JPM No: ADM RO A.1.a				
JPM Title: Estimated Critical Condition				
Approximate Time: 15 minutes	Actual Time:			
Reference(s): Fort Calhoun Technica K/A 2.1.25 (RO 2.8)	l Data Book			
IPM Propored by: Jorny Kooke	Date:			
JPM Reviewed by:				
JPM Approved by:	Date:			

JPM No: ADM RO A.1.a		
JPM Title: Estimated Critic	cal Condition	
Operators' Name:		Employee #
• •	haded) must be per contained in this JP	formed or simulated in accordance M
The Operator's performan	nce was evaluated a	s (circle one):
SATISFACT	FORY UNS	ATISFACTORY
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

CUE: Stop after step D.3.D is completed.

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

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:	Date:			
JPM Reviewed by:	Date:			
JPM Approved by:	Date:			

JPM No: RO ADM JPM A	.1.b			
JPM Title: Determine Ope	erational Mode	Э		
Operators' Name:			Employee #	
All Critical Steps (s with the standards				ulated in accordance
The Operator's performan	nce was evalu	ated as	(circle one):	
SATISFAC	TORY	UNSA	ATISFACTOF	RY
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	Refers to Technical Specification Definitions section, page 2 and determines that the plant is either in mode 4 or 5 depending on the boron concentration.
2	Refer to COLR to determine shutdown boron concentration.	Refers to TDB-VI (COLR) Table 2 and determines that the required refueling boron concentration is 2023 ppm.
3	Determine plant operational mode	The plant is in Mode 4, "Cold Shutdown Condition".

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.

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)				
IDM D	D .			
JPM Prepared by: Jerry Koske	Date:			
JPM Reviewed by:	Date:			
JPM Approved by:	Date:			

JPM No: RO ADM JPM A	.2			
JPM Title: Time to boil de	termination			
Operators' Name:		Empl	loyee #	
All Critical Steps (s with the standards			d or simulated in accordar	nce
The Operator's performan	nce was evalua	ated as (circl	le one):	
SATISFACT	ΓORY	UNSATISF	FACTORY	
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 120°F. A loss of shutdown cooling has just occurred and the CRS has directed you 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 120°F. A loss of shutdown cooling has just occurred and the CRS has directed you to use AOP-19 to determine the time to boil and report the results to him.

JPM No: ADM RO A.3				
JPM Title: RCA Entry and Exit with PCM Alarms				
Approximate Time: 12 minutes	Actual Time:			
Reference(s): GET-Radiation Worke Standing Order G-101 K/A 2.3.1 (RO 2.6)				
JPM Prepared by:	Date:			
JPM Reviewed by:	Date:			
JPM Approved by:	Date:			

JPM No: ADM RO A.3				
JPM Title: RCA Entry and	d Exit with PO	CM Aları	ms	
Operators' Name:			Employee #	
All Critical Steps (with the standards				ulated in accordance
The Operator's performa	nce was eval	uated a	s (circle one):	
SATISFAC	TORY	UNS	ATISFACTO	RY
Evaluator's Signature:				Date:
Reason, if unsatisfactory	:			
Tools & Equipment:	None			
Safety Considerations:	None			
Comments:	This JPM is		cted during RC	CA entry and exit for

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with PCM Alarms

INITIATING CUE: A plant procedure that you are performing requires

entry into the RCA.

Critica	l Steps shown in gray	
STEP	ELEMENT	STANDARD
1	Review the RWP	RCA Access Control
		Reads RWP
2	Determine Radiological Conditions .	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 PID and RWP number.
5	Enter RCA	RCA Entered
6	Performs procedure	Performs RCA JPMs
7	Exits RCA	Returns to RCA access point
8	Monitor for personnel contamination prior to exiting RCA	Monitor for contamination using PCM-1.
		CUE: After examinee has completed counting on a PCM-1, tell him to assume that the PCM-1 alarmed- zone 6

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with PCM Alarms

STEP	ELEMENT	STANDARD
9	Monitor for contamination a second time.	Monitor for contamination again using a different PCM-1.
		CUE: After examinee has completed counting on another PCM-1, tell him to assume that this PCM-1 also alarmed- zone 6
10	Contact RP	RP Contacted
		CUE: RP directs that 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 cpm as read.

Termination Criteria: RCA has been exited

JPM No: ADM RO A.3

JPM Title: RCA Entry and Exit with PCM Alarms

NOTE to RP Tech

As a part of this candidate's NRC license exam, he must enter and exit the RCA.

During RCA exit, he has been given verbal Cues that he has received a zone 6 alarm on two separate PCM-1 monitors.

As a part of this JPM, we would like you to direct him to perform a whole body frisk on himself.

JPM No: ADM RO A.3				
INITIATING CUE:	A plant procedure that you are performing requires entry into the RCA.			

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:	Date:			
JPM Reviewed by:	Date:			
JPM Approved by:	Date:			

JPM No: RO ADM JPM A	٨.4			
JPM Title: EP Questions				
Operators' Name:			Employee #	
All Critical Steps (with the standards				ulated in accordance
The Operator's performa	nce was ev	aluated a	s (circle one):	
SATISFAC	TORY	UNS	ATISFACTOR	RY
Evaluator's Signature:				Date:
Reason, if unsatisfactory	:			
Tools & Equipment:	None			
Safety Considerations:	None			
Comments:	This Adm	inistrative	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 do you do with your Accountability

card?

Answer: Place your accountability card in the control room

accountability box.

Question Two: You are escorting two individuals 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 do you do with your accountability card?

JPM No: RO ADM JPM A.4

Question Two:

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

JPM No: ADM SRO	A.1.a			
JPM Title: Review of faulty Estimated Critical Condition Worksheet				
Approximate Time:		Actual Time:		
Potoronoo(s): Fort	t Calbour Tachnical	Data Book		
` ,	t Calhoun Technical 2.1.25 (SRO 3.1)	Dala Book		
JPM Prepared by:	Jerry Koske		Date:	
JPM Reviewed by:			Date:	
JPM Approved by:			Date:	

JPM No: ADM SRO A.1.a				
JPM Title: Review of faulty Estimated Critical Condition Worksheet				
Operators' Name:		_ Employee#		
All Critical Steps (s with the standards		erformed or simulate PM	d in accordance	
The Operator's performar	nce was evaluated	as (circle one):		
SATISFACT	ΓORY UN	SATISFACTORY		
Evaluator's Signature:		Dat	e:	
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

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 through step D.3.d.

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 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 through step D.3.d.

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

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:			

JPM No: SRO ADM JPM	A.1.b			
JPM Title: Armed Securit	y Attack			
Operators' Name:			Employee #	
All Critical Steps (s with the standards				ulated in accordance
The Operator's performa	nce was eval	uated as	s (circle one):	
SATISFAC	TORY	UNS	ATISFACTOR	RY
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. Attention all Personnel. The Plant is in a Security Emergency. Take cover and do not move:
4	Direct Installation of "Ultra Dogs"	CUE: Ultra Dogs have been installed on both Control Room Doors.
5	Initiate a reactor shutdown.	Directs RO to trip the reactor and implement EOP-00, Standard Post-Trip actions.

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

CRITICAL STEP	ELEMENT	STANDARD
		CUE: The reactor has been tripped and Standard Post Trip Actions completed. All EOP-00 safety functions are met.
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-
10	Refer to AOP-37 attachment A	Refers to AOP-37 attachment A and determines that no alternate safety function equipment is required.

JPM No: SRO ADM JPM A.1.b

JPM Title: Armed Security Attack

CRITICAL STEP	ELEMENT	STANDARD
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.

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.

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:		

JPM No: SRO ADM JPM	A.2				
JPM Title: Review a faulty	y clearance fo	or AC-1A			
Operators' Name:		En	nployee#		
All Critical Steps (s with the standards	•	•	ned or simi	ulated in acco	rdance
The Operator's performan	nce was evalu	ıated as (ci	ircle one):		
SATISFAC	TORY	UNSATI	SFACTOF	RY	
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 clearance for this work, that was prepared by an equipment operator, for review and approval.

Critica	al 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 clearance	References P&IDs to verify equipment that should be included in clearance and desired status
3	Clearance approval	Does not approve clearance as written. HCV-2880A and HCV-2880B must be handjacked closed because they fail open on a loss of air. NOTE: The proposed clearance treats these valves as fail-closed valves by isolating instrument air to them. As written, this clearance would likely result in flooding.

Termination Criteria: Clearance review complete and error 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.

FOR TRAINING USE ONLY

AC-RW

FCS Clearance AC-1A MECH ISOL AC-RW-001

Description:

Complete isolation of ac-1a for maintenance

Reason:

Tube cleaning on AC-1A

Hazards: flooding **Notes:**

Tagged Component	Description	Location	Tag Type	Pl. Seq	Rest Seq	Tagged Position	Restoration Position	Tag Placement Notes	Tag Removal Notes
HC-2880C	CONTROL SWITCH FOR HCV-2880A AND HCV- 2880B	AUX 77 1036 Cb-1,2,3	Caution	1	5	CLOSED	CLOSED	IA ISOLATED TO VALVES	110003
HC-489	CONTROL SWITCH FOR HCV-489A AND HCV-489B	AUX 77 1036 Cb-1,2,3	Caution	1	5	CLOSED	CLOSED	VALVES HJ CLOSED	
HC-2880A	COMP CLNG HT EXCH AC-1A;RAW WATER INLET VALVE; HAND CONTROLLER	AUX 18 0993 13W'C-26N'5B	Danger	2	4	DO NOT USE	CLOSED		
HC-2880B	COMP CLNG HT EXCH AC-1A;RAW WATER OUTLET VALVE; HAND CONTROLLER	AUX 4 0995 9W'D-1N'5B	Danger	2	4	DO NOT USE	CLOSED		
IA-HCV-2880A-B	HCV-2880A INSTRUMENT AIR SUPPLY ISOLATION VALVE	AUX 18 0994 13E'D-6S'6D	Danger	3	3	CLOSED	OPEN		
IA-HCV-2880B-B	HCV-2880B INSTRUMENT AIR SUPPLY ISOLATION VALVE	AUX 4 0991 7W'D-4N'5B	Danger	3	3	CLOSED	OPEN		
HCV-489A	COMP COOLING HT EXCH AC-1A; CCW INLET VALVE	AUX 4 0995 10W'D- 11N'5B	Danger	3	3	HJ CLOSED	HJ REMOVED		
HCV-489B	COMP COOLING HT EXCH AC-1A; CCW OUTLET VALVE	AUX 4 0992 10W'D-1N'6D	Danger	3	3	HJ CLOSED	HJ REMOVED		
RW-156	COMP COOLING HT EXCH AC-1A OUTLET WATER BOX FLUSH VALVE	AUX 4 0992 6W'D-4N'5B	Danger	4	2	CLOSED	CLOSED		
RW-130	RW/CCW HT EXCH AC-1A AIR SPARGING INLET ISOLATION VALVE	AUX 4 0990 4W'D-33N'5B	No Tag	5	1	SM DISCR	CLOSED		
RW-213	CCW HEAT EXCHANGER AC-1A DRAIN VALVE	AUX 4 0991 3W'D-15S'7A	No Tag	5	1	SM DISCR	CLOSED		
RW-152	COMP COOLING HT EXCH AC-1A RAW WATER OUTLET VENT VALVE	AUX 4 0999 8W'D-4N'5B	No Tag	5	1	SM DISCR	CLOSED		
RW-189	RAW WATER HEAT EXCH AC-1A DWNSTREAM OF VALVE HCV-2880A VENT VLV	AUX 18 1001 20W'C-30N'5B	No Tag	5	1	SM DISCR	CLOSED		

Level	Verified by	Verification Date/Time	Verification Description	Status
1			-	
2				

JPM No: SRO ADM A.3					
JPM Title: Approve a Containment Pre	essure 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:					
JPM Approved by:	Date:				

JPM No: SRO ADM A.3			
JPM Title: Approve a Con	tainment Pres	sure Reductio	n Release
Operators' Name:		Emplo	yee #
All Critical Steps (s with the standards	•	•	or simulated in accordance
The Operator's performan	nce was evalua	ated as (circle	one):
SATISFACT	ΓORY	UNSATISFA	CTORY
Evaluator's Signature:			Date:
Reason, if unsatisfactory:			
Tools & Equipment:	None		
Safety Considerations:	None		
Comments:			

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.

Critica	al 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.	Al-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.	Al-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 lodine/Particulate sampler is in service on the AB stack
4	Verify required recorders are operable	Al-33E – RR-049A Al-44 – FR-758 Al-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 nonconservative 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.

JPM No: SRO ADM JPM A.4	
JPM Title: Emergency Plan Classificati	on 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:	Date:
JPM Reviewed by:	Date:
JPM Approved by:	Date:

JPM No: SRO ADM JPM	A.4		
JPM Title: Emergency Pla	an Classification	on of an Armed A	ttack
Operators' Name:		Employee	e#
All Critical Steps (s with the standards			simulated in accordance
The Operator's performar	nce was evalu	ated as (circle on	e):
SATISFACT	TORY	UNSATISFACT	ΓORY
Evaluator's Signature:			Date:
Reason, if unsatisfactory:			
Tools & Equipment:	None		
Safety Considerations:	None		
Comments:	Do not perfo	rm this JPM befor	re 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.

The meteorological indications are as follows:

- Indicated 10m wind speed 12 mph, 14 mph
- Indicated wind direction 120°, 128°
- Indicated ?T is -1.8°C/100m, -1.6°C/100m
- It is raining, 0.4 inches daily total

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

Complete page 1 of form FC-1188.

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) on form FC-1188
		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. Document on form FC-1188

JPM No: SRO ADM JPM A.4

JPM Title: Emergency Plan Classification of an Armed Attack

STEP	ELEMENT	STANDARD
4	Document other items on form FC- 1188	Wind Speed – 12 mph Precipitation – yes Stability class – C
		There is no radioactive release

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.

The meteorological indications are as follows:

- Indicated 10m wind speed 12 mph, 14 mph
- Indicated wind direction 120°, 128°
- Indicated ?T is -1.8°C/100m, -1.6°C/100m
- It is raining, 0.4 inches daily total

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

Complete page 1 of form FC-1188.

JPM No: B.1.a				
JPM Title: Emerger	ncy Boration fron	n the Control Room		
Location:	Simulator			
Approximate Time:	7 minutes	Actual Time:		
	A 000001 K4.05	(RO 3.9 / SRO 3.9) (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 Bo	oration from	the Control Room
Operators' Name:		Employee #
All Critical Steps (with the standards		st be performed or simulated in accordance n this JPM
The Operator's performa	nce was ev	aluated as (circle one):
SATISFAC	TORY	UNSATISFACTORY
Evaluator's Signature:		Date:
Reason, if unsatisfactory	:	
Tools & Equipment:	None	
Safety Considerations:	None	
Comments:		Dynamic JPM ICV-268 closed [COP RBAH268 0%] and

LCV-218-2 open

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

Critica	l Steps shown in gray	
STEP	ELEMENT	STANDARD
		Note: The following steps may be performed out of sequence.
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	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	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
4	Close LCV-218-2	CB-1,2,3 Control Switch to CLOSE until only GREEN light lit [LCV-218-2 will not close]
5	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
6	Locally open HCV-268 and/or close LCV-218-2.	Direct EONA to manually open HCV-268 and/or close LCV-218-2; Note: Only one of these actions is required to establish emergency boration
		CUE: Simulator Operator will perform requested manual action and report as EONA.

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

JPM No: B.1.b				
JPM Title: Perform N	Monthly RAS Surve	illance Test		
Location:	Simulator			
Approximate Time:	15 minutes	Actual Time:		
Reference(s): OP-K/A	ST-ESF-0009 7.4 000013 K4.06 (R			
JPM Prepared by:	larny Kaska		Date:	
· -	Jelly Noske			
JPM Reviewed by:			Date:	
JPM Approved by:			Date:	

JPM No: B.1.b			
JPM Title: Perform Month	nly RAS Surveillance	e Test	
Operators' Name:		_ Employee #	
	shaded) must be per contained in this JF	erformed or simulated in accordance PM	е
The Operator's performar	nce was evaluated a	as (circle one):	
SATISFAC	TORY UNS	SATISFACTORY	
Evaluator's Signature:		Date:	_
Reason, if unsatisfactory:			
Tools & Equipment:	None		
Safety Considerations:	None		
Comments:	functions referred	or will perform the dedicated opera to in the procedure. (Override LC\ 86 control switches in open positio	/-

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

JPM Setup:

1	Use a Mode 1 IC
2	Place HC-AI-43A in TEST position
3	Place CS-A1/SP-A (Derived Cutoff switch) in OFF
4	Place Channel A load shed switch in OFF
5	Place HC/344 in TEST
6	Place HC/345 in TEST
7	Place all S1-1 sequencer isolation switches (key switches) in OFF
8	RFP DSG10F LOCAL (simulator operator)
9	Place RM050/51 sample pump switch OFF
10	Place RM-065 sampel pump switch OFF
11	Place PPLS test switch in TEST and release

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

OP-ST-ESF-0009 is in progress and complete through INITIATING CUE:

section 7.3. You are directed to perform RAS testing

per section 7.4.

You will double as the Dedicated Operator for Attachment 4. (step 7.4.1)

Critica	l Steps shown in gray	
STEP	ELEMENT	STANDARD
1	Verify the following alarm windows are clear: • TESTING (A-6) • STLS A SAFEGUARD SIGNAL (B-3) • SAFETY INJECTION RECIRCULATION COMMAND (C-3)	Al-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	Al-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	Al-30A, A33-1, G-2 is ON

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

OTES		OTANDA DD
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) [COP RSIL3832 100%]
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) [COP RSIH386 100%]
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 (B-3) SAFETY INJECTION RECIRCULATION COMMAND (C-3) 	AI-30A Listed alarm windows are ON
12	Verify the following ERF computer points printout: • 86-A/STLS TRIPPED • 86-A/RAS TRIPPED	ERF Printer Tripped printout

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

STEP	ELEMENT	STANDARD
13	Verify the following ERF CRT displays are in alarm: • STLS • RAS	ERF Display Screen STLS and RAS have RED background
14	Sequentially reset the following Lockout Relays: • 86-A/STLS • 86-A/RAS • 86-AX/RAS	Al-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 (G-2)	Al-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.

JPM No: B.1.b

JPM Title: Perform Monthly RAS Surveillance Test

STEP	ELEMENT	STANDARD
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.
		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

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

per section 7.4.

You will double as the Dedicated Operator for

Attachment 4. (step 7.4.1)

JPM No: RO B.1.c				
JPM Title: Transfer Maintenance	Pressurizer Pres	ssure Control to Manu	al to suppo	ort
Location:	Simulator			
Approximate Time:	5 minutes	Actual Time:		
` ′ K/A		(RO 3.8 / SRO 4.1) (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 Press Maintenance	surizer Pressure Control to Manual to support
Operators' Name:	Employee #
	shaded) must be performed or simulated in accordance contained in this JPM
The Operator's performan	nce was evaluated as (circle one):
SATISFAC	TORY 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

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.

All prerequisites are met

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. [COP T:P103X 2500 120 sec ramp]
7	Shift HC-103 to PC-103Y for pressure control in manual	<u>CB-1,2,3</u> 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.

All prerequisites are met

JPM No: SRO B.1.c				
JPM Title: Fuel Hand	dling Incident			
Location:	cation: Simulator or Control Room			
Approximate Time:	12 minutes	Actual Time:		
Reference(s): AOF K/A		(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 #
	haded) must be per contained in this JP	formed or simulated in accordance M
The Operator's performan	nce was evaluated a	s (circle one):
SATISFACT	TORY UNS	ATISFACTORY
Evaluator's Signature:		Date:
Reason, if unsatisfactory:		
Tools & Equipment:	None	
Safety Considerations:	None	
Comments:	This is a static JPM	1

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	Enters AOP-08	Enters AOP-08
2	Notify plant personnel of event	Announce over Gaitronics
3	Direct RP to survey affected area	Cue: RP in containment is checking area
4	Initiate Emergency Plan per EPIP - OSC-1	Cue: Shift Manager will initiate Emergency Plan.
5	Direct Security Shift Manager to close Room 66 Roll-up Doors	Contact Security Shift Manager.
	Close Room of Roll-up Doors	Cue: Security Shift Manager reports that roll-up doors are closed.
6	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.
7.	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
8	Verify VIAS actuation	Goes to AOP-08, attachment A
7	Ensure Both of the following Containment Vent Fans are operating: • VA-3A • VA-3B	Al-30A/B Control Switches in After-Start (RED FLAG) and RED lights lit
8	Ensure containment vent fans have switched to filtered mode.	Al-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	Al-44 Fans stopped and GREEN lights lit or switch placed in Pull-To-Lock
10	Ensure ALL of the following are closed: • PCV-742A/B/C/D • PCV-742E/F/G/H • HCV-746A/B	Al-44 Valves closed and GREEN lights lit.
11	Ensure RM-050/051 Sample pump is stopped	Al-33 Pump switch in STOP position
12	Ensure FCV-532C, "Header	Contact EONA
	Isolation Valve" is closed	Cue: EONA reports from AI-100 that FCV-532C is Closed
13	Stop proper Control Room	<u>Al-106A/B</u>
	Ventilation Fan	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	Al-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 respirator protection is not required in 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.

JPM No: B.1.d			
JPM Title: Restore	Shutdown Cooling f	ollowing an Instrume	ent Failure
Location:	Simulator		
Approximate Time:	20 minutes	Actual Time:	
Ol- K/A	SC-1 SC-2 A 005000 A4.01 (RC P-19	0 3.6 / SRO 3.4)	
JPM Prepared by:	Jerry Koske		Date:
JPM Reviewed by:			Date:
JPM Approved by:			Date:

JPM No: B.1.d			
JPM Title: Restore Shutd	own Cooling followin	g an Instrume	nt Failure
Operators' Name:		Employee # _	
	haded) must be perf contained in this JP		ulated in accordance
The Operator's performar	nce was evaluated as	s (circle one):	
SATISFAC	TORY UNS	ATISFACTOR	RY
Evaluator's Signature:			Date:
Reason, if unsatisfactory:			
Tools & Equipment:	None		
Safety Considerations:	None		
Comments:	This will be a dynar simulator operator vin HCV-347 and HC [Ensure LI-197, LIS	will fail P-118 h CV-348 closing	nigh which will result J.

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

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. Both SI-1A and SI-1B are lined

up for shutdown cooling.

You are directed to respond to the alarms on panel CB-1,2,3.

Critical Steps shown in gray

01100	a otopo onown 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.	CB-1,2,3 LI-197 al least 1006.5 feet LIS-119 at least 1006.5 feet
		ERF Computer PVLMS > 29%
		In containment Sight glass LF199 at least 1006.5 feet

JPM No: B.1.d

JPM Title: Restore Shutdown Cooling following an Instrument Failure

Verify RCS water level constant or rising Verify RCS water level constant or least, one of the following: CB-1,2,3 LI-106 LI-197 LI-119 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 CB-1,2,3 Fi-326 shows low flow CB-1,2,3 Fi-326 shows low flow CUE: LPSI discharge header is operable CUE: LPSI discharge header is operable CUE: LPSI discharge header is operable RED light lit on CB-1,2,3 RED light lit on Al-30B Verify controller signal derication override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens Hold HCV-347 to OPEN. Verify RED light lit.	STEP	ELEMENT	STANDARD
by meeting all of the following criteria: LPSI Pump current stable LPSI flow greater than or equal to 200 gpm Beta Determines that pump current is not stable and shuts down SI-1A Determines that RCS pressure instrument P-118 has failed high Ensures that the following valves are open: a. FCV-326 b. HCV-335 c. HCV-341 d. HCV-341 d. HCV-347 e. HCV-347 e. HCV-347 e. HCV-347 e. HCV-347 b. Ammeter for SI-1A, current is varying CB-1,2,3 FI-326 shows low flow Al-30A SI-1A control switch to AFTER-STOP, GREEN light lit CUE: LPSI discharge header is operable a. RED light lit on CB-1,2,3 b. RED light lit on Al-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. Hold HCV-347 to OPEN.	4	•	one of the following: <u>CB-1,2,3</u> • LI-106 • LI-197
not stable and shuts down SI-1A 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-341 d. HCV-348 e. HCV-347 e. HCV-347 SI-1A control switch to AFTER-STOP, GREEN light lit CUE: LPSI discharge header is operable a. RED light lit on CB-1,2,3 b. RED light lit on AI-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. Hold HCV-347 to OPEN.	5	by meeting all of the following criteria: • LPSI Pump current stable • LPSI flow greater than or	Ammeter for SI-1A, current is varying CB-1,2,3
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-341 d. HCV-348 e. HCV-347 c. HCV-347 c. HCV-347 d. HCV-347 d. HCV-347 e. HCV-347 e. HCV-347 d. HCV-347 d. HCV-347 e. HCV-347 e. HCV-347 footnamed a RED light lit on CB-1,2,3 b. RED light lit on Al-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. Hold HCV-347 to OPEN.	6	· · · · · · · · · · · · · · · · · · ·	SI-1A control switch to AFTER-
instrument P-118 has failed high 8 Ensures that the following valves are open: a. FCV-326 b. HCV-335 c. HCV-341 d. HCV-348 e. HCV-347 a. RED light lit on CB-1,2,3 b. RED light lit on AI-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. Hold HCV-347 to OPEN.			
are open: a. FCV-326 b. RED light lit on AI-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. Hold HCV-347 to OPEN.	7	•	
Cue: LPSI pump venting not	8	are open: a. FCV-326 b. HCV-335 c. HCV-341 d. HCV-348	 b. RED light lit on AI-30B c. Verify controller signal d. Place P-118 "Pressurizer pressure PC-118 auto signal override HC-347/348" switch to OVERRIDE. Verify RED light lit as valve opens e. 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.	Al-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. Both SI-1A and SI-1B are lined up for shutdown cooling.

You are directed to respond to the alarms on panel CB-1,2,3.

JPM No: B.1.e			
JPM Title: Shift 416	0V Buses 1A3 and	1A4 from 345KV to	161 KV
Location:	Simulator		
Approximate Time:	6 minutes	Actual Time:	
	EE-1, attachment 1 000062 K1.04 (RO 000062 A2.01 (RO		
JPM Prepared by:	Jerry Koske		Date:
JPM Reviewed by:			Date:
JPM Approved by:			Date:

JPM No: B.1.e			
JPM Title: Shift 4160V Bເ	uses 1A3 and 1A4 fro	om 345KV to 1	61 KV
Operators' Name:		Employee #	
	shaded) must be perf contained in this JP		ulated in accordance
The Operator's performar	nce was evaluated as	s (circle one):	
SATISFAC	TORY UNS	ATISFACTOF	RY
Evaluator's Signature:			Date:
Reason, if unsatisfactory:			
Tools & Equipment:	None		
Safety Considerations:	None		
Comments:	Dynamic JPM on th Insert then clear ma [RFP SWD03D DIS	alfunction [MF	P SWD02B]

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	Al-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	Al-24, Al-25, Al-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 Ol-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

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	to ON <u>CB-20</u> 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	Verify loads still energized <u>CB-20</u> 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 Verify loads still energized

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 (vertical panel) 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.

JPM No: B.1.f				
JPM Title: Perform DSS Matrix Channel Trip Manual Actuation Relay Test				
Location	Simulator			
Location:	Simulator			
Approximate Time:	10 minutes	Actual Time:		
LER	T-DSS-0002, section			
NA	012000 A4.03 (NC	7 3.0 / SKO 3.0)		
			_	
JPM Prepared by:	Jerry Koske		Date: _	
JPM Reviewed by: Date:				
JPM Approved by: Date:				

JPM No: B.1.f		
JPM Title: Perform DSS N	Matrix Channel Trip N	Manual Actuation Relay Test
Operators' Name:		Employee #
	haded) must be pert contained in this JP	rformed or simulated in accordance PM
The Operator's performar	nce was evaluated as	as (circle one):
SATISFAC	TORY UNS	SATISFACTORY
Evaluator's Signature:		Date:
Reason, if unsatisfactory:		
Tools & Equipment:	None	
Safety Considerations:	None	
Comments:	Dynamic simulator Simulator operator matrix light status	r JPM r will need to run files to override

JPM No: B.1.f

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

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.

Critica	l Steps shown in gray	
STEP	ELEMENT	STANDARD
1	Verify the following alarm windows are clear:	Al-66A Listed Alarm Windows CLEAR [SIM OP File #1]
2	Place switch CHAN A DSS TEST OR BYPASS SW A1/TS-DSS in test	Al-66A Insert key in switch and place in TEST position
3.	Verify alarms: • TEST SWITCH A1/TS-DSS OFF NORMAL • DSS MATRIX A BLOCKED	Al-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
		[SIM OP File #2]

JPM No: B.1.f

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

STEP	ELEMENT	STANDARD
6	Verify Clutch power Supply breakers are closed: • CB-AB • CB-CD	Al-57 Breakers CLOSED (Full Up)
7	Verify the following parameters: a. "DSS 86A/DSS	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	Al-66A Lockout relay RESET [SIM OP File #1]
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	Al-66A a. AMBER lights ON b. AMBER light ON c. WHITE light OFF d. WHITE light OFF e. Alarm window CLEAR

JPM No: B.1.f

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

STEP	ELEMENT	STANDARD
10	Place CHAN A DSS TEST OR	Al-66A
10	BYPASS SW switch in normal	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 	Al-66A Both alarm windows CLEAR
12	Verify the following alarm windows are clear:	Al-66B Listed Alarm Windows CLEAR
13	Place switch CHAN B DSS TEST OR BYPASS SW B1/TS-DSS in test	Al-66B Insert key in switch and place in TEST position
14	Verify alarms: • TEST SWITCH B1/TS-DSS OFF NORMAL • DSS MATRIX B BLOCKED	Al-66B Listed Alarm Windows LIT
	Verify DSS Lockout relay 86B/DSS is reset	AI-66B Relay in RESET position
15	Turn DSS Manual Trip Switch B/TS-DSS to trip position	AI-66B Turn B/TS-DSS to TRIP position and release
		[SIM OP File#3]
16	Verify Clutch power Supply breakers are closed: • CB-AB • CB-CD	Al-57 Breakers CLOSED (Full Up)

JPM No: B.1.f

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

STEP	ELEMENT	STANDARD
17	Verify the following parameters:	Al-66A
	a. "DSS 86B/DSS ACTUATED" alarm	a. Alarm Window LIT
	b. DSS Trip relay 94-B1-DSS white light is on	b. WHITE light is ON
	c. DSS Trip relay 94-B2-DSS white light is on	c. WHITE light is ON
	d. DSS lockout relay 86B/DSS amber light is off	d. AMBER light is OFF
	 e. All four DSS Matrix supervisory amber lights are off 	e. AMBER lights are OFF
	f. Lockout relay 86B/DSS is tripped	f. Lockout Relay is TRIPPED
18	Reset DSS Lockout Relay 86B/DSS	Al-66B Lockout relay RESET
		[SIM OP File#1]
19	Verify the following: a. All four DSS Matrix supervisory amber lights are on	Al-66B a. AMBER lights ON
	 b. DSS lockout relay 86B/DSS amber light is on 	b. AMBER light ON
	c. DSS Trip relay 94-B2-DSS white light is off	c. WHITE light OFF
	 d. DSS Trip relay 94-B1-DSS white light is off 	d. WHITE light OFF
	e. "DSS 86B/DSS ACTUATED" alarm is clear	e. Alarm window CLEAR
20	Place CHAN B DSS TEST OR BYPASS SW switch in normal	AI-66B Switch to NORMAL

JPM No: B.1.f

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

STEP	ELEMENT	STANDARD
21	Verify the following:	Al-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.

JPM No: B.1.g				
JPM Title: Operate	AFW system fro	m AI-179 following Co	ontrol Room evacua	tion
Location:	Simulator			
Approximate Time:	20 minutes	Actual Time:		
` K//		RO 4.1 / SRO 4.2) 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 AI-179 following Control Room evacuation				
Operators' Name:	Employee #			
	haded) must be performed or simulated in accontained in this JPM	ordance		
The Operator's performar	ce was evaluated as (circle one):			
SATISFACT	ORY UNSATISFACTORY			
Evaluator's Signature:	Date:			
Reason, if unsatisfactory:				
Tools & Equipment:	None			
Safety Considerations:	None			
Comments:	This is a dynamic JPM on the simulator. It use the control room and ASP portions of the sime			
	Note: The ASP portion of this procedure is no performed by the CRS. However, operating A AI-179 is expected RO knowledge.	•		

JPM No: B.1.g

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

INITIATING CUE:

The Shift Manager has directed an evacuation of the Control Room. You are directed to perform the control room portions of AOP-07 and then 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	Manually TRIP the reactor	<u>CB-4</u>
		Press reactor Trip pushbutton Verify Reactor has tripped
2	Verify the Turbine has tripped as indicated by stop and intercept	CB-10,11 (vertical)
	valves closed	Verify stop and intercept valve indicators on bottom
3 Place 43/FW Switch in "OFF"	Place 43/FW Switch in "OFF"	CB-10,11
		43/FW switch placed in "OFF"
Ensure no more than one condensate pump, FW-2A/2B/2C,	CB-10,11	
	running.	Trips one (and only one) condensate pump. (Control switch green flagged, GREEN light lit)
5	Stop all running Heater Drain	CB-10,11
	pumps, FW-5A/5B/5C.	Trips both running Heater Drain pumps. (Control switches green flagged, GREEN lights lit)

JPM No: B.1.g

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

STEP	ELEMENT	STANDARD
6	Ensure no more than one Feed pump, FW-4A/4B/4C, running.	CB-10,11
		Trips one (and only one) Feed pump. (Control switch green flagged, GREEN light lit)
7	Ensure the following Turbine Lube Oil equipment is running:	<u>CB-10,11</u>
	 LO-3, Turning Gear Oil Pump LO-8, Motor Suction Oil Pump LO-4, DC-Oil Pump Turbine Lift Pumps, LO- 14A/B/C 	Starts each of the listed pumps by placing it's control switch in after start (red flag) RED light lit.
		CUE: The remaining actions in step one have been taken. You are directed to Al-185 to continue with step two. (Direct examinee to simulator Aux Shutdown panel)
8	Place REMOTE-LOCAL Transfer Switch 43 in Local	AI-185 REMOTE LOCAL TRANSFER SWITCH 43 in LOCAL Lockout relays actuate, AMBER lights OFF
9	Verify control transferred by observing indicating lights lit • HCV-239 • CH-1B	Al-185 Indicating Lights LIT
10	Place YCV-1045 control switch in PULL-TO-LOCK	Al-179 Control Switch in PULL-TO LOCK

JPM No: B.1.g

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

STEP	ELEMENT	STANDARD
11	Place both AFW Controls Transfer Switches 43/RC-2A/B in LOCAL	Al-179 Both Switches in LOCAL
12	Verify both AFW Controls Transfer Relays are in TRIP.	Al-179 86 relays are TRIPPED AMBER lights OFF
13	Verify Following valves are OPEN: • HCV-1107A • HCV-1107B • HCV-1108A • HCV-1108B • YCV-1045A • YCV-1045B	Al-179 RED lights ON
14	Start Wide range Channel "D" Recorder.	Al-212 Two toggle switches inside cover to ON.
15	Maintain pressurizer level 45-60%	Al-185 Verify pressurizer level. Operate CH-1B as required
16	Maintain RCS pressure 2050-2150 psia	Al-185 Verify pressurizer pressure. Operate backup heaters as required
17	Maintain S/G levels	Al-179 Verify S/G levels Note: levels will be below control band.

JPM No: B.1.g

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

STEP	ELEMENT	STANDARD
18	Verify HCV-1384 is CLOSED	CUE: EONT reports HCV-1384 is CLOSED
19	Place YCV-1045 in AFTER- START	Al-179 YCV-1045 control switch in AFTER- START. FW-10 running light is ON
20	Place both of the following switches in THROTTLE: • HCV-1107B • HCV-1108B	Al-179 HCV-1107B and HCV-1108B switches in THROTTLE
21	Throttle HCV-1107B and HCV- 1108B using controllers	Al-179 Regulate Air Loaders for desired flow
22	Verify S/G pressures greater than 850 psia	Al-179 Verify S/G pressures
23	Establish contact with STA	CUE: STA reports All Safety Functions are being met
24	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: 1

The Shift Manager has directed an evacuation of the Control Room. You are directed to perform the control room portions of AOP-07 and then establish control at the Alternate Shutdown Panels. (You have a radio and the AOP-06 keys)

JPM No: B.2.a			
JPM Title: Line up C	ondenser Evacuati	on to AB stack	
Location:	Plant – Aux Buildi	ng and Turbine Build	ding
Approximate Time:	15 minutes	Actual Time:	
Reference(s): OI-C K/A	CE-1 000037 AA2.07 (R	O 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 Conde	nser Evacuation to AB sta	ck	
Operators' Name:	Emp	loyee #	
	haded) must be performed contained in this JPM	d or simulated in accordance	
The Operator's performar	nce was evaluated as (circ	le one):	
SATISFAC	TORY UNSATISE	FACTORY	
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. You are to perform both the EONA and EONT portion of this procedure.

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 (Do Not enter contaminated area)
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

Page 4 of 5

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. You are to perform both the EONA and EONT portion of this procedure.

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

JPM No: RO B.2.b				
JPM Title: Startup H	ydrogen Purge Sys	stem		
Location:	Aux Building			
Approximate Time:	10 minutes	Actual Time:		
Reference(s): OI-V K/A	/A-1 Attachment 5A 028000 A2.02 (RC			
JPM Prepared by:	Jerry Koske		Date:	
JPM Reviewed by:			Date:	
JPM Approved by:			Date:	

JPM No: RO B.2.b				
JPM Title: Startup Hydro	gen Purge	System		
Operators' Name:			_ Employee#	
All Critical Steps (with the standards			rformed or simulate PM	ed in accordance
The Operator's performa	nce was ev	/aluated a	as (circle one):	
SATISFAC	TORY	UNS	SATISFACTORY	
Evaluator's Signature:			Da	te:
Reason, if unsatisfactory	r:			
Table 9 Facility as and	Nana			
Tools & Equipment:	None			
Safety Considerations:	Performe	ed 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.	<u>Corr 26</u> VA-291/VA-279 CLOSED
3	Ensure VA-282/VA-284 combined remote operator is closed.	<u>Corr 26</u> 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	Al-100 Place VA-80A control switch in PULL TO OVERRIDE Red Light ON Green Light OFF

JPM No: RO B.2.b

JPM Title: Startup Hydrogen Purge System

STEP	ELEMENT	STANDARD
7	Monitor DPI-899D	<u>Corr 26</u>

CUE: DPI-899D indicates 10"w.g.

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.

JPM No: SRO B.2.b					
JPM Title: Waste Ga	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-V K/A	VDG-1, attachment 071000 A4.05 (RO				
JPM Prepared by: _	Jerry Koske		Date:		
JPM Reviewed by: _			Date:		
JPM Approved by:			Date:		

JPM No: SRO B.2.b					
JPM Title: Waste Gas tra	nsfer from t	the vent h	neader to the	gas decay tank	ζ
Operators' Name:			Employee #	‡	
All Critical Steps (s with the standards				nulated in acco	rdance
The Operator's performa	nce was ev	aluated a	s (circle one)	:	
SATISFAC	TORY	UNS	SATISFACTO	PRY	
Evaluator's Signature:				_ Date:	
Reason, if unsatisfactory	:				
Tools & Equipment:	None				
Safety Considerations:	This JPM	is perforr	med in the RC	CA	
Comments:					

JPM No: SRO B.2.b

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

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

Al-110 is inoperable. The Shift Chemist is on standby to

take samples when notified.

All prerequisites are met.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Verify VCT gas sample is secured.	Al-110 WD-242 and WD-1080 indicate closed. Note: If examinee contacts HP, CUE that valves have been surveyed and are not contaminated.
2	Verify that the gas vent header is drained	Room 13
	urameu	CUE: Before examinee enters room 13, 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	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

JPM No: SRO B.2.b

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

STEP	ELEMENT	STANDARD
5.	Start WD-28A to pump the Vent Header	Al-100 WD-28A control switch to hand RED light ON
6	Monitor the following:WGDT PressureVent Header Pressure	Al-100 CUE: WGDT = 65 psig Vent Header = 1.0 psig
7	Secure gas transfer	Al-100 WD-28A control switch to OFF and GREEN light lit
8	Notify Shift Chemist to obtain grab samples.	CUE: Shift Chemist Acknowledges
9	Notify Shift manager to review Tech Spec 2.9	CUE: Shift Manager Notified
10	Check WGDT pressure	CUE: Pressure is 70 psig.

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

Al-110 is inoperable. The Shift Chemist is on standby to

take samples when notified.

All prerequisites are met.

JPM No: B.2.C				
JPM Title: Switch Inv	verter Power Suppl	y from bypass to no	rmal	
Location:	Switchgear Room			
Approximate Time:	10 minutes	Actual Time:		
Reference(s): OI-E K/A	E-4, attachment 1 000057 AA1.01 (F	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 Inverte	r Power S	upply from	bypass to noi	rmal
Operators' Name:			Employee #	
All Critical Steps (with the standards				ulated in accordance
The Operator's performa	nce was e	valuated a	s (circle one):	
SATISFAC	TORY	UNS	SATISFACTO	RY
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

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.

All prerequisites are complete

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)
		CUE:Sync loss light is ON
7	Verify Reverse Transfer light is ON	Inverter "A" (EE-8H)
		CUE: Reverse transfer light is ON

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

STEP	ELEMENT	STANDARD
8	Place S1 EE-8H manual transfer switch in the inverter position	Inverter "A" (EE-8H) EE-8H-S1 in INVERTER position
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)
		CUE: Reverse Transfer light is OFF
13	Verify Forward Transfer light is on	Inverter "A" (EE-8H)
		CUE: 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	Inverter "A" (EE-8H)
	frequency and voltage	CUE: Frequency = 60.0 Hz Voltage = 120.1 volts

JPM No: B.2.C

JPM Title: Switch Inverter Power Supply from bypass to normal

Termination Criteria: Instrument Bus Al-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.

All prerequisites are complete

Appendix D	Scenario Outline	Form ES-D-2

Facility: Fort Calhoun Scenario		2-1	Op-Test No
Examiners:	xaminers:		

Initial Conditions: **[IC#124]** 50% Reactor Power. 940 ppm boron D/G-1 is tagged out of service for generator brush replacement. Waste Monitor Tank, WD-22A, release is in progress.

[Take off CH-1B, Take RM-052 out of service]

[MFP ESF05A] [MFP ESF05B]

Turnover: Return RM-052 to service on the stack. It was taken out of service to install a new tape drive motor for RM-051. The maintenance is now complete. OI-RM-1-CL-B has been completed. The local ratemeter keyswitch is on.

Event	Malf No.	Event	Event
No.		Type*	Description
1		N	Return RM-052 to service
2 [+10]	NIS02D	I	WR NI channel "D" power supply failure [MFP NIS02D]
3 [+20]	NBWPAC 9A	С	Running Bearing water pump trips (must start backup) [RFP BCW10A OPEN]
4 [+25]	RCP09B RCP10B	С	Lower and middle seals on RCP, RC-3B fails [MFP RCP09B 100%] [MFP RCP10B 100%]
5		R, N	Plant shutdown due to two failed RCS seals
6 [+40]	T:L903X	I	Steam Generator level channel fails low [COP T:L903X 0%]
7 [+45]	GEN01A	Ι	Main Generator voltage regulator fails [MFP GEN01A full 120 sec ramp]
8 [+50]	RCS01E	M	300 gpm LOCA caused by third seal failure on RC-3B [MFP RCS01E 0.5%]
9	Preset: ESF05A ESF05B	С	PPLS fails to actuate

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

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.:		Scenario No.: 1	Event No.: 1	Page 2 of 10
Event De	escription:	Return RM-052 to service	2	
Time	e Position Applicant's Actions or Behavior			Behavior
	SRO	Direct RO to place RM	-052 in service	
	RO	Ensure RM-052 Keysw	itch is in Keypad	
	RO	Verify CNTMT amber and control room green	_	ght on, Purge amber light off
	RO	Ensure pump control sv	vitch in stop and verify low" amber light is on	y: "pump off" green light is , "pump on" red light is off,
	RO	Verify RM-052 aligned		
	RO <c> Place pump control switch to start and verify: • Pump off green light is off • Sample flow high/low amber light is off • Pump on red light is on • Sample flow between 0.8 and 5.00 SCFM in auto mode • Sample flow between 1.25 and 2.75 SCFM in mar mode</c>		off CFM in auto flow control	
	RO	Verify RM-052 alert se		
	RO <c></c>	Verify RM-052 high se	tpoint per TDB-IV.7	
	RO	Verify RM-052 alert se	tpoint on the ERF per	TDB-IV.7
	RO	Verify RM-052 high se	tpoint on the ERF per	TDB-IV.7
	RO	Ensure RM-052 rateme	ter high alarm is reset	
	RO <c></c>	Place RM-052 Control	Room ratemeter keysv	witch to ON
	RO	Perform RM-052 check	source test	
RO Ensure RM-052 returns to normal following check source tes		check source test		

Appendix D	Operator Actions	Form ES-D-2
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Page 3 of 10 Op-Test No.: Scenario No.: 1 Event No.: 2 Event Description: WR NI Channel "D" power supply failure Position Applicant's Actions or Behavior Time Respond to "Nuclear Instrument Channel Inoperative Alarm" PRI Refer to ARP-CB4-A20 PRI or SEC Direct PRI to check operation of NIS channels SRO Report failure of WR channel "D" (NON-OP light lit) PRI <C> Optional: may refer to AOP-15 (not required at this power level) SRO SRO Optional: May direct PRI to bypass channel D SUR trip If directed, bypass channel D SUR trip PRI Enter Technical Specification 2.15 and enter 7 day LCO because WR SRO <C> channel D feed AI-212 on ASD panels

Appendix D	Operator Actions	Form ES-D-2
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Op-Test	No ·	Scenario No.: 1	Event No.:3	Page 4 of 10	
ор тем		Secilario 140 1	Event 105	1 4 5 1 10	
Event De	escription: 1	Running Bearing water p	oump trips		
Time	Position	A	Applicant's Actions or Behavior		
	SEC	Respond to "Cooling W	Vater Pressure Low" alar	rm	
	SEC	Report that AC-9A trip	ped		
	SRO <c></c>	Direct SEC to start AC-	-9B		
	SEC <c></c>	Start AC-9B			
	SRO	Direct SEC to verify op	peration of air compresso	or	
	SEC	Verify operation of air	compressors (CA-1C sto	ops and restarts)	
	PRI	Continue to monitor par	rameters associated with	reactor startup	
	SRO May enter AOP-20				

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test No.:		Scenario No.: 1	Event No.: 4	Page 5 of 10		
Event De	escription: L	ower and Middle seals fa	il on RCP, RC-3B			
Time	Position	A	Applicant's Actions or Behavior			
	PRI		dentify and communicate high seal leakage from alarms			
	SRO	Enter alarm response pro	Enter alarm response procedure			
	PRI <c></c>	Monitor RCP seal press on RCP B have failed	Monitor RCP seal pressures and determine that the lower and middle seal on RCP B have failed			
	SRO <c></c>	Direct Emergency Shutdown and enter AOP-05 (Emergency Shutdown)				
	SEC	Monitor secondary parameters				

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.: Scenario No.: 1 Event No.: 5 Page 6 of 10 Event Description: Plant Shutdown due to two failed RCP seals Position Time Applicant's Actions or Behavior May enter AOP-35. Direct PRI and SEC to commence Emergency SRO Shutdown using AOP-05 Notify System Operations of power decrease SRO Direct PRI to begin boration using SIRWT SRO Switch charging pump suction from VCT to SIRWT PRI <C> Direct SEC to control RCS T-cold by reducing turbine load SRO Reduce turbine load to control T-cold SEC <C> Direct PRI to operate control rods as required to control ASI SRO Operate control rods to control ASI PRI Monitor and control primary parameters PRI Monitor and control RCS T-cold and secondary parameters SEC

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test	No.:	Scenario No.: 1	Event No.: 6	Page 7 of 10	
Event De	Event Description: Steam Generator level channel 903X fails low				
Time	Position		plicant's Actions or Be		
	SEC	LEVEL LOW" alarm		M GENERATOR RC-2A	
	PRI or SEC	Obtain ARP-CB-4/A8 ar	ad determine actions		
	SEC	Identify and report failur	e of steam generator le	vel channel LT-903X	
	SRO	Direct SEC to take manu	al control of Steam Ge	nerator, RC-2A level.	
	SEC <c></c>	Take manual control of I	FCV-1101, restore and	maintain level	
	SRO	Notify OCC of failure	Notify OCC of failure		
	PRI	Monitors primary parameters			
				_	
				_	

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test No.:		Scenario No.: 1	Event No.:7	Page 8 of 10
Event De	escription: N	Main Generator Voltage R	egulator Fails	
Time	Time Position Applicant's Actions or Behavior			
	SEC	Respond to "GENERAT		
	PRI or SEC	Refer to ARP-CB-20/A1	4	
	SRO	Direct SEC to transfer g lower voltage to less tha		ator control to "Manual" and
	SEC <c></c>			"Manual" and lower voltage
	SRO	Notify OCC		

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.:		Scenario No.: 1 Event No.:8 Page 9 of 10		
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: • Verify control rod insertion, power lowering, negative startup rate • Verify turbine trip and generator trip • Verify electrical status – 4160, D/G, instrument power, 125V DC • Verify instrument air status • Verify CCW and raw water status • Verify RCS inventory control • Verify RCS pressure control • Verify core heat removal • Verify S/G feed • Verify S/G pressure and T-cold • Verify containment conditions Secure one RCP in each loop at 1350 psia		
	PRI	Secure remaining RCPs on loss of NPSH		
	SRO	Transition to EOP-03 (LOCA)		

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test	No.:	Scenario No.: 1	Event No.: 9	Page 10 of 10		
Event De	escription: P	PLS fails to actuate				
Time	Position	ition Applicant's Actions or Behavior				
	PRI	Monitor for automatic I	PPLS actuation			
	PRI	Determine and report th	at PPLS failed to actuate	2		
	SRO <c></c>	Direct PRI to manually	initiate PPLS			
	PRI <c></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 parame	eters			
	Scenario ends when all safety functions are met and cooldown is in progress			et and cooldown is in		

Appendix D	Scenario Outline	Form ES-D-1
Appendix I)	Scenario Cilline	FORM F.N-10-1

Facility: Fort Calhoun		Scenario No: 2002-2		Op-Test No
Examiners: _			Operators:	
T 1.1 1 C 11.1	FT C // 1001	1000/ D D	515 1	D/C 1 :

Initial Conditions: **[IC# 122]** 100% Reactor Power. 517 ppm boron D/G-1 is tagged out of service for generator brush replacement.

[Make AC-3A running CCW pump] [MFP ESF06A OFF] [MFP ESF06B OFF] [COP RSGH042A 100%] [ovr A9 B1U turb diff exp alarm off]

Turnover: Place CCW Pump, AC-3C in service and remove AC-3A from service.

Event	Malf No.	Event	Event
No.	ivian 10.	Type*	Description
1		N	Rotate CCW pumps
		1	[will need RFP CCW12A]
2 [+8]	T:P910	Ι	PIC-910 fails high causing turbine bypass valve to open
			[COP T:P910 1000 psi]
3	T:T2897	I	Letdown HX CCW outlet temperature transmitter, T-2897, fails
[+13]			low. (results in high letdown temperature)
			[COP T:T2897 50]
4	CRD06	С	Dropped Control rod
[+20]			[MFP CRD06 rod 1 grp 4 deenergized]
5		R, N	Reduce power to 70% due to dropped rod
6	T:P103Y	I	Controlling pressurizer pressure channel fails high
[+35]			[COP T:P103Y]
7	MSS03B	M	Main steam line break in turbine building
[+40]	_	~	[MFP MSS03B 20% 60 sec ramp]
8	Preset	C	SGIS fails to actuate
	RSGH042A	~	
9	Preset	C	S/G "B" MSIV will not close
	ESF06A,B		

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

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test No.:		Scenario No.: 2	Event No.: 1	Page 2 of 11			
Event De	escription: R	Rotate CCW pumps					
Time	Position	A	Applicant's Actions or Behavior				
11110	SRO			om Pump AC-3A to Pump			
	PRI	Obtains and reviews Pro	ocedure OI-CC-1, Attac	chment 2.			
	PRI	Directs local operator to	Room 69.				
	PRI <c></c>	Starts pump AC-3C and discharge valve).	directs closure of Valv	ve AC-102 (Pump AC-3A			
	PRI <c></c>	Stops pump AC-3A and	takes hand switch to p	oull-to-Lock.			
	PRI Ensures proper operation of pump AC-3C. Directs local operator to re Valve AC-102.			rects local operator to reopen			
				_			

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.:		Scenario No.: 2	Event No.: 2	Page 3 of 11		
Event Description: P		PIC-910 fails high causing	g turbine bypass valve t	to open		
Time	Position	A	Applicant's Actions or Behavior			
	SEC	Identify rapid decrease i (VOPT ANN will alarm	n RCS T cold			
	SEC	Determine cause as turb (red light on CB-10,11)		open		
	SRO <c></c>	Direct SEC to take man	ual control of PCV-910	and close valve		
	SEC <c></c>	Take manual control of	PCV-910 and close it			
	SEC	Monitor RCS Tc				
	PRI	Monitor and control RC	S parameters			
	SRO Notify I & C of failure					

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.: 2 Event No.: 3 Page 4 of 11		
Event De	Event Description: Letdown HX CCW outlet temperature transmitter, T-2897, fails low			
Time	Position	Applicant's Actions or Behavior		
	PRI	Respond to "Letdown Heat Exchanger Tube Outlet Temp HI" 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></c>	Direct PRI to manually control CCW flow to letdown HX using TCV-2897		
	PRI <c></c>	Manually control TCV-2897to restore letdown temperature		
	SRO	May direct PRI to reposition TCV-211-2 and maintain 100°F – 120°F		
	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 De	escription: D	Dropped Control Rod				
Time	Position	Applicant's Actions or Behavior				
	PRI	Identify event from "Dropped Rod" and other alarms				
	PRI <c></c>	Determine only one rod has dropped (rod #1, grp 4)				
	SRO	Enter AOP-02 (CEDM Malfunction)				
	SRO <c></c>	Direct SEC to adjust turbine load to match reactor power				
	SEC <c></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></c>	Inform RO and SEC that Tech Specs require a power reduction to le 70% within one hour	ss than			
	SRO	Notify system Operations of impending power reduction				
	SEC	Continue manual control of S/G level				

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.: 2 Event No.: 5 Page 6 of 11		
Event De	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></c>	Begin boration		
	SEC <c></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		
	SRO	Contact chemistry to sample RCS due to downpower		
	RO	May contact Aux Building operator about waste tank level for power reduction		

Appendix D	Operator Actions	Form ES-D-2
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Op-Test	No.:	Scenario No.: 2	Event No.: 6	Page 7 of 11
Event De	scription: C	Controlling pressurizer pr	essure channel fails high	
Time	Position	A	applicant's Actions or Be	havior
	PRI		r Pressure Off Normal H	
	PRI	Identify and report high indication on controlling channel and lowering pressure on other channel		
	PRI/SE C	Obtain ARP and verify	actions	
	SRO <c></c>	Direct PRI to transfer copressurizer pressure	ontrol to "X" channel or	take manual control of
	PRI <c></c>		el or take manual control SRO (2075 – 2175 psia)	as directed to maintain
	PRI	Monitor and Maintain p	proper pressurizer pressur	re
	SEC	Monitor and control sec	condary parameters	

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.: 2	Event No.: 7	Page 8 of 11
Event De	escription: Ma	ain Steam line break in tu	bine building	
Time	Position	Ap	plicant's Actions or l	Behavior
	PRI	Report lowering trends	n T-cold, pressurizer	r pressure and level
	SEC	Report lowering Steam	generator pressure	
	SRO	May direct manual react	or trip	
	PRI	Manually trip the reacto	r if directed	
	SRO <c></c>	Direct Standard Post-Tri	p Actions	
	PRI <c> SEC<c></c></c>	Verify turbine tri	d insertion, power lop and generator trip status – 4160, D/G, intair status raw water status ntory control sure control removal	owering, negative startup rate instrument power, 125V DC

Appendix D	Operator Actions	Form ES-D-2
11	1	

Op-Test	No.:	Scenario No.: 2 Event No.: 8 Page 9 of 11				
Event De	Event Description: SGIS fails to actuate					
Time	Position		Applicant's Actions or Be	havior		
	SEC	Identify and report that	SGIS did not actuate			
	SRO	Direct SEC to manuall	y perform SGIS actions			
	SEC <c></c>	Manually perform SGI	Manually perform SGIS actions by closing MSIVs and FW isolation valves			

Appendix D	Operator Actions	Form ES-D-2

No.:	Scenario No.: 2	Event No.: 9	Page 10 of 11
escription: S/	G "B" MSIV will not cl	ose	
Position	Position Applicant's Actions or Behavior		
SEC <c></c>	Report that MSIV on "B" S/G did not close		
SRO	Perform diagnostic actions and transition to EOP-05 (note: some of the following actions may be performed prior to EOP-05 entry)		
SRO <c></c>	Direct SEC to begin s	teaming from "A" S/G	before "B" S/G dries out
SEC <c></c>	Begin steaming from '	'A" S/G using MS-291	before "B" S/G dries out
SRO	Direct PRI to ensure p	proper actuation of ESF	7
PRI			
PRI			
SRO	Direct PRI to ensure Emergency Boration		
PRI	Ensure Emergency Boration		
SRO	Direct SEC to establis	h AFW flow to good S	/G
SEC	Establish AFW flow t	o good S/G	
SEC	Identify affected S/G	(perform 16A,B,C of E	OP-05)
SRO <c></c>	Direct SEC to isolate	AFW flow to affected S	S/G
SEC <c></c>	Isolate affected S/G		
PRI	Report when "HPSI st	op and throttle" criteria	a is met
SRO	Direct PRI to perform	"HPSI stop and throttl	le"
PRI <c></c>	Perform "HPSI stop a	nd throttle"	
SRO/PRI	Ensure "Stop and Thr	ottle criteria continues	to be met"
	Position SEC <c> SRO SRO PRI PRI SRO PRI SRO</c>	Position	Position Applicant's Actions or SEC <c> Report that MSIV on "B" S/G did not close SRO Perform diagnostic actions and transition to I (note: some of the following actions may be entry) SRO<c> Direct SEC to begin steaming from "A" S/G SEC<c> Begin steaming from "A" S/G using MS-291 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 read SRO Direct PRI to ensure Emergency Boration PRI Ensure Emergency Boration SRO Direct SEC to establish AFW flow to good S SEC Establish AFW flow to good S/G SEC Identify affected S/G (perform 16A,B,C of E SRO<c> Direct SEC to isolate AFW flow to affected SEC SEC Report when "HPSI stop and throttle" criteria SRO Direct PRI to perform "HPSI stop and throttle" PRI</c></c></c></c>

Appendix D	Operator Actions	Form ES-D-2
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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		olicant's Actions or Beha	
	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		

Appendix D	Scenario Outline	Form ES-D-1
Appendix I)	Scenario Ullinne	FORM F.N-10-1

Facility: Fort Calhoun	t Calhoun Scenario No: 2002		Op-Test No
Examiners:			

Initial Conditions: **[IC#2]** 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. In T.S.2.14

[RFP RCP12B close] [File ATWAS PLUS] [RFP AFW25A STOP] [RFP AFW26A local] [COP T:F236 0%] [MFP NIS07A] [MFP AFW01] [bypass keys in A TU's 1,9,12] [A RPS to delta T power]

Turnover: Place CH-1A in service remove CH-1C from service CH-1A packing cooling pump has been operating for 45 minutes.

Event	Malf No.	Event	Event
No.		Type*	Description
1		N	Place CH-1A in service remove CH-1C from service
2 [+5]	JLB218LL	Ι	VCT level fails low causing charging pump suction to realign to SIRWT. [COP JLB218LL fail set]
3 [+12]	NIS07D	I	Power Range NI Channel "D" Fails [MFP NIS07D]
4		R, N	Power reduction to 70% power.
5 [+40]	SWD02A,B	M	Loss of offsite power (both 161KV and 345 KV) [MFP SWD02A] [MFP SWD 02B]
6	preset	C, M	Auto Reactor trip fails (ATWS)
7	preset	С	Turbine driven AFW pump, FW-10 fails to start.
8	preset	С	RC-3C breaker does not open. (D/G-1 output breaker does not close)

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

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.: Page 2 of 8 Scenario No.:3 Event No.:1 Event Description: Place CH-1A in service remove CH-1B from service Time Position Applicant's Actions or Behavior Direct PRI to place CH-1A in service and remove CH-1C from service SRO PRI Obtain OI-CH-1, Attachment 5 PRI<C> Start CH-1A Verify operation of CH-1A by observing pump amps or VCT level (Normal PRI means, FIA-236, is not available) Stop CH-1C PRI<C> Place "Charging Pumps Mode Select Stby switch" to "CH-1B,1C" position PRI<C> Report completion of pump rotation. PRI

Appendix D	Operator Actions	Form ES-D-2
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Page 3 of 8 Event No.:2 Op-Test No.: Scenario No.:3 Event Description: VCT level fails low causing charging pump to realign to SIRWT Position Applicant's Actions or Behavior
Respond to "Volume Control Tank Level LO-LO" alarm Time PRI PRI or Obtain ARP-CB-1,2,3/A2 SEC 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 Direct PRI to manually open LCV-218-2 and close LCV-218-3 <C> PRI <C> Open LCV-218-2 and close LCV-218-3 PRI Monitor and control primary parameters SEC Monitor and control secondary parameters Optional: may place off-normal placard on LCV-218-2 switch PRI SRO Notify OCC of failure

Op-Test No.:		Scenario No.:3	Event No.:3	Page 4 of 8		
Event De	escription: P	Power range NI Channel	"D" Fails			
Time	Position		Applicant's Actions or Behavior			
	PRI	Identify the failure from	n reflash of alarms			
	SRO	Reference AOP-15	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></c>	Determine the need to	lower power to 70% per	OP-4 IAW AOP-15		
	SEC	Enter channel failure in	n control room log			

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.:3 Event No.: 4 Page 5 of 8			
Event De	escription: P	Power reduction to 70% p	ower.		
Time	Position	A	pplicant's Actions or I	Behavior	
	SRO	Direct PRI and SEC to	commence power redu	ction using OP-4	
	SRO	Direct PRI on method of	f boration to use.		
	SRO	Request ASI guidance and provide to RO			
	PRI <c></c>	Begin boration (approx.	imately 138 gallons bo	ric acid)	
	SEC	Reduce turbine load to	control Tc		
	<c> PRI</c>	Monitor and control pri	mary parameters durin	g power reduction	
	SEC	Monitor and control secondary parameters during power reduction			
	I	i .			

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.:3 Event No.:5 and 6 Page 6 of 8				
Event De	escription: Lo	ss 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></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></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:				
		Verify control rod insertion, power lowering, negative startup rate				
	SEC	 Verify turbine trip and generator trip 				
		 Verify turbine trip take generator trip Verify electrical status – 4160, D/G, instrument power, 125V DC 				
		Report 4160 bus 1A3 is deenergized				
		Verify instrument air status				
		Verify CCW and raw water status				
		Verify RCS inventory control				
		Verify RCS inventory control Verify RCS pressure control				
		Verify Res pressure control Verify core heat removal				
		Verify S/G Feed				
		Report loss of feedwater				
		Verify S/G pressure and T-cold				
		Verify containment conditions				
	SRO	Direct PRI or SEC to have EONT minimize DC loads				
	SKO	Direct PRI of SEC to have EON I Hilliminge DC loads				
	PRI or SEC <c></c>	Direct EONT to minimize DC loads				
	SRO	Verify completion of SPTA's				

Appendix D	Operator Actions	Form ES-D-2
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Op-Test	No.:	Scenario No.:3 Event No.:7 Page 7 of 8		Page 7 of 8	
Event De	escription: T	Curbine Driven AFW pur	np, FW-10 fails to start		
Time	Position	A	Applicant's Actions or Behavior		
	SEC <c></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-2	20 due to a loss of all fe	edwater	
	SRO	Determine that heat ren	noval safety function is	not being met.	

Appendix D	Operator Actions	Form ES-D-2

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) Applicant's Actions or Behavior Time Position Identify failure of RC-3C breaker to open PRI PRI Report failure of breaker to open Direct PRI to direct EONT to manually trip breaker SRO Direct EONT to manually trip RC-3C breaker PRI<C> Direct SEC to verify restoration of power to bus 1A3 SRO 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

Appendix D	Scenario Outline	Form ES-D-1

Facility	y: Fort Calhoun		Scenario No: 2002	2-4 (spare)	Op-Test No.	
Examir	ners:			Operators:		
	Conditions: [IC # I-6B has a low le			agged out to rep	place fuel pump. Safety Injection	
			le autostart of Co	CW pumps]		
Turnov	ver: Raise level in	n Safety	Injection Tank S	I-6B		
Event	Malf No.	Even	t.		Event	
No.		Type:			scription	
1		N	Raise level in	Safety Injectio	n tank SI-6B	
2	NCCPAC3B	С	CCW pump tr [COP NCCP.			
3	SGN01B	С		Tube leak on steam generator RC-2B [MFP SGN01B 1%]		
4		R, N		AOP-5 plant shutdown		
5	T:P907	I		Steam generator pressure transmitter on RC-2A fails low [COP T:P907 45.1 psi]		
6	CND01	M	Loss of conde	Loss of condenser vacuum – Reactor Trip [MFP CND01 100% 300 sec ramp]		
7	SGN01A	M	Steam Genera	Steam Generator Tube Rupture – RC-2A [MFP SGN01A 40%]		
			[MII SGIVOI	10,01		

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

Appendix D	Operator Actions	Form ES-D-2

Op-Test No.: Scenario No.:4 Event No.: 1 Page 2 of 8 Event Description: raise level in safety Injection tank SI-6B Time Position Applicant's Actions or Behavior Directs BOP to raise SIT SI-6B level to 72% using HPSI Pump SI-2A and SRO HCV-311 or HCV-312 IAW OI-SI-1, Attachment 4. Ensures that recirculation valves HCV-385 and HCV-386 are open and PRI HCV-2983 is closed. Start SI-2A. Recirc for 15 minutes. **CUE: ASSUME 15 MINUTES** PRI HAVE ELAPSED. 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 PRI controller in OPEN. 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 PRI ASAFETY INJECTION TANK SI-6B LO LEVEL® on Panel A7 has cleared. Close HCV-2916. PRI Close HCV-312 or HCV-311. PRI Place PCV-2909 in CLOSE and valve control in AUTO. PRI Verify that HPSI loop injection valve is operable by lit amber light on valve LSO used to fill tank.

Appendix D	Operator Actions	Form ES-D-2
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Op-Test	No.:	Scenario No.:4 Event No.: 2 Page 3 of 8	
Event De	scription: F	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></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.: 3 Page 4 of 8

Event Description: Tube leak on Steam generator RC-2B (30 gpm)

Time	Position	Applicant's Actions or Behavior
	PRI	Respond to condenser off-gas radiation alarm (RM-057) and rising trend o RM-054B
	PRI	Identify and report charging/letdown mismatch
	SRO	Enter AOP-22 (May also enter SO G-105)
	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

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.:4	Event No.: 4	Page 5 of 8
Event De	scription: A	AOP-05 Plant Shutdown	ı	
Time	Position	1	Applicant's Actions or Bel	navior
	SRO	Enter AOP-05 (Emerg	ency Shutdown) - Direct E	Emergency Shutdown
	SRO	Notify System Operati	ons of Power Decrease	
	SRO	Direct PRI to begin bo	oration using SIRWT	
	PRI	Switch charging pump	suction from the VCT to t	he SIRWT
	PRI	Direct SEC to control	RCS cold leg temperature	by reducing turbine load
	SEC	Reduce turbine load to	control cold leg temperatu	ire
	SRO	Direct PRI to operate of	control rods to control ASI	
	PRI	Operate Control Rods	to control ASI	
	PRI	Monitor and control pr	rimary parameters	
	SEC	Monitor and control R	CS cold leg temperature ar	nd secondary parameters
	SRO	Continue to coordinate	e PRI and SEC actions duri	ing power reduction
				_

Appendix D	Operator Actions	Form ES-D-2
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Op-Test	No.:	Scenario No.:4	Event No.:5	Page 6 of 8
Event De	escription: S	team Generator pressure	transmitter on RC-2A	fails low
Time	Position	Α	applicant's Actions or	Behavior
	SEC			and level in S/G, "RC-2A"
	SRO	Direct SEC to take man	ual control of Feedwa	ter
	SEC <c></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 fail	ure of PT-907	
	SEC	Continue to monitor an	d control S/G level	
	PRI	Monitor primary param	eters	

Appendix D	Operator Actions	Form ES-D-2

Op-Test	No.:	Scenario No.:4	Event No.: 6	Page 7 of 8
Event D	escription: Lo	oss of Condenser Vacuu	m – Reactor Trip	
Time	Position		Applicant's Actions or I	
	SRO/PRI/ SEC		puter alarm for ACOND ATURBINE HOOD PR	ENSER A/B PRESSURE ESSURE HI@alarm.
	LSO	Directs SEC to monit	or condenser vacuum tre	end.
	SEC/PRI	appropriate actions:	RP-CB-10, 11/A9 (Win	
		\$ Dispatches eq\$ Monitors vacu		ck vacuum pump operation.
	SEC	Determines that vacuur vacuum pump.	um continues to decrease	e. Starts FW-8B backup
	SRO	Directs entry into AO	P-26, Section I.	
	SEC	Reviews AOP-26 and decreased to <25".	determines that conden	nser vacuum has slowly
	SRO (C)	-	yn (at <10%/min) in accouum loss. Note: AOP a	ordance with AOP-05 in an also allows use of OP-4
	SRO		perform standard post-tri	
	PRI/SEC	Perform standard pos	t-trip actions	
	1			

Op-Test No.: Scenario No.:4 Event N	To.: 7 Page 8 of 8
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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 SEC	Perform Standard Post Trip Actions: Verify control rod insertion, power lowering, negative startup rate Verify turbine trip and generator trip Verify electrical status – 4160, D/G, instrument power, 125V DC Verify instrument air status Verify CCW and raw water status Verify RCS inventory control Verify RCS pressure control Verify core heat removal Verify S/G feed Verify S/G pressure and T-cold Verify containment conditions
	SRO	Diagnose tube rupture - enter EOP-04 or EOP-20
	SRO	Direct RCS cooldown - T _{hot} less than 510°F
	SEC	Cooldown RCS Thot to less than 510°F
	PRI	Identify and verify PPLS
	SRO SEC	Identify most affected steam generator (A)
	SRO	Direct SEC 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 Block SGLS during cooldown
	PRI	Monitor and control primary parameters