in recirc.	Directs RO to place HC-VA-46A-1 and HC-VA-46B-1 in RECIRC.
		CUE: RO reports that CR ventilation mode selector switches are in RECIRC
7	Ensure S/G levels 85-95% NR	Direct RO to maintain S/G levels 85-95% NR (94-98% WR)
8	Monitor CR panels and security radio for indication of potentially compromised equipment.	Directs ROs to monitor panels and security radio.
9		**CUE: RO reports trip of CW-1A**
10	Refer to AOP-37 attachment A	Refers to AOP-37 attachment A and determines that no alternate safety function equipment is required.
11		**CUE: Central Alarm station Operator reports that the armed security attack has been terminated. All intruders have been captured by FCS security.**
12	Exit AOP-37	Exits AOP-37 and continues with procedure EOP-01.

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

CRITICAL STEP	ELEMENT	STANDARD

Termination Criteria: Armed attack is terminated and AOP-37 exited.

JPM No:

INITIATING CUE: **You are the CRS. You have just been notified by the Central Alarm Station Operator that an armed security attack is in progress. An armed force has attacked via the river and occupied the intake structure. Take the appropriate actions.**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.2

JPM Title: Review a faulty clearance for AC-1A

Approximate Time: 15 minutes Actual Time: _____

Reference(s): SO-G-20A
K/A 2.2.13 (SRO 3.8)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.2

JPM Title: Review a faulty clearance for AC-1A

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: P&IDs

Safety Considerations: None

Comments:

JPM No: SRO ADM JPM A.2

JPM Title: Review a faulty clearance for AC-1A

INITIATING CUE: **The plant is at 100% power when it is noticed during a surveillance test that RW/CCW heat exchanger AC-1A has a high DP which requires that the RW side of the heat exchanger be opened and cleaned. You have been provided a tag-out for this work, that was prepared by an equipment operator, for review and approval.**

There are two errors on this clearance

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	May obtain a copy of Procedure SO-O-20A and determine review responsibilities	Note: Provide copy of clearance
2	Reviews Tagout	References P&IDs to verify equipment that should be included in clearance and compares with clearance sheet.
3	Identifies first error	Determines that valve RW-138 drain is incorrectly designated as open and outside of the established boundary.
4	Identifies second error	Determines that air supply valves IA-HCV-2880 A-B (air supply to valve HCV-2880A) and IA-HCV-2880B-B (air supply to valve HCV-2880B) have been omitted from the clearance. Clearance should require that these valve be tagged closed.

JPM No: SRO ADM JPM A.2

JPM Title: Review a faulty clearance for AC-1A

Termination Criteria: **Clearance review complete and both errors identified.**

JPM No: SRO ADM JPM A.2

INITIATING CUE: **The plant is at 100% power when it is noticed during a surveillance test that RW/CCW heat exchanger AC-1A has a high DP which requires that the RW side of the heat exchanger be opened and cleaned. You have been provided a Clearance for this work, that was prepared by an equipment operator, for review and approval.**

There are two errors on this Clearance

Clearance for RW/CCW Heat Exchanger AC-1A

EQUIPMENT ID	DESCRIPTION	TAG TYPE	POSITION
HCV-489A	HX AC-A1 CCW INLET ISOLATION VALVE	DANGER	CLOSED
HCV-489B	HX AC-A1 CCW OUTLET ISOLATION VALVE	DANGER	CLOSED
IA-HCV-489A-B	HCV-492A AIR SUPPLY	DANGER	CLOSED
IA-HCV-489B-B	HCV-492B AIR SUPPLY	DANGER	CLOSED
HCV-2880A	HX AC-A1 RW INLET ISOLATION VALVE	DANGER	CLOSED
HCV-2880B	HX AC-A1 RW OUTLET ISOLATION VALVE	DANGER	CLOSED
RW-156	RW OUTLET FLUSH FROM AC-1A	DANGER	CLOSED
RW-130	AC-A1 IA LINE ISOLATION	DANGER	CLOSED
AC-373	HX AC-A1 VENT	NO TAG	SHIFT MGR DISCRETION
AC-227	HX AC-A1 DRAIN	NO TAG	SHIFT MGR DISCRETION
RW-189	AC-A1 VENT	NO TAG	SHIFT MGR DISCRETION
RW-138	AC-A1 DRAIN	NO TAG	SHIFT MGR DISCRETION
RW-213	AC-A1 DRAIN	NO TAG	SHIFT MGR DISCRETION
RW-152	AC-A1 VENT	NO TAG	SHIFT MGR DISCRETION

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM A.3

JPM Title: Approve a Containment Pressure Reduction Release

Approximate Time: 12 min Actual Time: _____

Reference(s): OI-VA-1
FC-212
K/A 2.3.6 (SRO 3.1)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM A.3

JPM Title: Approve a Containment Pressure Reduction Release

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM A.3

JPM Title: Approve a Containment Pressure Reduction Release

INITIATING CUE: **You are acting as the Shift Manager. A Containment Pressure Reduction is planned for your shift. You must review the paperwork and authorize the release before it can be performed.**

OI-VA-1-CL-B has been completed per OP-1.

(There is one error in the paperwork)

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Provide the applicant with OI-VA-1 attachment 6 and the FC-212.
1	Verify at least one VA-40 fan is running.	AI-44 At least one fan has control switch in AFTER START and RED light ON.
2	Verify at least one noble gas monitor in service on AB stack.	AI-31 Verify RM-062 or RM-052 in service on the stack
3	Verify one Iodine/Particulate Sampler or aux sample collection equipment in service on AB stack.	CUE: One Iodine/Particulate sampler is in service on the AB stack
4	Verify required recorders are operable	AI-33E – RR-049A AI-44 – FR-758 AI-44 – PR-745
5	Verify Room 60 items	CUE:EONA reports the following: • VA-366 is open • VA-367 is open • VA-368 is closed • DPI-729 reads zero • FI-729 reads zero

JPM No: SRO ADM A.3

JPM Title: Approve a Containment Pressure Reduction Release

STEP	ELEMENT	STANDARD
6	Reviews FC-212	Determines that 75 scfm was used as the containment release rate in FC-212 resulting in non-conservative setpoint. DOES NOT AUTHORIZE RELEASE

Termination Criteria: **Release permit reviewed and release authorization refused.**

JPM No: SRO ADM JPM A.3

INITIATING CUE: **You are acting as the Shift Manager. A Containment Pressure Reduction is planned for your shift. You must review the paperwork and authorize the release before it can be performed.**

OI-VA-1-CL-B has been completed per OP-1.

(There is one error in the paperwork)

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.4

JPM Title: Emergency Plan Classification of an Armed Attack

Approximate Time: 10 minutes Actual Time: _____

Reference(s): EPIP-OSC-1
EPIP-EOF-7
K/A 2.4.41 (SRO 4.1)
K/A 2.4.44 (SRO 4.4)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO ADM JPM A.4

JPM Title: Emergency Plan Classification of an Armed Attack

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Do not perform this JPM before SRO ADM JPM A.1.b

JPM No: SRO ADM JPM A.4

JPM Title: Emergency Plan Classification of an Armed Attack

INITIATING CUE: **An armed security attack has been confirmed. The control room has entered AOP-37.**
The armed attack came from the river. The armed intruders have occupied the intake structure. AC-10A tripped unexpectedly.

You are directed to enter the Emergency Plan, classify the event and determine offsite Protective Action Recommendations.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refer to Emergency Plan	Refer to EPIP-OSC-1
2	Classify the event	The event should be classified as a Site Area Emergency per EAL 9.10 (Confirmed Vital Attack occurs inside a vital area) Note: The area in the intake structure where AC-10A is located is a vital area.
3	Determine Protective Action Recommendations	Refer to EPIP-EOF-7 and determine that there are no PARs for this situation.

JPM No: SRO ADM JPM A.4

JPM Title: Emergency Plan Classification of an Armed Attack

Termination Criteria: Event has been classified and PARs determined

JPM No: SRO ADM JPM A.4

INITIATING CUE: **An armed security attack has been confirmed. The control room has entered AOP-37.**
The armed attack came from the river. The armed intruders have occupied the intake structure. AC-10A tripped unexpectedly.

You are directed to enter the Emergency Plan, classify the event and determine offsite Protective Action Recommendations.

JOB PERFORMANCE MEASURE

JPM No: B.1.a

JPM Title: Emergency Boration from the Control Room

Location: Simulator

Approximate Time: 7 minutes Actual Time: _____

Reference(s): EOP-00
K/A 000001 K4.05 (RO 3.9 / SRO 3.9)
K/A 000001 A4.02 (RO 4.1 / SRO 3.9)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.a

JPM Title: Emergency Boration from the Control Room

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Simulator Dynamic JPM
Override HCV-268 closed

JPM No: B.1.a

JPM Title: Emergency Boration from the Control Room

INITIATING CUE: **A reactor trip has occurred during a reactor startup and while performing EOP-00, you find that all shutdown rods have stuck out. All attempts to trip or insert control rods have failed. You are directed to commence emergency boration.**

No procedures are allowed for this JPM

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Close FCV-269X and FCV-269Y	CB-4 Control switches for FCV-269X&Y in CLOSED and GREEN lights lit
2	Open all of the following valves: a. HCV-268 b. HCV-265 c. HCV-258	CB-4 a. Control switch for HCV-268 to OPEN until only RED light lit **[HCV-268 will not open]** b. Control switch for HCV-265 to OPEN until only RED light lit c. Control switch for HCV-258 to OPEN until only RED light lit
3	Locally open HCV-268	Direct EONA to manually open HCV-268
4	Start All of the following pumps: a. Both Boric Acid Pumps b. All Charging Pumps	CB-4 a. Control switches to START CB-1,2,3 b. Control switches to START and RED lights lit

JPM No: B.1.a

JPM Title: Emergency Boration from the Control Room

STEP	ELEMENT	STANDARD
5	Close LCV-218-2	CB-1,2,3 Control Switch to CLOSE until only GREEN light lit
6	Ensure all of the following valves are closed: a. LCV-218-3 b. HCV-257 c. HCV-264	CB-1,2,3 a. GREEN lights lit CB-4 b. GREEN light lit c. GREEN light lit **CUE: When red light is on for HCV-268, EONA reports that HCV-268 is open.**

Termination Criteria: Borated water is being injected into the RCS

JPM No: B.1.a

INITIATING CUE: **A reactor trip has occurred and while performing EOP-00, you find that all shutdown rods have stuck out. All attempts to trip or insert control rods have failed. You are directed to commence emergency boration.**

No procedures are allowed for this JPM

JOB PERFORMANCE MEASURE

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

Location: Simulator

Approximate Time: 10 minutes Actual Time: _____

Reference(s): OP-ST-ESF-0009 7.4 (R38)
K/A 000013 K4.06 (RO 4.0 / SRO 4.3)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment:	None
Safety Considerations:	None
Comments:	Simulator Operator will perform the dedicated operator functions referred to in the procedure. (Override LCV-383-2 and HCV-386 control switches in open position)

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

INITIATING CUE: **OP-ST-ESF-0009 is in progress and complete through section 7.3. You are directed to perform RAS testing per section 7.4.**

A dedicated operator is stationed at AI-30A per step 7.4.1.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Verify the following alarm windows are clear: • TESTING • STLS A SAFEGUARD SIGNAL • SAFETY INJECTION RECIRCULATION COMMAND	AI-30A Listed alarm windows are CLEAR
2	Verify the following ERF Computer CRT displays are clear: • STLS • RAS	ERF Computer Screen STLS and RAS have GREEN background
3	Ensure HCV-386 is open	AI-30A HCV-386 is OPEN and RED light ON
4	Log into Tech Spec 2.3(2)I and Tech Spec 2.4(i)b	**CUE: Tech Spec logging is complete**
5	Place HCV-383-3 in PULL-TO-OVERRIDE	AI-30A Switch to PULL-TO-OVEERRIDE position
6	Verify SIRWT HDT#1 RECIRC VALVES OFF NORMAL alarm	AI-30A, A33-1, G-2 is ON

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

STEP	ELEMENT	STANDARD
7	Station a dedicated operator at LCV-383-2 to maintain switch open	**CUE: a dedicated operator is stationed at LCV-383-2 holding the switch in open** (Note: Simulator operator will override switch open)
8	Station a dedicated operator at HCV-386 to maintain switch open	**CUE: a dedicated operator is stationed at HCV-386 holding the switch in open** (Note: Simulator operator will override switch open)
9	Place 86A/STLS test switch in TEST and verify TESTING in alarm, then release.	AI-30A Hold 86A/STLS test switch in test until TESTING alarm received, then release.
10	Verify the following relays have actuated: • 86-A/STLS • 86-A/RAS • 86-AX/RAS	AI-30A Lockout relays tripped and AMBER lights OFF (Note: 86-AX/RAS has no light)
11	Verify the following alarms: • STLS A SAFEGUARD SIGNAL • SAFETY INJECTION RECIRCULATION COMMAND	AI-30A Listed alarm windows are ON
12	Verify the following ERF computer points printout: • 86-A/STLS TRIPPED • 86-A/RAS TRIPPED	ERF CRT Tripped printout
13	Verify the following ERF CRT displays are in alarm: • STLS • RAS	ERF Display Screen STLS and RAS have RED background

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

STEP	ELEMENT	STANDARD
14	Sequentially reset the following Lockout Relays: • 86-A/STLS • 86-A/RAS • 86-AX/RAS	AI-30A Reset lockout relays in order given. Lockout relays in RESET and AMBER lights ON (Note: 86-AX/RAS has no light)
15	Direct dedicated operator at LCV-383-2 to release control switch and ensure Red light remains on.	**CUE: LCV-383-2 control switch released and RED light on**. (Note: Simulator Operator will clear override)
16	Direct dedicated operator at HCV-386 to release control switch and ensure Red light remains on.	**CUE: HCV-386 control switch released and RED light on**. (Note: Simulator Operator will clear override)
17	Notify Dedicated Operators assigned to LCV-383-2 and HCV-386 that they are no longer needed.	**CUE: Dedicated operators assigned to LCV-383-2 and HCV-386 have left.**
18	Place Control switch HCV-383-3 in auto then ensure valve remains closed.	AI-30A HCV-383-3 Control switch in AUTO and GREEN light ON
19	Verify SIRWT HDR#1 RECIRC VALVES OFF NORMAL alarm is clear	AI-30A,A33-1, G-2 Alarm Window is OFF
20	Place control switch HCV-481 in CLOSE, Then release and verify valve is closed.	CB-1,2,3 Place control switch to CLOSE, then release. HCV-481 GREEN light is ON.
21	Place control switch HCV-480 in CLOSE, Then release and verify HCV-484 is closed.	CB-1,2,3 Place control switch to CLOSE, then release. HCV-484 GREEN light is ON.

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

STEP	ELEMENT	STANDARD
		CUE: Electrician has completed step 7.4.24. Measured voltage is 125 VDC.
22	Notify Dedicated operator assigned to attachment 4 that RAS testing is complete.	**CUE: Dedicated operator assigned to attachment 4 has left.**
23	Exit tech specs	**CUE: Tech specs have been exited**

Termination Criteria: RAS test using 86A/STLS test switch is complete

JPM No: B.1.b

INITIATING CUE: **OP-ST-ESF-0009 is in progress and complete through section 7.3. You are directed to perform RAS testing per section 7.4.**

A dedicated operator is stationed at AI-30A per step 7.4.1.

JOB PERFORMANCE MEASURE

JPM No: RO B.1.c

JPM Title: Transfer Pressurizer Pressure Control to Manual to support Maintenance

Location: Simulator

Approximate Time: 5 minutes Actual Time: _____

Reference(s): OI-RC-7
K/A 000010 K4.03 (RO 3.8 / SRO 4.1)
K/A 000010 A1.07 (RO 3.7 / SRO 3.7)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: RO B.1.c

JPM Title: Transfer Pressurizer Pressure Control to Manual to support Maintenance

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Select PRC-103 Y as the controlling channel

JPM No: RO B.1.c

JPM Title: Transfer Pressurizer Pressure Control to Manual to support Maintenance

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INITIATING CUE: **RCS pressure is at a nominal 2110 psia. All four RCPs are in operation.PRC-103Y is the controlling pressure channel. The Shift Manager directs you to make PRC-103X the controlling pressure channel and to shift PRC-103Y to Manual for I&C maintenance.**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refers to attachment 8: Ensure both Pressure Controllers are in Automatic: • PC-103X • PC-103Y	CB-1,2,3 Both controllers in AUTO with GREEN lamp ON
2	Adjust the setpoint pushbutton(s) on the non-selected controller to obtain same output indicated on selected controller	CB-1,2,3 Adjust setpoint as necessary
3	Transfer the controlling channels by placing HC-103, Pressurizer Pressure Selector Switch to the opposite channel	CB-1,2,3 HC-103 to the X channel
4	Ensure the selected controller is acting as follows: • Controller in AUTO • Controller is controlling pressure at the desired setpoint	CB-1,2,3 Controller in AUTO, GEEN light is ON, Pressure at nominal 2100 psia
5	Refers to attachment 7: Press Manual pushbutton on the selected controller	CB-1,2,3 Press “M” on PC-103Y, AMBER light ON

JPM No: RO B.1.c

JPM Title: Transfer Pressurizer Pressure Control to Manual to support Maintenance

STEP	ELEMENT	STANDARD
6	Move the Manual Control lever as necessary to obtain desired reading on the output meter	CB-1,2,3 May make adjustment to match PC-103X **CUE: When PC-103Y is placed in manual, PC-103X fails high.**
7	Shift HC-103 to PC-103Y for pressure control in manual	CB-1,2,3 HC-103 to PC-103Y
8	Adjust Output Meter as necessary to control pressure	Return Pressurizer Pressure to 2100 psia ± 10 psi. TM/LP trip must not occur

Termination Criteria: Pressurizer pressure at 2100 psia in Manual Control

JPM No: RO B.1.c

INITIATING CUE: **RCS pressure is at a nominal 2110 psia. All four RCPs are in operation.PRC-103Y is the controlling pressure channel. The Shift Manager directs you to make PRC-103X the controlling pressure channel and to shift PRC-103Y to Manual for I&C maintenance.**

JOB PERFORMANCE MEASURE

JPM No: SRO B.1.c

JPM Title: Fuel Handling Incident

Location: Simulator or Control Room

Approximate Time: 12 minutes Actual Time: _____

Reference(s): AOP-08
K/A 000034 A2.01 (RO 3.6 / SRO 3.4)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: SRO B.1.c

JPM Title: Fuel Handling Incident

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: This is a static JPM

JPM No: SRO B.1.c

JPM Title: Fuel Handling Incident

INITIATING CUE: **The plant is in a refueling shutdown. Fuel movement is in progress. RM-050, RM-051 and RM-073 have just alarmed and VIAS has actuated.**

The Control Room has been notified that a fuel bundle has dropped in the transfer canal inside the containment. You have been directed to take appropriate actions.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Notify plant personnel of event	Announce over Gaitronics
2	Direct RP to survey affected area	**Cue: RP in containment is checking area**
3	Initiate Emergency Plan per EPIP-OSC-1	**Cue: Shift Manager will initiate Emergency Plan.**
4	Direct Security Shift Manager to close Room 66 Roll-up Doors	Contact Security Shift Manager. **Cue: Security Shift Manager reports that roll-up doors are closed**.
5	Direct Shift Outage Manager to close all containment penetrations open to the outside atmosphere.	Contact Shift Outage manager. **Cue: Shift Outage Manager reports that all containment penetrations open to the outside atmosphere are closed.**
6.	Direct EONA to close at least one PAL door	Contact EONA. **Cue: EONA report that a PAL door is closed.**

JPM No: SRO B.1.c

JPM Title: Fuel Handling Incident

STEP	ELEMENT	STANDARD
7	Ensure Both of the following Containment Vent Fans are operating: • VA-3A • VA-3B	AI-30A/B Control Switches in After-Start (RED FLAG) and RED lights lit
8	Ensure containment vent fans have switched to filtered mode.	AI-30A/B Check HCV-724 and HCV-725 in filter mode with RED lights lit
9	Ensure that All of the Containment Purge Fans are stopped: • VA-24A/B • VA-32A/B • VA-76 • VA-77	AI-44 Fans stopped and GREEN lights lit
10	Ensure ALL of the following are closed: • PCV-742A/B/C/D • PCV-742E/F/G/H • HCV-746A/B	AI-44 Valves closed and GREEN lights lit.
11	Ensure RM-050/051 Sample pump is stopped	AI-33 Pump switch in STOP position
12	Ensure FCV-532C, “Header Isolation Valve” is closed	Contact EONA **Cue: EONA reports from AI-100 that FCV-532C is Closed**
13	Stop proper Control Room Ventilation Fan	AI-106A/B **Cue: When at AI-106A/B, provide the following information: VA-63B, VA-46A and VA-46B are running.**

JPM No: SRO B.1.c

JPM Title: Fuel Handling Incident

STEP	ELEMENT	STANDARD
13 cont	Stop VA-46A	AI-106A Place Control switch in After-Stop position. GREEN light lit
14	Place Control Room Ventilation Mode switch in Filtered Air Position	AI-46A HC-VA-46A-1 switch in FILT-AIR AI-46B HC-VA-46B-1 switch in FILT-AIR
15	Ensure RM-065 is operating	AI-106A HC-RM-65 RED light lit
16	If directed by RP, don respirator protection	Cue: RP reports that repirator protection is not required in the Control Room.

Termination Criteria: Ventilation systems are properly aligned.

JPM No: SRO B.1.c

INITIATING CUE:	**The plant is in a refueling shutdown. Fuel movement is in progress. RM-050, RM-051 and RM-073 have just alarmed and VIAS has actuated.** **The Control Room has been notified that a fuel bundle has dropped in the transfer canal inside the containment. You have been directed to take appropriate actions.**

JOB PERFORMANCE MEASURE

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

Location: Simulator

Approximate Time: 20 minutes Actual Time: _____

Reference(s): OI-SC-1
OI-SC-2
K/A 005000 A4.01 (RO 3.6 / SRO 3.4)
AOP-19

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment:	None
Safety Considerations:	None
Comments:	This will be a dynamic JPM in the simulator. The simulator operator will fail P-118 high which will result in HCV-347 and HCV-348 closing.

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

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INITIATING CUE: **The plant is on shutdown cooling on LPSI SI-1A. The RCS is intact and time to boil is 3 hours. No refueling outage is in progress. You are directed to respond to the alarms on panel CB-1,2,3.**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note: The following alarms will come in: **"SHUTDOWN COOLING VALVES CLOSED SIG FAIL OR VIOLATION"** **"SHUTDOWN COOLIN FLOW HI-LO"**
1	Respond to annunciators	Reviews ARP for alarms and transitions to AOP-19.
2	Implement the Emergency Plan	**CUE: Shift Manager has entered Emergency Plan**
3	Verify RCS water level above hot leg centerline.	<u>CB-1,2,3</u> LI-197 al least 1006.5 feet LIS-119 at least 1006.5 feet <u>ERF Computer</u> PVLMS > 29% <u>In containment</u> Sight glass LI-199 at least 1006.5 feet

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

STEP	ELEMENT	STANDARD
4	Verify RCS water level constant or rising	Verifies level trend from, at least, one of the following: CB-1,2,3 • LI-106 • LI-197 • LI-119
5	Verify proper LPSI pump operation by meeting all of the following criteria: • LPSI Pump current stable • LPSI flow greater than or equal to 200 gpm	AI-30A Ammeter for SI-1A, current is varying CB-1,2,3 FI-326 shows low flow
6	Determines that pump current is not stable and shuts down SI-1A	AI-30A SI-1A control switch to AFTER-STOP, GREEN light lit **CUE: LPSI discharge header is operable**
7	Determines that RCS pressure instrument P-118 has failed high	
8	Ensures that the following valves are open: a. FCV-326 b. HCV-335 c. HCV-348 d. HCV-347	a. RED light lit on CB-1,2,3 b. RED light lit on AI-30B c. Place P-118 “Pressurizer pressure PC-118 auto signal override HC-347/348” switch to OVERRIDE. Verify RED light lit as valve opens d. Hold HCV-347 to OPEN. Verify RED light lit. **Cue: LPSI pump venting not required**

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

STEP	ELEMENT	STANDARD
9	Place FCV-326 in manual	CB-1,2,3 Select MANUAL on FCV-326 controller
10	If RCS level is above hot leg centerline, start one LPSI pump, SI-1A or SI-1B.	AI-30A/B Pump control switch in AFTER START and RED light lit
11	Adjust FCV-326 to obtain 1500 gpm flow	CB-1,2,3 Operate controller in manual until FI-326 reads approximately 1500 gpm
12	Place FCV-326 in automatic	CB-1,2,3 Select AUTO on FCV-326

Termination Criteria: Shutdown Cooling Reestablished

JPM No: B.1.d

INITIATING CUE: **The plant is on shutdown cooling on LPSI SI-1A. The RCS is intact and time to boil is 3 hours. No refueling outage is in progress. You are directed to respond to the alarms on panel CB-1,2,3.**

JOB PERFORMANCE MEASURE

JPM No: B.1.e

JPM Title: Shift 4160V Buses 1A3 and 1A4 from 345KV to 161 KV

Location: Simulator

Approximate Time: 6 minutes Actual Time: _____

Reference(s): OI-EE-1, attachment 1
K/A 000062 K1.04 (RO 3.7 / SRO 4.2)
K/A 000062 A2.01 (RO 3.4 / SRO 3.9)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.e

JPM Title: Shift 4160V Buses 1A3 and 1A4 from 345KV to 161 KV

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Dynamic JPM on the simulator

JPM No: B.1.e

JPM Title: Shift 4160V Buses 1A3 and 1A4 from 345KV to 161 KV

INITIATING CUE: **A loss of 161 KV has occurred due to a grid problem. Busses 1A3 and 1A4 transferred to 345 KV. AOP-31, section II has been entered and appropriate actions taken The 161 KV grid problem has been fixed and 161 KV is available.**

You are directed to restore normal power to busses 1A3 and 1A4 beginning with AOP-31, section II, step 10.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Ensure Lockout Relay 86/161 is reset	AI-22 86 Relay RESET
2	Ensure all of the following Lockout Relays are reset: • 86-1/T1A-4 • 86-2/T1A-4 • 86-1/T1A-3 • 86-2/T1A-3 • 86X/FT161	AI-24, AI-25, AI-46 Relays RESET
3	Synchronize and Close at least one of the following breakers: • Breaker 110 • Breaker 111	CB-20 Insert Sync switch handle and turn to ON Breaker switch to AFTER CLOSE RED light lit
4	Enter OI-EE-1, Attachment 1	
5	Ensure both fast Transfer switches in manual: • 43/1A1-1A3 • 43/1A2-1A4	CB-20 Both switches in MANUAL
6	Turn 1A33 Synchroscope ON	CB-20 Insert Sync switch handle and turn to ON

JPM No: B.1.e

JPM Title: Shift 4160V Buses 1A3 and 1A4 from 345KV to 161 KV

STEP	ELEMENT	STANDARD
7	Verify incoming and running voltages are matched	CB-20 Verify voltages within 25 volts
8	Verify Synchroscope at 12 o,clock	CB-20 Indicator at 12 o,clock
9	Close Breaker 1A33	CB-20 Breaker 1A33 in AFTER CLOSE, RED light lit
10	Open Breaker 1A13	CB-20 Breaker 1A13 in AFTER TRIP. GREEN light lit
11	Turn Off Synchroscope	Sync switch handle to OFF
12	Turn 1A44 Synchroscope ON	CB-20 Insert Sync switch handle and turn to ON
13	Verify incoming and running voltages are matched	CB-20 Verify voltages within 25 volts
14	Verify Synchroscope at 12 o,clock	CB-20 Indicator at 12 o,clock
15	Close Breaker 1A44	CB-20 Breaker 1A44 in AFTER CLOSE, RED light lit
16	Open Breaker 1A24	CB-20 Breaker 1A24 in AFTER TRIP. GREEN light lit
17	Turn Off Synchroscope	Sync switch handle to OFF

JPM No: B.1.e

JPM Title: Shift 4160V Buses 1A3 and 1A4 from 345KV to 161 KV

STEP	ELEMENT	STANDARD
18	Verify conditions for fast transfer met: • Lock-out relays amber lights on • Appropriate 4160V breakers not in pull-to-lock • Power is available	CB-20 • AMBER lights lit • Control Switches not in PULL-TO-LOCK • Voltmeters show proper voltages
19	Place Fast Transfer switches in AUTO • 43/1A1-1A3 • 43/1A2-1A4	CB-20 Both Switches in AUTO

Termination Criteria: Busses 1A3 and 1A4 powered from 161 KV

JPM No: B.1.e

INITIATING CUE:	**A loss of 161 KV has occurred due to a grid problem. Busses 1A3 and 1A4 transferred to 345 KV. AOP-31, section II has been entered and appropriate actions taken The 161 KV grid problem has been fixed and 161 KV is available.** **You are directed to restore normal power to busses 1A3 and 1A4 beginning with AOP-31, section II, step 10.**

JOB PERFORMANCE MEASURE

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

Location: Simulator

Approximate Time: 12 minutes Actual Time: _____

Reference(s): IC-FT-DSS-0002, sections 7.6 and 7.7
LER 95-005
K/A 012000 A4.03 (RO 3.6 / SRO 3.6)

JPM Prepared by: Jerry koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Dynamic simulator JPM

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

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INITIATING CUE: **I&C is testing the DSS system using IC-FT-DSS-0002. Sections 7.6 and 7.7 of this procedure are conducted by licensed operators.**

You have been directed to perform section 7.6 and 7.7 of IC-FT-DSS-0002.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Verify the following alarm windows are clear: • DSS 86A/DSS ACTUATED • TEST SWITCH A1/TS-DSS OFF NORMAL • DSS MATRIX A BLOCKED	AI-66A Listed Alarm Windows CLEAR
2	Place switch CHAN A DSS TEST OR BYPASS SW A1/TS-DSS in test	AI-66A Insert key in switch and place in TEST position
3.	Verify alarms: • TEST SWITCH A1/TS-DSS OFF NORMAL • DSS MATRIX A BLOCKED	AI-66A Listed Alarm Windows LIT
4	Verify DSS Lockout relay 86A/DSS is reset	AI-66A Relay in RESET position
5	Turn DSS Manual Trip Switch A/TS-DSS to trip position	AI-66A Turn A/TS-DSS to TRIP position and release
6	Verify Clutch power Supply breakers are closed: • CB-AB • CB-CD	AI-57 Breakers CLOSED (Full Up)

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

STEP	ELEMENT	STANDARD
7	Verify the following parameters: a. "DSS 86A/DSS ACTUATED" alarm b. DSS Trip relay 94-A1-DSS white light is on c. DSS Trip relay 94-A2-DSS white light is on d. DSS lockout relay 86A/DSS amber light is off e. All four DSS Matrix supervisory amber lights are off f. Lockout relay 86A/DSS is tripped	AI-66A a. Alarm Window LIT b. WHITE light is ON c. WHITE light is ON d. AMBER light is OFF e. AMBER lights are OFF f. Lockout Relay is TRIPPED
8	Reset DSS Lockout Relay 86A/DSS	AI-66A Lockout relay RESET
9	Verify the following: a. All four DSS Matrix supervisory amber lights are on b. DSS lockout relay 86A/DSS amber light is on c. DSS Trip relay 94-A2-DSS white light is off d. DSS Trip relay 94-A1-DSS white light is off e. "DSS 86A/DSS ACTUATED" alarm is clear	AI-66A a. AMBER lights ON b. AMBER light ON c. WHITE light OFF d. WHITE light OFF e. Alarm window CLEAR
10	Place CHAN A DSS TEST OR BYPASS SW switch in normal	AI-66A Switch to NORMAL
11	Verify the following: • DSS MATRIX A BLOCKED alarm window is clear • TEST SWITCH A1/TS-DSS OFF NORMAL alarm window is clear	AI-66A Both alarm windows CLEAR

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

STEP	ELEMENT	STANDARD
	Verify the following alarm windows are clear: • DSS 86B/DSS ACTUATED • TEST SWITCH B1/TS-DSS OFF NORMAL • DSS MATRIX B BLOCKED	AI-66B Listed Alarm Windows CLEAR
	Place switch CHAN B DSS TEST OR BYPASS SW B1/TS-DSS in test	AI-66B Insert key in switch and place in TEST position
	Verify alarms: • TEST SWITCH B1/TS-DSS OFF NORMAL • DSS MATRIX B BLOCKED	AI-66B Listed Alarm Windows LIT
	Verify DSS Lockout relay 86B/DSS is reset	AI-66B Relay in RESET position
	Turn DSS Manual Trip Switch B/TS-DSS to trip position	AI-66B Turn B/TS-DSS to TRIP position and release
	Verify Clutch power Supply breakers are closed: • CB-AB • CB-CD	AI-57 Breakers CLOSED (Full Up)
	Verify the following parameters: a. "DSS 86B/DSS ACTUATED" alarm b. DSS Trip relay 94-B1-DSS white light is on c. DSS Trip relay 94-B2-DSS white light is on d. DSS lockout relay 86B/DSS amber light is off e. All four DSS Matrix supervisory amber lights are off	AI-66A a. Alarm Window LIT b. WHITE light is ON c. WHITE light is ON d. AMBER light is OFF e. AMBER lights are OFF

JPM No: B.1.f

JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test

STEP	ELEMENT	STANDARD
	f. Lockout relay 86B/DSS is tripped	f. Lockout Relay is TRIPPED
	Reset DSS Lockout Relay 86B/DSS	AI-66B Lockout relay RESET
	Verify the following: a. All four DSS Matrix supervisory amber lights are on b. DSS lockout relay 86B/DSS amber light is on c. DSS Trip relay 94-B2-DSS white light is off d. DSS Trip relay 94-B1-DSS white light is off e. "DSS 86B/DSS ACTUATED" alarm is clear	AI-66B a. AMBER lights ON b. AMBER light ON c. WHITE light OFF d. WHITE light OFF e. Alarm window CLEAR
	Place CHAN B DSS TEST OR BYPASS SW switch in normal	AI-66B Switch to NORMAL
	Verify the following: • DSS MATRIX B BLOCKED alarm window is clear • TEST SWITCH B1/TS-DSS OFF NORMAL alarm window is clear	AI-66B Both alarm windows CLEAR

Termination Criteria: Section 7.6 and 7.7 of IC-FT-DSS-0002 are complete

JPM No: B.1.f

INITIATING CUE: **I&C is testing the DSS system using IC-FT-DSS-0002. Sections 7.6 and 7.7 of this procedure are conducted by licensed operators.**

You have been directed to perform section 7.6 and 7.7 of IC-FT-DSS-0002.

JOB PERFORMANCE MEASURE

JPM No: B.1.g

JPM Title: Operate AFW system from AH179 following Control Room evacuation

Location: Control Room or Simulator

Approximate Time: 10 minutes Actual Time: _____

Reference(s): AOP-07
K/A 000061 K1.01 (RO 4.1 / SRO 4.2)
K/A 000061 A1.01 (RO 3.9 / SRO 4.2)

JPM Prepared by: Jerry koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.1.g

JPM Title: Operate AFW system from Aŀ179 following Control Room evacuation

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: This JPM may be conducted as a Static JPM in the plant or as a Static or Dynamic JPM in the simulator.

JPM No: B.1.g

JPM Title: Operate AFW system from AI-179 following Control Room evacuation

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INITIATING CUE: **The Shift manager has directed an evacuation of the Control Room. All of the actions of step 1 of AOP-07 have been completed. All feedwater and heater drain pumps are secured, one condensate pump is running. You are directed to establish control at the Alternate Shutdown Panels. (You have a radio and the AOP-06 keys)**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Place REMOTE-LOCAL Transfer Switch 43 in Local	AI-185 REMOTE LOCAL TRANSFER SWITCH 43 in LOCAL Lockout relays actuate, AMBER lights OFF
2	Verify control transferred by observing indicating lights lit • HCV-239 • CH-1B	AI-185 Indicating Lights LIT
3	Place YCV-1045 control switch in PULL-TO-LOCK	AI-179 Control Switch in PULL-TO LOCK
4	Place both AFW Controls Transfer Switches 43/RC-1A/B in LOCAL	AI-179 Both Switches in LOCAL
5	Verify both AFW Controls Transfer Relays are in TRIP.	AI-179 86 relays are TRIPPED AMBER lights OFF

JPM No: B.1.g

JPM Title: Operate AFW system from AI-179 following Control Room evacuation

STEP	ELEMENT	STANDARD
6	Verify Following valves are OPEN: • HCV-1107A • HCV-1107B • HCV-1108A • HCV-1108B • YCV-1045A • YCV-1045B	AI-179 RED lights ON
7	Start Wide range Channel "D" Recorder.	AI-212 Two toggle switches inside cover to ON.
8	Maintain pressurizer level 45-60%	AI-185 Operate CH-1B as required **CUE: Pressurizer level is 50%**
9	Maintain RCS pressure 2050-2150 psia	MCC-4C1 Operate backup heaters as required **CUE: Pressurizer pressure is 2100 psia**
10	Verify S/G levels	**CUE: LI-903Y-1 and LI-906Y-1 both read 80%**
11	Verify HCV-1384 is CLOSED	**CUE: EONT reports HCV-1384 is CLOSED**
12	Place YCV-1045 in AFTER-START	AI-179 YCV-1045 control switch in AFTER-START. FW-10 running light is ON
13	Place both of the following switches in THROTTLE: • HCV-1107B • HCV-1108B	AI-179 HCV-1107B and HCV-1108B switches in THROTTLE

JPM No: B.1.g

JPM Title: Operate AFW system from AI-179 following Control Room evacuation

STEP	ELEMENT	STANDARD
14	Throttle HCV-1107B and HCV-1108B using controllers	AI-179 Regulate Air Loaders for desired flow
15	Verify S/G pressures greater than 850 psia	AI-179 **CUE: S/G pressures indicate 950 psia**
16	Establish contact with STA	CUE: STA reports All Safety Functions are being met
17	Direct EONT to maintain EFWST level	**CUE: EONT is maintaining EFWST level** **CUE: Plant Cooldown is not required**

Termination Criteria: **Control of AFW has been established at the alternate Shutdown panels**

JPM No: B.1.g

INITIATING CUE: **The Shift manager has directed an evacuation of the Control Room. All of the actions of step 1 of AOP-07 have been completed. All feedwater and heater drain pumps are secured, one condensate pump is running. You are directed to establish control at the Alternate Shutdown Panels. (You have a radio and the AOP-06 keys)**

JOB PERFORMANCE MEASURE

JPM No: B.2.a

JPM Title: Line up Condenser Evacuation to AB stack

Location: Plant – Aux Building and Turbine Building

Approximate Time: 15 minutes Actual Time: _____

Reference(s): OI-CE-1
K/A 000037 AA2.07 (RO 3.1 / SRO 3.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.2.a

JPM Title: Line up Condenser Evacuation to AB stack

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment:	None
Safety Considerations:	Requires RCA entry
Comments:	This JPM begins in the RCA and finishes in the Turbine Building

JPM No: B.2.a

JPM Title: Line up Condenser Evacuation to AB stack

INITIATING CUE: **Due to High Activity in the RCS, the Shift Manager has directed you to line up Condenser Evacuation to the AUX Building Stack.**

All Prerequisites given in OI-CE-1, attachment 2 are met.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Slowly Open VA-412	AB Corr. 26 Slowly Turn valve to OPEN position
2	Monitor VD-29, Condenser Evacuation Liquid Drain Trap, for water flow to drain hub	Room 59 Monitor Trap for Flow **CUE: Trickle flow**
3	Close the following valves: • VD-359 • VD-360 • VD-361	Turbine Building EL 1011 Valves turned to CLOSE position
4	Notify Control Room prior to closing VD-423	**CUE: Control room has been notified**
5	Close VD-423	Turbine Building EL 1036 Turn Valve to CLOSED position **CUE: Control Room reports condenser vacuum is steady**

JPM No: B.2.a

JPM Title: Line up Condenser Evacuation to AB stack

Termination Criteria: **Condenser Evacuation is discharging through the AB Stack**

JPM No: B.2.A

INITIATING CUE: **Due to High Activity in the RCS, the Shift Manager has directed you to line up Condenser Evacuation to the AUX Building Stack.**

All Prerequisites given in OI-CE-1, attachment 2 are met.

JOB PERFORMANCE MEASURE

JPM No: RO B.2.b

JPM Title: Startup Hydrogen Purge System

Location: Aux Building

Approximate Time: 10 minutes Actual Time: _____

Reference(s): OI-VA-1 Attachment 5A
K/A 028000 A2.02 (RO 3.5 / SRO 3.9)

JPM Prepared by: Jerry koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: RO B.2.b

JPM Title: Startup Hydrogen Purge System

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: Performed in RCA

Comments:

JPM No: RO B.2.b

JPM Title: Startup Hydrogen Purge System

INITIATING CUE: **The plant is in accident recovery following a LOCA. CIAS and VIAS have initiated. Containment hydrogen is >3%. A containment hydrogen purge is required. You have been directed to perform the Aux building steps of OI-VA-1, attachment 5A to start a hydrogen purge using VA-80A.**

The procedure is complete through step 6.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Ensure VA-411, VA-82 bypass is closed	Corr. 26 IA-VA-411-B1 in FILTERED
2	Ensure VA-291/VA-279 combined remote operator is closed.	Corr 26 VA-291/VA-279 CLOSED
3	Ensure VA-282/VA-284 combined remote operator is closed.	Corr 26 VA-282/VA-284 CLOSED
4	Open hydrogen purge valves for VA-80A: • VA-290 • VA-292 • VA-289:	Corr 26 Unlock and OPEN valves
5	Contact Control Room	**CUE: Control room reports procedure steps 8,9 and 10 have been completed**
6	Start hydrogen purge fan	AI-100 Place VA-80A control switch in PULL TO OVERRIDE
7	Monitor DPI-899D	Corr 26 **CUE: DPI-899D indicate 10”w.g.**

JPM No: RO B.2.b

JPM Title: Startup Hydrogen Purge System

STEP	ELEMENT	STANDARD

Termination Criteria: Hydrogen purge has been started

JPM No: RO B.2.b

INITIATING CUE:	**The plant is in accident recovery following a LOCA. CIAS and VIAS have initiated. Containment hydrogen is >3%. A containment hydrogen purge is required. You have been directed to perform the Aux building steps of OI-VA-1, attachment 5A to start a hydrogen purge using VA-80A.** **The procedure is complete through step 6.**

JOB PERFORMANCE MEASURE

JPM No: SRO B.2.b

JPM Title: Waste Gas transfer from the vent header to the gas decay tank

Location: Auxiliary Building Controlled Area

Approximate Time: 10 minutes Actual Time: _____

Reference(s): OI-WDG-1
K/A 071000 A4.05 (RO 2.6 / SRO 2.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: SRO B.2.b

JPM Title: Waste Gas transfer from the vent header to the gas decay tank

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: This JPM is performed in the RCS

Comments:

JPM No: SRO B.2.b

JPM Title: Waste Gas transfer from the vent header to the gas decay tank

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INITIATING CUE: **Vent header pressure is at 2 psig and you are directed to pump the vent header to the in service gas decay tank using WD-28A until vent header pressure has been reduced to 1 psig**
AI-110 is operable and has been sampling the in-service gas decay tank for the past 20 minutes.
All prerequisites are met.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Verify VCT gas sample is secured.	AI-110 WD-242 and WD-1080 indicate closed.
2	Verify that the gas vent header is drained	Room 13 **CUE: After examinee notes room 13 entry requirements tell him that "The vent header in room 13 has been drained"**
3	Ensure that gas compressor is primed: a. DW-156 is open b. WD-28A moisture separator tank level visible below centerline	Room 16 a. DW-156 is OPEN **b. CUE: Water level is above the pump rotor centerline**
4	Drain moisture separator tank a. OPEN WD-216 b. Drain c. CLOSE WD-216	Room 16 a. WD-216 OPEN b. **CUE: Water level is below pump rotor centerline.** c. WD-216 CLOSED
5.	Start WD-28A to pump the Vent Header	AI-100 WD-28A control switch to hand RED light ON

JPM No: SRO B.2.b

JPM Title: Waste Gas transfer from the vent header to the gas decay tank

STEP	ELEMENT	STANDARD
6	Monitor the following: • WGDT H_2 and O_2 concentration • WGDT Pressure • Vent Header Pressure	AI-110 **CUE: H_2 = 0.2 kPA** **O_2 = 0.0 kPA** AI-100 **CUE: WGDT = 65 psig** **Vent Header = 1.0 psig**
7	Secure gas transfer	AI-100 WD-28A control switch to OFF and GREEN light lit

Termination Criteria: **Waste gas has been transferred from the Vent Header to the in-service gas decay tank**

JPM No: SRO B.2.b

INITIATING CUE: **Vent header pressure is at 2 psig and you are directed to pump the vent header to the in service gas decay tank using WD-28A until vent header pressure has been reduced to 1 psig**
AI-110 is operable and has been sampling the in-service gas decay tank for the past 20 minutes.
All prerequisites are met.

JOB PERFORMANCE MEASURE

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

Location: Switchgear Room

Approximate Time: 15 minutes Actual Time: _____

Reference(s): OI-EE-4, attachment 1
K/A 000057 AA1.01 (RO 3.7 / SRO 3.7)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

Operators' Name: _____ Employee # _____

All Critical Steps (*) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY **UNSATISFACTORY**

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

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INITIATING CUE: **Instrument Inverter "A" is out of service. AI-40A is being supplied by the bypass transformer. The electricians have cleared their tags and you have been directed to start up inverter "A" and place it in service.**

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Ensure the input breaker, EE-8H-CB1 is open	Inverter "A" (EE-8H) Breaker in OPEN position
2	Ensure the DC source breaker at the DC panel is closed	EE-8F DC Bus #1 EE-8F-CB24 breaker in CLOSED position
3	Ensure the manual (bypass) transfer switch S1 at the inverter is in bypass	Inverter "A" (EE-8H) S1 in BYPASS position
4	Precharge the inverter	Inverter "A" (EE-8H) Push precharge button on inverter and wait 10 seconds
5	Close input breaker EE-8H-CB1	Inverter "A" (EE-8H) Place breaker in CLOSED position
6	Verify Sync loss light is on	Inverter "A" (EE-8H) Sync loss light ON
7	Verify Reverse Transfer light is ON	Inverter "A" (EE-8H) Reverse transfer light is ON
8	Place S1 EE-8H manual transfer switch in the inverter position	Inverter "A" (EE-8H) EE-8H-S1 in INVERTER position

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

STEP	ELEMENT	STANDARD
9	Ensure sync loss light is off	Inverter "A" (EE-8H) **CUE: Sync Loss Light is ON**
10	Terminate procedure and contact Shift Manager	DOES Not push Forward Transfer Button **CUE: Electrical Maintenance has repaired inverter and Sync Loss light is now OFF. You are directed to continue with procedure.**
11	Push the forward transfer button	Inverter "A" (EE-8H) PUSH forward transfer button
12	Verify Reverse Transfer light is off	Inverter "A" (EE-8H) Reverse Transfer light OFF
13	Verify Forward Transfer light is on	Inverter "A" (EE-8H) Forward Transfer light is ON
14	Ensure EE-8H-CB3 vent fan breaker is closed	Inverter "A" (EE-8H) Breaker EE-8H-CB3 is in CLOSED position
15	Verify Inverter "A" output frequency and voltage	Inverter "A" (EE-8H) **CUE: Frequency = 60.0 Hz** **Voltage = 120.1 volts**

Termination Criteria: **Instrument Bus AI-40A is being supplied by Inverter A**

JPM No: B.2.c

INITIATING CUE: **Instrument Inverter "A" is out of service. AI-40A is being supplied by the bypass transformer. The electricians have cleared their tags and you have been directed to start up inverter "A" and place it in service.**

Facility: Fort Calhoun	Scenario No: 2002-1	Op-Test No. _____

Examiners: _____	Operators: _____
_____	_____
_____	_____

Initial Conditions: 50% Reactor Power. D/G-1 is tagged out of service for generator brush replacement. Waste Monitor Tank, WD-22A, release is in progress.

Turnover: Align RM-052 so that it is monitoring containment atmosphere

Event No.	Malf No.	Event Type*	Event Description
1		N	Align RM-052 to monitor containment
2		I	Transmitter on controlling pressurizer level channel fails low
3		C	Running Bearing water pump trips (must start backup)
4		C	Lower and middle seals on RCP, RC-3B fails
5		R, N	Plant shutdown due to two failed RCS seals
6		I	Steam Generator level channel fails low
7		C, I	Loss of instrument bus affecting remaining pressurizer level channel
8		I	Main Generator voltage regulator fails
9		M	300 gpm LOCA caused by third seal failure on RC-3B
10		C	PPLS fails to actuate

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

Op-Test No.:	Scenario No.: 1	Event No.: 1	Page 2 of 12

Event Description: Align RM-052 to monitor Containment

Time	Position	Applicant's Actions or Behavior
	SRO	Obtain copy of OI-RM-1
	SRO <C>	Ensure T.S. 2.8 and 2.15 requirements are met
	SRO	Direct PRI to align RM-052 to containment
	PRI	Place RM-052 keyswitch to KEYPAD and Pump control switch to STOP
	PRI <C>	Ensure PCV-742E, PCV-742G, PCV-742F and PCV-742H are open
	PRI <C>	Direct EONA to realign VA-1189, 1190,1191 and 1192 at skid
	PRI	Direct EONA to align power supplies
	PRI <C>	Place Sample control switch to CNTMT
	PRI <C>	Place pump control switch to START
	PRI	Notify I&C to change the alert and high setpoints
	PRI	Verify RM-052 high and alert setpoints
	PRI	Ensure RM-052 ratemeter high alarm is reset
	PRI <C>	Place RM-052 keyswitch in ON
	PRI	Perform RM-052 Check Source test

Op-Test No.:	Scenario No.: 1	Event No.: 2	Page 3 of 12

Event Description: Transmitter on controlling pressurizer level channel fails low

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "Low Level" alarm
	PRI	Identify and report failure of pressurizer level instrument
	SRO	Direct PRI to transfer control channels or take manual control of controlling channel
	PRI <C>	Transfer control channel or take manual control of level
	PRI	Monitor and control pressurizer level
	SRO	Direct PRI to select Y channel on the low level heater cutout switch
	PRI	Select Y channel on low level heater cutout switch
	SEC	Monitor secondary parameters

Op-Test No.:	Scenario No.: 1	Event No.:3	Page 4 of 12

Event Description: Running Bearing water pump trips

Time	Position	Applicant's Actions or Behavior
	SEC	Respond to "Cooling Water Pressure Low" alarm
	SEC	Report that AC-9A tripped
	SRO <C>	Direct SEC to start AC-9B
	SEC <C>	Start AC-9B
	SRO	Direct SEC to verify operation of air compressor
	SEC	Verify operation of air compressors (CA-1C stops and restarts)
	PRI	Continue to monitor parameters associated with reactor startup
	SRO	May enter AOP-20

Op-Test No.:	Scenario No.: 1	Event No.: 4	Page 5 of 12

Event Description: Lower and Middle seals fail on RCP, RC-3B

Time	Position	Applicant's Actions or Behavior
	PRI	Identify and communicate high seal leakage from alarms
	SRO	Enter alarm response procedure
	PRI <C>	Monitor RCP seal pressures and determine that the lower and middle sealsl on RCP B have failed
	SRO <C>	Direct Emergency Shutdown and enter AOP-05 (Emergency Shutdown)
	SEC	Monitor secondary parameters

Op-Test No.:	Scenario No.: 1	Event No.: 5	Page 6 of 12

Event Description: Plant Shutdown due to two failed RCP seals

Time	Position	Applicant's Actions or Behavior
	SRO	Direct PRI and SEC to commence Emergency Shutdown
	SRO	Notify System Operations of power decrease
	SRO	Direct PRI to begin boration using SIRWT
	PRI <C>	Switch charging pump suction from VCT to SIRWT
	SRO	Direct SEC to control RCS T-cold by reducing turbine load
	SEC <C>	Reduce turbine load to control T-cold
	SRO	Direct PRI to operate control rods as required to control ASI
	PRI	Operate control rods to control ASI
	PRI	Monitor and control primary parameters
	SEC	Monitor and control RCS T-cold and secondary parameters

Op-Test No.:	Scenario No.: 1	Event No.: 6	Page 7 of 12

Event Description: Steam Generator level channel fails low

Time	Position	Applicant's Actions or Behavior
	SEC	Respond to "FEEDWATER CONTROL STEAM GENERATOR RC-2A LEVEL LOW" alarm
	PRI or SEC	Obtain ARP-CB-4/A8 and determine actions
	SEC	Identify and report failure of steam generator level channel LT-903X
	SRO	Direct SEC to take manual control of Steam Generator, RC-2A level.
	SEC<C>	Take manual control of FCV-1101, restore and maintain level
	SRO	Notify OCC of failure
	PRI	Monitors primary parameters

Op-Test No.:	Scenario No.: 1	Event No.:7	Page 8 of 12

Event Description: Loss of instrument bus affecting remaining pressurizer level channel

Time	Position	Applicant's Actions or Behavior
	All	Identify Loss of Instrument Bus "D"
	SRO	Enter AOP-16
	SRO	Direct PRI or SEC to verify loss on instrument bus "D"
	PRI or SEC	Verify loss of instrument bus "D"
	SRO	Direct SEC to verify S/G levels
	SEC	Verify S/G levels and control if required
	SRO <C>	Direct PRI or SEC to bypass all RPS channel D bistable trip units
	PRI or SEC <C>	Bypass all channel "D" RPS trip units
	SRO	Direct PRI to verify CCW and Raw Water pumps running
	PRI	Verify CCW and Raw Water pumps running
	SRO	Direct SEC to verify Instrument Air pressure
	SEC	Verify Instrument Air Pressure
	SRO	Direct Primary to verify pressurizer level and pressure control
	PRI<C>	Reports loss of both pressurizer level control channels
	SRO	Direct PRI to manually control charging and letdown using LI-106 and TDB correction curves to determine level
	PRI	Manually control charging and letdown using LI-106 and TDB correction curves to determine level
	SRO	Direct PRI or SEC to verify RCPs, subcooling and containment integrity
	PRI or SEC	Verify RCPs, subcooling and containment integrity
	SRO<C>	Direct EONA to terminate monitor tank release
		(Continued on next page)

Op-Test No.:	Scenario No.:1	Event No.: 7 (cont)	Page 9 of 12
Event Description: Loss of instrument bus affecting remaining pressurizer level channel			

Time	Position	Applicant's Actions or Behavior
	SRO	Direct SEC to isolate S/G Blowdown
	SEC	Isolate Blowdown
	SRO	Direct PRI or SEC to place RM-054B, RM-055, RM-062, RM-063 in keypad
	PRI or SEC	place RM-054B, RM-055, RM-062, RM-063 in keypad
	SRO	Refer to ODCM and Technical Specifications
	SRO	Refer to Electrical load distribution manual

Op-Test No.:	Scenario No.: 1	Event No.:8	Page 10 of 12

Event Description: Main Generator Voltage Regulator Fails

Time	Position	Applicant's Actions or Behavior
	SEC	Respond to "GENERATOR VOLTS-PER-CYCLE HI" alarm
	PRI or SEC	Refer to ARP-CB-20/A14
	SRO	Direct SEC to transfer generator voltage regulator control to "Manual" and lower voltage to less than 23.8 kv
	SEC <C>	transfer generator voltage regulator control to "Manual" and lower voltage to less than 23.8 kv
	SRO	Notify OCC

Op-Test No.:	Scenario No.: 1	Event No.:9	Page 11 of 12

Event Description: 300 gpm LOCA caused by third seal failure on RC-3B

Time	Position	Applicant's Actions or Behavior
	PRI	Identify and communicate lowering pressurizer pressure and level
	SRO	May direct PRI to manually trip the reactor
	PRI	Manually trip the reactor if directed
	SRO	Direct Standard Post-Trip Actions
	PRI SEC	Perform Standard Post Trip Actions
	PRI <C>	Secure one RCP in each loop at 1350 psia
	PRI	Secure remaining RCPs on loss of NPSH
	SRO	Transition to EOP-03 (LOCA)

Op-Test No.:	Scenario No.: 1	Event No.: 10	Page 12 of 12

Event Description: PPLS fails to actuate

Time	Position	Applicant's Actions or Behavior
	PRI	Monitor for automatic PPLS actuation
	PRI	Determine and report that PPLS failed to actuate
	SRO <C>	Direct PRI to manually initiate PPLS
	PRI <C>	Manually initiate PPLS
	PRI	Verify and report PPLS actuation and adequate SI flow
	SRO	Direct PRI and SEC to begin RCS cooldown
	SEC	Begin RCS cooldown
	PRI	Monitor primary parameters
		Scenario ends when all safety functions are met and cooldown is in progress

Facility: Fort Calhoun	Scenario No: 2002-2	Op-Test No. _____
Examiners: _____ _____ _____	Operators: _____ _____ _____	
Initial Conditions: 100% Reactor Power. D/G-1 is tagged out of service for generator brush replacement.		
Turnover: Place CCW Pump, AC-3C in service and remove AC-3A from service.		

Event No.	Malf No.	Event Type*	Event Description
1		N	Rotate CCW pumps
2		I	PIC-910 fails high causing turbine bypass valve to open
3		I	Letdown HX CCW outlet temperature transmitter, T-2987, fails low. (results in high letdown temperature)
4		C	Dropped Control rod
5		R, N	Reduce power to 70% due to dropped rod
6		I	Controlling pressurizer pressure channel fails high
7		M	Main steam line break in turbine building
8		C	SGIS fails to actuate
9		C	S/G “B” MSIV will not close

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

Op-Test No.:	Scenario No.: 2	Event No.: 1	Page 2 of 11

Event Description: Rotate CCW pumps

Time	Position	Applicant's Actions or Behavior
	SRO	Directs PRI to switch operating CCW pump from Pump AC-3A to Pump AC-3A.
	PRI	Obtains and reviews Procedure OI-CC-1, Attachment 2.
	PRI	Directs local operator to Room 69.
	PRI <C>	Starts pump AC-3C and directs closure of Valve AC-102 (Pump AC-3A discharge valve).
	PRI <C>	Stops pump AC-3A and takes hand switch to pull-to-Lock.
	PRI	Ensures proper operation of pump AC-3C. Directs local operator to reopen Valve AC-102.

Op-Test No.:	Scenario No.: 2	Event No.: 2	Page 3 of 11

Event Description: PIC-910 fails high causing turbine bypass valve to open

Time	Position	Applicant's Actions or Behavior
	SEC	Identify rapid decrease in RCS T cold
	SEC	Determine cause as turbine bypass valve being open
	SRO <C>	Direct SEC to take manual control of PCV-910 and close valve
	SEC <C>	Take manual control of PCV-910 and close it
	SEC	Monitor RCS Tc
	PRI	Monitor and control RCS parameters
	SRO	Notify I & C of failure

Op-Test No.:	Scenario No.: 2	Event No.: 3	Page 4 of 11

Event Description: Letdown HX CCW outlet temperature transmitter, T-2987, fails low

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "High Letdown Temperature" Alarm
	PRI	Determine that TCV-211-2 has repositioned to bypass demineralizers
	PRI	Determine high temperature due to reduced CCW flow to letdown heat exchanger following closure of TCV-2897
	SRO <C>	Direct PRI to manually control CCW flow to letdown HX using TCV-2897
	PRI <C>	Manually control TCV-2897to restore letdown temperature
	SRO	May direct PRI to reposition TCV-211-2
	PRI	Reposition TCV-211-2 if directed
	PRI	Monitor primary parameters
	SEC	Monitor secondary parameters

Op-Test No.:	Scenario No.: 2	Event No.: 4	Page 5 of 11

Event Description: Dropped Control Rod

Time	Position	Applicant's Actions or Behavior
	PRI	Identify event from "Dropped Rod" and other alarms
	PRI <C>	Determine only one rod has dropped (rod #1, grp 4)
	SRO	Enter AOP-02 (CEDM Malfunction)
	SRO <C>	Direct SEC to adjust turbine load to match reactor power
	SEC <C>	Adjust turbine load to match reactor power
	SRO	Direct RO to control pressurizer pressure and level
	PRI	Monitor Pressurizer pressure and level
	SRO	Direct PRI to reset Rod Drop Bistables
	PRI	Reset Rod Drop Bistables
	SRO	Notify Reactor Engineer
	SRO	Consult Tech Sec 2.10.2. (Note: Requirements of this Tech Spec are covered in the actions required by AOP-02
	SRO <C>	Inform RO and SEC that Tech Specs require a power reduction to less than 70% within one hour
	SRO	Notify system Operations of impending power reduction
	SEC	Continue manual control of S/G level

Op-Test No.:	Scenario No.: 2	Event No.: 5	Page 6 of 11

Event Description: Reduce Power to 70% due to dropped rod

Time	Position	Applicant's Actions or Behavior
	SRO	Direct RO and BOP to commence power reduction
	SRO	Direct RO on method of boration to use. (Options are normal boration, shifting charging pump suction to the SIRWT, or entering AOP-05 (Emergency Shutdown)
	PRI<C>	Begin boration
	SEC<C>	Reduce turbine load to control RCS Tc.
	PRI	Monitor and control primary parameters during power reduction
	SEC	Monitor and control secondary parameters during power reduction

Op-Test No.:	Scenario No.: 2	Event No.: 6	Page 7 of 11

Event Description: Controlling pressurizer pressure channel fails high

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "Pressurizer Pressure Off Normal HI/LO Channel X Alarm"
	PRI	Identify and report high indication on controlling channel and lowering pressure on other channel
	PRI/SEC	Obtain ARP and verify actions
	SRO <C>	Direct PRI to transfer control to "Y" channel or take manual control of pressurizer pressure
	PRI <C>	Transfer control channel or take manual control as directed to maintain level above 40%
	PRI	Monitor and Maintain proper pressurizer pressure
	SEC	Monitor and control secondary parameters

Op-Test No.:	Scenario No.: 2	Event No.: 7	Page 8 of 11

Event Description: Main Steam line break in turbine building

Time	Position	Applicant's Actions or Behavior
	PRI	Report lowering trends in T-cold, pressurizer pressure and level
	SEC	Report lowering Steam generator pressure
	SRO	May direct manual reactor trip
	PRI	Manually trip the reactor if directed
	SRO<C>	Direct Standard Post-Trip Actions
	PRI<C>	Perform Standard Post-Trip Actions
	SEC<C>	Perform Standard Post-Trip Actions

Op-Test No.:	Scenario No.: 2	Event No.: 8	Page 9 of 11

Event Description: SGIS fails to actuate

Time	Position	Applicant's Actions or Behavior
	SEC	Identify and report that SGIS did not actuate
	SRO	Direct SEC to manually initiate SGIS
	SEC<C>	Manually Initiate SGIS

Op-Test No.:	Scenario No.: 2	Event No.: 9	Page 10 of 11

Event Description: S/G "B" MSIV will not close

Time	Position	Applicant's Actions or Behavior
	SEC<C>	Report that MSIV on "B" S/G did not close
	SRO	Transition to EOP-05
	SRO<C>	Direct SEC to begin steaming from "A" S/G before "B" S/G dries out
	SEC<C>	Begin steaming from "A" S/G before "B" S/G dries out
	SRO	Direct PRI to ensure proper actuation of ESF
	PRI	Ensure SI flow is maximized
	PRI	Trip 1 RCP in each loop if RCS pressure reaches 1350 psia
	SRO	Direct PRI to ensure Emergency Boration
	PRI	Ensure Emergency Boration
	SRO	Direct SEC to establish AFW flow to good S/G
	SEC	Establish AFW flow to good S/G
	SEC	Identify affected S/G (perform 16A,B,C of EOP-05)
	SRO<C>	Direct SEC to isolate AFW flow to affected S/G
	SEC<C>	Isolate affected S/G
	PRI	Report when "HPSI stop and throttle" criteria is met
	SRO	Direct PRI to perform "HPSI stop and throttle"
	PRI <C>	Perform "HPSI stop and throttle"
	SRO/PRI	Ensure "Stop and Throttle criteria continues to be met"

Op-Test No.:	Scenario No.:2	Event No.:9 cont	Page 11 of 11

Event Description: : S/G "B" MSIV will not close

Time	Position	Applicant's Actions or Behavior
	SRO	Direct PRI to control charging flow and reestablish letdown if needed to control RCS temperature and pressure
	PRI	Control charging/ reestablish letdown if required
	END	**Scenario ends with HPSI stop and throttle and RCS pressure and temperature under control**

Facility: Fort Calhoun	Scenario No: 2002-3	Op-Test No. _____
Examiners: _____ _____ _____	Operators: _____ _____ _____	
Initial Conditions: 100% Power. FW-54 tagged out to replace fuel pump. Power Range NI channel "A" is out of service due to failed power supply. "A" Trip units 1,9 and 12 have been bypassed. FIA-236 is failed.		
Turnover: Place CH-1A in service remove CH-1B from service CH-1A packing cooling pump has been operating for 45 minutes.		

Event No.	Malf No.	Event Type*	Event Description
1		N	Place CH-1A in service remove CH-1B from service
2		I	VCT level fails low causing charging pump suction to realign to SIRWT.
3		I	Power Range NI Channel "D" Fails
4		R, N	Power reduction to 70% power.
5		M	Loss of offsite power (both 161KV and 345 KV)
6		C, M	Auto Reactor trip fails (ATWS)
7		C	Turbine driven AFW pump, FW-10 fails to start.
8		C	RC-3C breaker does not open. (D/G-1 output breaker does not close)

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

Op-Test No.:	Scenario No.:3	Event No.:1	Page 2 of 8

Event Description: Place CH-1A in service remove CH-1B from service

Time	Position	Applicant's Actions or Behavior
	SRO	Direct PRI to place CH-1A in service and remove CH-1B form service
	PRI	Obtain OI-CH-1, Attachment 5
	PRI<C>	Start CH-1A
	PRI	Verify operation of CH-1A by observing pump amps or VCT level (Normal means, FIA-236, is not available)
	PRI<C>	Stop CH-1B
	PRI<C>	Place "Charging Pumps Mode Select Stby switch" to "CH-1B-1C"
	PRI	Report completion of pump rotation.

Op-Test No.:	Scenario No.:3	Event No.:2	Page 3 of 8

Event Description: VCT level fails low causing charging pump to realign to SIRWT

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "Volume Control Tank Level LO-LO" alarm
	PRI or SEC	Obtain ARP-CB-1,2,3/A2
	SRO	Direct PRI to check VCT level
	PRI	Report level on channel LIC-219 is normal
	PRI	Report charging pump suction swapped to SIRWT
	SRO/PRI	Determine that level switch failed
	SRO <C>	Direct PRI to manually open LCV-218-2 and close LCV-218-3
	PRI <C>	Open LCV-218-2 and close LCV-218-3
	PRI	Monitor and control primary parameters
	SEC	Monitor and control secondary parameters
	PRI	Optional: may place off-normal placard on LCV-218-2 switch
	SRO	Notify OCC of failure

Op-Test No.:	Scenario No.:3	Event No.:3	Page 4 of 8

Event Description: Power range NI Channel "D" Fails

Time	Position	Applicant's Actions or Behavior
	PRI	Identify the failure from reflash of alarms
	SRO	Reference AOP-15
	SRO	Determine the need to place "D" channel trip units 1,9 & 12 in the tripped condition (may simulate pulling trip unit cards, may use "power trip test interlock or may call I&C)
	SRO <C>	Determine the need to lower power to 70%
	SEC	Enter channel failure in control room log

Op-Test No.:	Scenario No.:3	Event No.: 4	Page 5 of 8

Event Description: Power reduction to 70% power.

Time	Position	Applicant's Actions or Behavior
	SRO	Direct PRI and SEC to commence power reduction using OP-4
	SRO	Direct PRI on method of boration to use.
	SRO	Request ASI guidance and provide to RO
	PRI <C>	Begin boration (approximately 138 gallons boric acid)
	SEC <C>	Reduce turbine load to control Tc
	PRI	Monitor and control primary parameters during power reduction
	SEC	Monitor and control secondary parameters during power reduction

Op-Test No.:	Scenario No.:3	Event No.:5 and 6	Page 6 of 8

Event Description: Loss of offsite power (both 161 KV and 345 KV) with ATWS

Time	Position	Applicant's Actions or Behavior
	PRI	Determine and communicate that the reactor failed to trip.
	SRO	Direct PRI to manually trip the reactor
	PRI<C>	Push CB-4 manual Reactor Trip Pushbutton.
	SEC	Determine and communicate that Trip did not actuate.
	SRO	Direct the PRI and SEC to initiate RPS panel (AI-31) trip and DSS trip.
	SEC<C>	Operate DSS Trip.
	PRI	Determine and communicate that the rods have inserted.
	SRO	Direct PRI and SEC to take Standard Post Trip Actions (SPTAs).
	PRI	Perform Standard Post Trip Actions .
	SEC	Perform Standard Post Trip Actions - Indentify and communicate bus 1A3 deenergized and Loss of Feedwater .
	PRI or SEC	Report Both D/G's running at 900 RPM
	PRI or SEC	Report that Bus 1A4 is energized
	SRO	Direct PRI or SEC to have EONT minimize DC loads
	SRO<C>	Direct EONT to minimize DC loads
	PRI	Perform remainder of SPTA's
	SEC	Perform remainder of SPTA's
	SRO	Verify completion of SPTA's

Op-Test No.:	Scenario No.:3	Event No.:7	Page 7 of 8

Event Description: Turbine Driven AFW pump, FW-10 fails to start

Time	Position	Applicant's Actions or Behavior
	SEC<C>	Attempt to start FW-10
	SEC	Report loss of FW-10
	SRO	Direct BOP to monitor S/G level
	SEC	Monitor and report S/G level
	SRO	Enter EOP-06 or EOP-20 due to a loss of all feedwater
	SRO	Determine that heat removal safety function is not being met.

Op-Test No.:	Scenario No.:3	Event No.:8	Page 8 of 8

Event Description: RC-3C breaker does not open (D/G-1 output breaker does not close)

Time	Position	Applicant's Actions or Behavior
	PRI	Identify failure of breaker to open
	PRI	Report failure of breaker to open
	SRO	Direct PRI to direct EONT to manually trip breaker
	PFI<C>	Direct EONT to manually trip breaker
	SRO	Direct SEC to verify restoration of power to bus 1A3
	SEC	Verify power to bus 1A3
	SRO	Direct SEC to start FW-6
	SEC<C>	Starts FW-6
	SEC	Ensure flowpath to Steam Generators
		Termination Criteria: FW being supplied to at least one steam generator or Once through cooling in progress

Facility: Fort Calhoun	Scenario No: 2002-4 (spare)	Op-Test No. _____

Examiners: _____	Operators: _____
_____	_____
_____	_____

Initial Conditions: 100% Power. FW-54 tagged out to replace fuel pump. Power Range NI channel "A" is out of service due to failed power supply. "A" Trip units 1,9 and 12 have been bypassed. Safety Injection Tank SI-6B has a low level alarm.

Turnover: Raise level in Safety Injection Tank SI-6B

Event No.	Malf No.	Event Type*	Event Description
1		N	Raise level in Safety Injection tank SI-6B
2		I	WR NI channel "C" power supply failure
3		C	CCW pump trips
4		C	Tube leak on steam generator RC-2B
5		R, N	AOP-5 plant shutdown
6		I	Steam generator pressure transmitter on RC-2A fails low
7		M	Loss of condenser vacuum – Reactor Trip
8		M	Steam Generator Tube Rupture – RC-2A

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

Op-Test No.:	Scenario No.:4	Event No.: 1	Page 2 of 9

Event Description: raise level in safety Injection tank SI-6B

Time	Position	Applicant's Actions or Behavior
	SRO	Directs BOP to raise SIT SI-6B level to 72% using HPSI Pump SI-2A and HCV-311 or HCV-312 IAW OI-SI-1, Attachment 4.
	PRI	Ensures that recirculation valves HCV-385 and HCV-386 are open and HCV-2983 is closed.
	PRI	Start SI-2A. Recirc for 15 minutes. **CUE: ASSUME 15 MINUTES HAVE ELAPSED.**
	PRI	Stop HPSI Pump SI-2A.
	PRI	Open loop injection valve HCV-312 or HCV-311.
	PRI	Open leakage control valve PCV-2909 by placing in MANUAL and controller in OPEN.
	PRI	Open HCV-2909, fill and drain valve, for desired tank to be filled.
	PRI	Restart HPCI Pump SI-2A.
	PRI	Stop HPCI Pump SI-2A when 72% level is reached and level alarm ASAFETY INJECTION TANK SI-6B LO LEVEL@ on Panel A7 has cleared.
	PRI	Close HCV-2916.
	PRI	Close HCV-312 or HCV-311.
	PRI	Place PCV-2909 in CLOSE and valve control in AUTO.
	LSO	Verify that HPSI loop injection valve is operable by lit amber light on valve used to fill tank.

Op-Test No.:	Scenario No.:4	Event No.: 2	Page 3 of 9

Event Description: WR NI Channel "D" power supply failure

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "Nuclear Instrument Channel Inoperative Alarm"
	PRI or SEC	Refer to ARP-CB4-A20
	SRO	Direct PRI to check operation of NIS channels
	PRI <C>	Report failure of WR channel "D" (NON-OP light lit)
	SRO	Optional : may refer to AOP-15 (not required at this power level)
	SRO	Optional: May direct PRI to bypass channel D SUR trip
	PRI	If directed, bypass channel D SUR trip
	SRO <C>	Enter Technical Specification 2.15 and enter 7 day LCO because WR channel D feed AI-212 on ASD panels

Op-Test No.:	Scenario No.:4	Event No.: 3	Page 4 of 9

Event Description: Running CCW pump trips

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to "CCW Pumps Trip" alarm
	PRI	Identify and report CCW pump trip
	PRI	Determine and report autostart failure of backup CCW pumps
	SRO	Direct PRI to manually start a CCW pump
	PRI<C>	Start a CCW pump
	SRO	Direct PRI to monitor CCW pump discharge pressure and flow
	PRI	Verify CCW operating parameters
	SRO	Report CCW pump trip and autostart failures to OCC

Op-Test No.:	Scenario No.:4	Event No.: 4	Page 5 of 9

Event Description: Tube leak on Steam generator RC-2B

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to condenser off-gas radiation alarm (RM-057)
	PRI	Identify and report charging/letdown mismatch
	SRO	Enter AOP-22
	SRO	Direct PRI to control pressurizer level
	PRI	Control pressurizer level
	SEC	Ensure that RCV-978 is closed
	SRO	Initiate Emergency Shutdown (AOP-5)
	SRO	Identify affected steam generator. (RC-2B)
	SRO	Direct PRI or SEC to place steamline radiation monitor in service
	PRI or SEC	Place steamline radiation monitor in service (RM-064)
	SRO	Direct PRI or SEC to have EONA swap blowdown sample flow to waste
	PRI or SEC	Direct EONA to swap blowdown sample flow to waste
	SRO	May direct SEC to place YCV-1045B in override and close

Op-Test No.:	Scenario No.:4	Event No.: 5	Page 6 of 9

Event Description: AOP-05 Plant Shutdown

Time	Position	Applicant's Actions or Behavior
	SRO	Enter AOP-05 (Emergency Shutdown) - Direct Emergency Shutdown
	SRO	Notify System Operations of Power Decrease
	SRO	Direct PRI to begin boration using SIRWT
	PRI	Switch charging pump suction from the VCT to the SIRWT
	PRI	Direct SEC to control RCS cold leg temperature by reducing turbine load
	SEC	Reduce turbine load to control cold leg temperature
	SRO	Direct PRI to operate control rods to control ASI
	PRI	Operate Control Rods to control ASI
	PRI	Monitor and control primary parameters
	SEC	Monitor and control RCS cold leg temperature and secondary parameters
	SRO	Continue to coordinate PRI and SEC actions during power reduction

Op-Test No.:	Scenario No.:4	Event No.:6	Page 7 of 9

Event Description: Steam Generator pressure transmitter on RC-2A fails low

Time	Position	Applicant's Actions or Behavior
	SEC	Identify and communicate lowering FW flow and level in S/G, "RC-2A"
	SRO	Direct SEC to take manual control of Feedwater
	SEC<C>	Take manual control of feedwater and restore level in RC-2A
	SEC	Identify PT-907 as the failed instrument
	SRO	Inform OCC of the failure of PT-907
	SEC	Continue to monitor and control S/G level
	PRI	Monitor primary parameters

Op-Test No.:	Scenario No.:4	Event No.: 7	Page 8 of 9

Event Description: Loss of Condenser Vacuum – Reactor Trip

Time	Position	Applicant's Actions or Behavior
	SRO/PRI/SEC	Recognizes ERF computer alarm for ACONDENSER A/B PRESSURE LOW@ and possibly a ATURBINE HOOD PRESSURE HI@ alarm.
	LSO	Directs SEC to monitor condenser vacuum trend.
	SEC/PRI	Reviews Procedure ARP-CB-10, 11/A9 (Window B-6L) and takes appropriate actions: **$** Dispatches equipment operator to check vacuum pump operation. **$** Monitors vacuum trend.
	SEC	Determines that vacuum continues to decrease. Starts FW-8B backup vacuum pump.
	SRO	Directs entry into AOP-26, Section I.
	SEC	Reviews AOP-26 and determines that condenser vacuum has slowly decreased to <25".
	SRO (C)	Directs plant shutdown (at <10%/min) in accordance with AOP-05 in an attempt to reduce vacuum loss. **Note: AOP also allows use of OP-4**
	SRO	Directs operators to perform standard post-trip actions
	PRI/SEC	Perform standard post-trip actions

Op-Test No.:	Scenario No.:4	Event No.: 8	Page 9 of 9

Event Description: Steam generator Tube Rupture – RC-2A

Time	Position	Applicant's Actions or Behavior
	PRI	Identify and report RCS inventory loss
	SRO	May direct reactor trip
	SRO	Following manual or auto reactor trip, direct standard post trip actions
	PRI	Perform primary standard post trip actions
	SEC	Perform secondary standard post trip actions
	SRO	Diagnose tube rupture - enter EOP-04 or EOP-20
	SRO	Direct RCS cooldown - T_{hot} less than 510°F
	SEC	Cooldown RCS T_{hot} to less than 510°F
	PRI	Identify and verify PPLS
	SRO/SEC	Identify most affected steam generator (A)
	SRO	Direct BOP to isolate steam generator A
	SEC	Isolate steam generator A
	SRO	Direct RO to depressurize RCS to less than 1000 psia
	PRI	Depressurize the RCS
	PRI	Maintain subcooling
	SEC	Monitor and control secondary parameters
	PRI	Monitor and control primary parameters