

Facility:	Callaway	Scenario No.:	1	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
<p>Initial Conditions: 100% power, BOL.</p> <p>RE-52, Blowdown Discharge Pumps Discharge Monitor, is OOS.</p> <p>BB-PCV-455A PORV Leakage – Block Valve Closed.</p> <p>Motor Driven AFW Pump 'A' OOS.</p>					
<p>Turnover: Reduce power to less than 90% at 1% per minute to remove Condensate Pump 'A' from service due to a seal leak</p>					
<p>Critical Task: Start EDG 'A' to energize Emergency Bus prior to initiation of ECA 0.0 coping steps.</p> <p>Manually Start 'A' HHSI pump prior to exit from EOP Attachment 1.</p>					
Event No.	Malf. No.	Event Type*	Event Description		
1		R – RO N – BOP, SRO	Reduce power		
2	FWM02A	I – BOP, SRO TS - SRO	SG level transmitter failure.		
3	EPS05B	C – ALL TS - SRO	4KV Bus NB02 Normal Feeder Breaker trip.		
4	PRS02A	I – RO, SRO TS - SRO	Pressurizer Level Transmitter fails low		
5	RCS06C	C – RO, SRO	RCS Leak requiring reactor trip.		
6	BAT	M – ALL	Loss of off-site power, SBLOCA.		
7	EPS06B KJS012	C – BOP	'B' DG Trips – 'A' DG fails to AUTO Start. MANUAL Start required.		
8	SBI008C	C - RO	'A' HHSI pump fails to AUTO Start – MANUAL Start required.		
<p>* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor</p>					

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## Scenario Event Description

### NRC Scenario 1

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The crew will assume the shift at 100% power with instructions to reduce power due to a Condensate Pump seal leak.

At approximately 95% power, a Steam Generator Level transmitter will drift low, requiring the crew to take manual control of the feedwater regulating valve for the affected steam generator in accordance with OTO-AE-2. The SRO will also refer to Technical Specifications for the appropriate action requirements.

When technical specifications have been addressed, 4KV Vital Bus NB02 normal feeder breaker will trip. 'B' EDG will automatically start and energize bus NB02. The crew will respond in accordance with alarm response procedures, OTO-NB-00002 and OTO-SA-1 to stop AFW flow and secure unnecessary equipment started by the Shutdown Sequencer. The SRO will refer to technical specifications.

When the plant is stable, a Pressurizer Level Transmitter will fail low, causing Letdown isolation. The crew will restore letdown in accordance with OTO-BG-1. The SRO will address Technical Specifications.

An RCS leak will develop when Letdown is placed in service, requiring the crew to determine that the reactor must be tripped.

When the reactor is tripped, a loss of off-site power will occur. The RCS leak will progress to a SBLOCA.

Diesel Generator 'B' trips and cannot be started. Diesel Generator 'A' fails to automatically start, and must be manually started and aligned in accordance with E-0 or ECA-0.0. HHSI pump 'A' fails to automatically start, and must be manually started.

The scenario may be terminated upon entry to ES-1.2, Post LOCA Cooldown and Depressurization.

EOP flow path: E-0, ECA-0.0, E-0, E-1, ES-1.2

Scenario 1  
Scenario Malfunction List

- 1) Initialize at IC-20.
- 2) Run Batch File "**iltone.txt**", and verify the actions on the following page are loaded correctly.
- 3) Ensure Immediate Boration Timer is reset.
- 4) Check RX trip switch has a RED flag.
- 5) Ensure NIS indicates 100%
- 6) Ensure step counters for Control Bank "D" are set at 215 steps and all other step counters are set for 228.
- 7) Ensure the digital display is selected to REP0480A and RET0499A.
- 8) Ensure AE-LT-519 is selected
- 9) Ensure BB-LT-459 is selected
- 10) Hang hold off tags on the "A" MDAFP.
- 11) Ensure Decrease Loading Rate Button is "ON".
- 12) Update status board for "B" Protected Train week. Record "A" MDAFP, LCO 3.7.5, 72 hours.
- 13) Place Letdown orifi A and B in service with a caution tag on C
- 14) White board has the following boron concentrations:
  - "A" MDAFP T/S 3.7.5, Action C.1. 72 Hours. OOS @ 0500 Today
  - 'A' CCP "5 days ago" 1107 ppm
  - 'B' CCP "two weeks ago" 1135 ppm
- 15) Supply turnover and log sheets and OTG-ZZ-00004.
- 16) Ensure the RM-11 is on the training system.
- 17) Microphones available for each person being evaluated and a video tape is in the VCR.
- 18) Ensure chart recorders are "rolled forward".
- 19) Ensure copies of the following procedures are in the file drawers:
  - OTO-AE-00002                      OTG-ZZ-00004
  - OTO-NB-00002                      OTN-AD-00001
  - OTO-SA-00001                      OTN-BG-00001, Addendum 4
  - OTO-BG-00001                      OTN-EC-00001
  - ECA-0.0
  - E-0
  - E-1                                      E-2

# Scenario 1

## Scenario Malfunction List

```
File:          iltone.TXT
>Author:   S. P. Aufdemberge
>Date:     20050504
>
>=====SCENARIO SETUP ITEMS=====
>TAGOUT "A" MDAFW PUMP
> FILE: AL01A.TXT
> Red lights stay on the ESFAS Panel
bat al01a.txt
>Simulates de-energization of "A" PORV Block valve due to PORV Leakage
ior bbhis8000a_ic (-1 0) 0
irf bbs014 (-1 0) 0
>=====
>=====EVENT PRELOAD=====
>EVENT A
>'A' S/G lev xmtr fails to 0 psig over 60 sec from trigger #1 (MANUAL)
imf fwm02a (1) 0 60
>=====
>=====EVENT PRELOAD=====
>EVENT B
>Loss of NB02 normal feeder breaker, from trigger #2 (MANUAL)
imf eps05b (2)
>=====
>=====EVENT PRELOAD=====
>EVENT C
>Pressurizer Level Transmitter Fails Low, from trigger #3 (MANUAL)
imf prs02a (3) 0 60
>=====
>=====EVENT PRELOAD=====
>EVENT D
>RCS leak requiring Reactor trip,Grows to 600gpm over 10 minutes from Manual Trigger #5
imf rcs06c (5) 600 600
>=====
>=====EVENT PRELOAD=====
>EVENT E
>Loss of Off-Site Power, from Manual trigger #6
> Incoming Lines
imf eps03a (6 0)
imf eps03b (6 3)
imf eps03c (6 20)
imf eps03g (6 5)
>Incoming Line lights
irf msb006 (6 0) 0
irf msb007 (6 5) 0
irf msb008 (6 3) 0
>=====
>=====EVENT PRELOAD=====
>EVENT F
>"B" EDG trips and "A" EDG will fail to automatically start. "B" EDG fails on the loss of off-site power
imf eps06b (7)
>Loss of off-site power "sensed" by green light on RCP control switch
trgset 7 "x21o115g.eq.0"
>Disable Automatic start of "A" EDG
irf kjs012 (-1 0) 1
>=====
>=====EVENT PRELOAD=====
>EVENT G
> "A" CCP fails to auto start, manual will be successful
irf sbi008c (-1 0) 1
>
>
>end of file
```

Scenario 1  
Crew Turnover

Separate Turnover sheets provided

Op Test No.:	<u>1</u>	Scenario #	<u>1</u>	Event #	<u>1</u>	Page	<u>6</u>	of	<u>36</u>
Event Description:		Reduce Power							
Time	Position	Applicant's Actions or Behavior							

	SRO	Refer to OTO-MA-00008, Rapid Load Reduction
	CREW	Determine amount of boric acid to reduce reactor power to 90%
	CREW	Record rate of turbine load change
	SRO	Discuss amount and rate of turbine load change and boric acid addition with crew
	SRO	Notify Load Dispatcher
	SRO	Notify Chemistry, Health Physics, and Radwaste
	RO	Initiate boron equalization <ul style="list-style-type: none"> <li>• Energize at least 1 group of backup heaters</li> <li>• Place the PZR Master Controller in MAN</li> <li>• Lower PZR Master Controller output to 38% to 42%</li> <li>• Place the PZR Master Controller in AUTO</li> </ul>

Op Test No.:	<u>1</u>	Scenario #	<u>1</u>	Event #	<u>1</u>	Page	<u>7</u>	of	<u>36</u>
Event Description:		Reduce Power							
Time	Position	Applicant's Actions or Behavior							

	RO	<p>Borate from the BAST using any of the following:</p> <ul style="list-style-type: none"> <li>• Emergency Boration <ul style="list-style-type: none"> <li>○ Start at least 1 Boric Acid Transfer Pump</li> <li>○ Open Emergency Boration to Charging Pump suction BG HIS-8104</li> <li>○ Check Emergency Borate flow is greater than 30 GPM on BG FI-183A</li> </ul> </li> <li>• Borate to the VCT <ul style="list-style-type: none"> <li>○ Place RCS Makeup Control to STOP (BG HS-26)</li> <li>○ Place RCS Makeup Control Selector to BORATE (BG HS-25)</li> <li>○ Reset Boric Acid counter to 000 (BG FY-110B)</li> <li>○ Set BG FY-110B for the desired gallons of boric acid to be added</li> <li>○ Place BG HS-26 in RUN</li> </ul> </li> </ul>
	RO	Place Rod Control in AUTO
	BOP	<p>Reduce turbine load at less than or equal to 5% per minute using any of the following:</p> <ul style="list-style-type: none"> <li>○ Reduce turbine load using the Load Limit potentiometer</li> <li>○ Reduce turbine load using the %/min loading rate <ul style="list-style-type: none"> <li>○ Rotate Load Limit Set potentiometer clockwise until both of the following are met: <ul style="list-style-type: none"> <li>▪ Load Limit light extinguished</li> <li>▪ At Set Load – LIT</li> </ul> </li> </ul> </li> <li>○ Set Loading Rate Limit %/min to desired value</li> <li>○ Select Decrease Loading Rate – ON</li> <li>○ Lower load set MW toward desired load using DECREASE LOAD pushbutton</li> </ul>

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Event Description: Reduce Power									
Time	Position	Applicant's Actions or Behavior							

	BOP	Check MFP Turbine Speed control in AUTO
<b>When power has been reduced approximately 5%, or at Lead Evaluator's discretion, proceed to Event 2</b>		

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Event Description: SG Level Transmitter Failure

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert command for SG Level Transmitter failure****Indications available:**

REACTOR PARTIAL TRIP, annunciator 83C

SG A LEV DEV, annunciator 108C

SG A LEV LO, Annunciator 108B

	SRO	Refer to OTO-AE-00002 for level malfunction
	BOP	IDENTIFY failed channel (LT-519) by comparing steam generator level indicators.
	BOP	SELECT alternate level channel LT-551.
	BOP	STABILIZE steam generator level at its programmed level (45-55%).
	BOP	WHEN steam generator level is returned to programmed level and IF placed in "MANUAL" during the transient, PLACE feedwater regulating valve to automatic control.
	SRO	Refer to T/S LCO 3.3.1 TAB 3.3.1-1 Item 14 and T/S LCO 3.3.2 TAB 3.3.2-1 Item 5 and 6 and ENSURE compliance with requirement for minimum operable channels and action statements. <ul style="list-style-type: none"> <li>○ TS 3.3.1 and 3.3.2 apply (72 Hour Action)</li> </ul>
	SRO	Refer to T/S LCO 3.3.4 and T/S LCO 3.3.3 and ENSURE compliance.

**When Tech Specs have been identified, proceed to Event 3.**

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Event Description: 4KV Bus NB02 Normal Feeder Breaker Trip

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert command for Bus NB02 breaker trip****Indications available:****DG B starts and supplies NB02****SHUTDOWN SEQUENCER ACTUATED TRAIN B Annunciator 21C****DIESEL GENERATOR NE02 TROUBLE Annunciator 23D****NB01 BREAKER NOT OPERABLE Annunciator 18F**

	SRO	Refer to OTO-NB-00002, Loss of Power to NB02
	RO	Check 4160 VAC Bus NB02 ENERGIZED
	RO	Check EDG B-Running
	BOP	Check ESW Flow Aligned to EDG B
	BOP	Check ESW Train A Properly Aligned
	RO	Check Reactor Power less than 100%
	BOP	Check SG NR Level trending to or within 45 -55%
	BOP	Check TDAFP Secured <ul style="list-style-type: none"> <li>○ Throttle CLOSE TDAFP discharge FCVs</li> </ul>
	BOP	Check MDAFP Secured <ul style="list-style-type: none"> <li>Throttle Closed MDAFP B Discharge FCVs</li> </ul>
	RO	Check Pressurizer Level at or trending to program level

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Event Description: 4KV Bus NB02 Normal Feeder Breaker Trip

Time	Position	Applicant's Actions or Behavior
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	RO	Check Pressurizer Pressure at or trending to 2220 – 2250 psig
	BOP	Check CCW Pump B or D running
	RO	Check only one charging pump running. <ul style="list-style-type: none"> <li>Stop one charging pump</li> </ul>
	RO	Check RCP Seal Injection Flow between 8 -13 gpm/pump
	Crew	Check any Service Air Compressors running
	BOP	Check Panel PN08 Transferred to normal source
	RO/BOP	Check SFP Cooling in service
	BOP	Check CR (A or B) and Class IE (A and B) AC units running
	BOP	Check busses PK02 and PK04
	RO	Go to OTA-RL-RK021, Attachment C, and verify automatic LSELS actuations <ul style="list-style-type: none"> <li>Ensure equipment is in normal alignment</li> </ul>
	SRO	Refer to Attachment G for guidance concerning possible Tech Spec action statements <ul style="list-style-type: none"> <li>TS 3.8.1 applies</li> </ul>
	SRO	If desired, cross-tie PK02 and PK04 to functional battery chargers in accordance with OTN-PK-00001

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Event Description: 4KV Bus NB02 Normal Feeder Breaker Trip

Time	Position	Applicant's Actions or Behavior
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	SRO	If Swing Charger (NK26) is available, refer to OTN-NK-00001 and, as required, charge batteries NK12 and NK14
	RO/BOP	Ensure "A" Control Room Air Conditioner is running
	SRO	Ensure "A" Class 1E Air Conditioner is running and take action in accordance with FSAR 16.7.13.1 for the inoperable "B" Class 1E Air Conditioner

**When TDAFP and MDAFP flow is throttled, plant is stable, and Tech Specs have been addressed, or at Lead Examiner's discretion, proceed to Event 4**

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Event Description: PZR Level Transmitter fails low. PZR LCV fails closed

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert command for Pressurizer Level transmitter failure****Indications available:****PRESSURIZER LOW LEVEL DEVIATION Annunciator 32C****LETDOWN HEAT EXCHANGER DISCHARGE FLOW HIGH LOW Annunciator 39E****Letdown isolates**

	CREW	Identify the cause of the loss of letdown.
	CREW	Determine that PZR LVL INST FAILURE occurred. (LT-459)
	RO	Select alternate Pressurizer Level Control Channel (LT-461)
	RO	Isolate letdown by closing all orifice isolation valves. (Already closed)
	RO	Reduce charging flow to minimum required for RCP seal injection as follows:
	RO	If the CCP is in service, SLOWLY CLOSE BH HC-182 while reducing charging flow using BG FK-121. Maintain approximately 8 GPM to each RCP seal.
	RO	ENSURE BG-HC-182 is FULL CLOSED.
	RO	Verify Reactor Makeup Control System set in automatic for the correct boron concentrations and is maintaining VCT level.
	RO	STABILIZE pressurizer level as follows:

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Event Description: PZR Level Transmitter fails low. PZR LCV fails closed

Time	Position	Applicant's Actions or Behavior
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	CREW	Restore normal letdown per OTO-BG-00001, Pressurizer Level Control Malfunctions.
	RO	Ensure Letdown system containment isolation valves are open <ul style="list-style-type: none"> <li>• BG HIS-8152</li> <li>• BG HIS-8160</li> </ul>
	RO	Ensure RCS Letdown to Regenerative Heat Exchanger Valves are open <ul style="list-style-type: none"> <li>• BG HIS-459</li> <li>• BG HIS-460</li> </ul>
	RO	Throttle Charging Header back Pressure Control Valve to establish 85-90 GPM <ul style="list-style-type: none"> <li>• BG HIS-182</li> </ul>
	RO	Place Letdown HX Outlet Pressure Controller in Manual and RAISE setpoint to greater than 75% open <ul style="list-style-type: none"> <li>• BG PK-131</li> </ul>
	RO	Open Orifice Isolation Valve(s) to establish desired letdown flow <ul style="list-style-type: none"> <li>• BG HIS-8149AA</li> <li>• BG HIS-8149BA</li> <li>• BG HIS-8149CA</li> </ul>
	RO	Adjust Letdown HX Outlet Pressure Controller to maintain between 300 psig and 350 psig and place in Automatic <ul style="list-style-type: none"> <li>• BG PK-131</li> </ul>
	RO	Adjust Charging flow as necessary to maintain Pressurizer level

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Event Description: PZR Level Transmitter fails low. PZR LCV fails closed		
Time	Position	Applicant's Actions or Behavior

<b>When Letdown is restored, proceed to Event 5</b>		

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert commands for remaining events as sequenced****Indications available:****PROCESS RADIATION HIGH Annunciator 61B****Rising trend on Iodine and Particulate Channels 31, 32****If RMS has not been reset from previous failure, the following alarms will also indicate an RCS leak:****PRESSURIZER LOW LEVEL DEVIATION, 32C****PRESSURIZER PRESSURE LOW HEATERS ON, 33C**

	CREW	DETERMINE the approximate size of the leak. Should determine greater than 50 GPM leak
<b>NOTE: The plant computer group tabular time trend GT-SG17 can be used to approximate the leak size.</b>		
	RO	USE trends of VCT level (20 GAL/%) and/or PZR level (60 GAL/%).
<b>NOTE: Only one charging pump should be in operation until PZR level is increased for the plant cooldown.</b>		
	RO	COMPARE Charging and Letdown flow rates. Crew should determine that PZR level CANNOT be maintained.
	SRO	Direct Reactor Trip
	RO	CHECK Reactor Trip:
		<ul style="list-style-type: none"> <li>Rod Bottom Lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>Reactor Trip and Bypass Breakers – OPEN</li> </ul>
		<ul style="list-style-type: none"> <li>Neutron Flux – LOWERING</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
	BOP	CHECK Turbine Trip:
		All turbine Stop valves – CLOSED.
	CREW	CHECK Power to AC Emergency Buses:
		AC emergency buses – AT LEAST ONE ENERGIZED
		• NB01(NO)
		OR
		• NB02(NO)
	SRO	DIRECTS Go to ECA-0.0, Loss of All AC Power, Step 1.
	RO	CHECK Reactor Trip:
		• Reactor Trip and Bypass Breakers – OPEN
		• Neutron Flux – LOWERING
	BOP	CHECK Turbine Trip:
		All Turbine Stop valves – CLOSED.
	RO	CHECK if RCS is Isolated:
		a. PZR PORVs – CLOSED
		• BB HIS-455A
		• BB HIS-456A
		b. Letdown Isolation Valves – CLOSED

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		1. Letdown Orifice Isolation valves:
		• BG HIS-8149AA
		• BG HIS8149BA
		• BG HIS-8149CA
		2. RCS Letdown to Regen HX valves:
		• BG HIS-459
		• BG HIS-460
		c. RCS to Excess Letdown HX valves – CLOSED
		• BG HIS-8153A
		• BG HIS-8154A
		• BG HIS-8153B
		• BG HIS-8154B
	RO	CLOSE valve(s) as necessary.
		d. Reactor Head Vent Valves – CLOSED
		• BB HIS-8001A
		• BB HIS-8002A
		• BB HIS-8001B
		• BB HIS-8002B
	BOP	CHECK AFW Flow – GREATER THAN 300,000 LBM/HR
	CREW	TRY to Restore Power to Any AC Emergency Bus:
		a. ENERGIZE AC emergency bus with diesel generator:

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
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<b>CRITICAL TASK</b>		<b>1. START DG(s):</b>
		<ul style="list-style-type: none"> <li><b>KJ HS-8A – DG – “A”</b></li> </ul>
		<b>2. CHECK AC emergency buses – AT LEAST ONE ENERGIZED</b>
		<ul style="list-style-type: none"> <li>NB01 – ENERGIZED</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>NB02 – NOT ENERGIZED</li> </ul>
	CREW	b. CHECK AC emergency buses – AT LEAST ONE ENERGIZED
		<ul style="list-style-type: none"> <li>NB01 – YES</li> </ul>
	BOP	c. CHECK ESW Pump associated with energized AC emergency bus(es) – RUNNING
		<ul style="list-style-type: none"> <li>EF HIS-55A (NB01) – YES</li> </ul>
		d. Return to procedure and step in effect and IMPLEMENT Functional Restoration Procedures as necessary.
		<ul style="list-style-type: none"> <li>Crew will review CSF Status Trees. None currently required for implementation</li> </ul>
	SRO	DIRECTS return to E-0.
	RO	CHECK SI Status:
		a. CHECK is SI is actuated:
		<ul style="list-style-type: none"> <li>Any SI annunciator 88A through 88D – LIT</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>SB069 SI Actuate RED light – LIT</li> </ul>
		OR

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• LOCA Sequencer annunciators 30A or 31A – LIT</li> </ul>
		b. CHECK both Trains of SI – ACTUATED
		<ul style="list-style-type: none"> <li>• LOCA Sequencer annunciator 30A – LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• LOCA Sequencer annunciator 31A – NOT LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• SB069 SI Actuate RED light – LIT SOLID (NOT blinking)</li> </ul>
<b>Note: Attachment A contains a Critical Task</b>	BOP	PERFORM Attachment A, Automatic Action Verification, while continuing with this procedure. (Actions for Attachment A begin on page 32 of this guide)
	RO	CHECK Generator Output Breakers – OPEN
		<ul style="list-style-type: none"> <li>• MA ZL-3A (V55)</li> </ul>
		<ul style="list-style-type: none"> <li>• MA ZL-4A (V53)</li> </ul>
	RO	CHECK Feedwater Isolation:
		a. Main Feedwater Pumps – TRIPPED
		<ul style="list-style-type: none"> <li>• Annunciator 120A, MFP A Trip - LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• Annunciator 123A, MFP B Trip – LIT</li> </ul>
		b. Main Feedwater Reg Valves – CLOSED
		<ul style="list-style-type: none"> <li>• AE ZL-510 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL-520 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL-530 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL-540 (SG D)</li> </ul>
		c. Main Feedwater Reg Bypass Valves – CLOSED
		<ul style="list-style-type: none"> <li>• AE ZL-550 (SG A)</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• AE ZL-560 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL-570 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL-580 (SG D)</li> </ul>
		d. Feedwater Isolation Valves – CLOSED
		<ul style="list-style-type: none"> <li>• AE HIS-39 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-40 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-41 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-42 (SG D)</li> </ul>
	RO	CHECK AFW Pumps:
		a. MD AFW Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>• AL HIS-23A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HIS-22A</li> </ul>
		b. TD AFW Pump – RUNNING IF NECESSARY
	RO	CHECK AFW Valves – PROPER EMERGENCY ALIGNMENT
		<ul style="list-style-type: none"> <li>• MD AFP Flow Control Valves – THROTTLED</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-7A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-9A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-11A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL-HK-5A</li> </ul>
		<ul style="list-style-type: none"> <li>• TD AFP Flow Control Valves – FULL OPEN</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-8A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-10A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-12A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-6A</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
	RO	CHECK Total AFW Flow – GREATER THAN 300,000 LBM/HR
	RO	CHECK PZR PORVs and Spray Valves:
		a. PZR PORVs – CLOSED
		• BB HIS-455A
		• BB HIS-456A
		b. PZR PORVs – BOTH IN AUTO
		• BB HIS-455A
		• BB HIS-456A
		c. PORV Block Valves – BOTH OPEN
		• BB HIS-8000A
		• BB HIS-8000B
		d. Normal PZR Spray Valves – CLOSED
		• BB ZL-455B
		• BB ZL-455C
	RO	CHECK If RCPs Should Be Stopped:
		a. RCPs – ANY RUNNING (NO)
	SRO	Go to Step 13.
	RO	CHECK RCS Temperatures:
		• NO RCPs running – RCS COLD LEG TEMPERATURES STABLE AT 557°F OR TRENDING TO 557°F

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
	CREW	CHECK If any SG Is Faulted:
		a. CHECK pressures in all SGs:
		<ul style="list-style-type: none"> <li>ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>ANY SG COMPLETELY DEPRESSURIZED</li> </ul>
	SRO	Go to Step 15.
	CREW	CHECK If SG Tubes Are Intact:
		<ul style="list-style-type: none"> <li>Levels in all SGs:</li> </ul>
		<ul style="list-style-type: none"> <li>NO SG NARROW RANGE LEVEL RISING IN AN UNCONTROLLED MANNER</li> </ul>
		<ul style="list-style-type: none"> <li>SG Steamline N16 radiation – NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>N16 161 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>N16 162 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>N16 163 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>N16 164 (SG D)</li> </ul>
		<ul style="list-style-type: none"> <li>Condenser Air Removal radiation – NORMAL BEFORE ISOLATION</li> </ul>
		<ul style="list-style-type: none"> <li>GEG 925</li> </ul>
		<ul style="list-style-type: none"> <li>SG Blowdown and Sample radiation – NORMAL BEFORE ISOLATION</li> </ul>
		<ul style="list-style-type: none"> <li>BML 256</li> </ul>
		<ul style="list-style-type: none"> <li>SJL 026</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>SG ASD radiation – NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 111 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 112 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 113 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 114 (SG D)</li> </ul>
		<ul style="list-style-type: none"> <li>Turbine Driven Auxiliary Feedwater Pump exhaust radiation – NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>FC RIC 385</li> </ul>
	RO	CHECK If RCS Is Intact:
		<ul style="list-style-type: none"> <li>Containment Pressure – NORMAL (NO)</li> </ul>
		<ul style="list-style-type: none"> <li>GN PI-934</li> </ul>
		<ul style="list-style-type: none"> <li>GN PI-935</li> </ul>
		<ul style="list-style-type: none"> <li>GN PI-936</li> </ul>
		<ul style="list-style-type: none"> <li>GN PI-937</li> </ul>
		<ul style="list-style-type: none"> <li>GN PR-934</li> </ul>
		<ul style="list-style-type: none"> <li>Containment Normal Sump Level – NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>EJ LI-8</li> </ul>
		<ul style="list-style-type: none"> <li>EJ LI-7</li> </ul>
		<ul style="list-style-type: none"> <li>EJ LR-6</li> </ul>
		<ul style="list-style-type: none"> <li>Containment Normal sump Level – NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>LF LI-9</li> </ul>
		<ul style="list-style-type: none"> <li>LF LI-10</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>Containment Radiation – NORMAL BEFORE ISOLATION</li> </ul>
		<ul style="list-style-type: none"> <li>GTG 313</li> </ul>
		<ul style="list-style-type: none"> <li>GTG 323</li> </ul>
		<ul style="list-style-type: none"> <li>GTA 591</li> </ul>
		<ul style="list-style-type: none"> <li>GTA 601</li> </ul>
	SRO	Go To E-1, Loss of Reactor or Secondary Coolant, Step 1.
<b>NOTE: Seal injection flow should be maintained to all RCPs.</b>		
		CHECK If RCPs Should Be Stopped:
		Loss of Power, already – TRIPPED
	BOP	CHECK If Any SG Is Faulted:
		CHECK pressures in all SGs:
		<ul style="list-style-type: none"> <li>ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>ANY SG COMPLETELY DEPRESSURIZED (NO)</li> </ul>
		Go to Step 3.
	BOP	CHECK Intact SG Levels:
		a. Narrow range levels – GREATER THAN 7% [25%]
		b. CONTROL feed flow to maintain narrow range levels between 7% [25%] and 50%

Op Test No.: 1 Scenario # 1 Event # 5, 6, 7, & 8 Page 26 of 36

Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
	BOP	CHECK Secondary Radiation – NORMAL
		a. PERFORM the following:
		<ul style="list-style-type: none"> <li>PERFORM EOP Addendum 11, Restoring SG Sampling After SI Actuation</li> </ul>
		<ul style="list-style-type: none"> <li>DIRECT Chemistry to periodically sample all SGs for activity.</li> </ul>
		<ul style="list-style-type: none"> <li>DIRECT Health Physics to survey steamlines in Auxiliary Building Area 5 as necessary</li> </ul>
		b. CHECK unisolated secondary radiation monitors:
		<ul style="list-style-type: none"> <li>SG Sample radiation:</li> </ul>
		<ul style="list-style-type: none"> <li>SJL 026</li> </ul>
		<ul style="list-style-type: none"> <li>SG ASD radiation:</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 111 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 112 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 113 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 114 (SG D)</li> </ul>
		<ul style="list-style-type: none"> <li>Turbine Driven Auxiliary Feedwater Pump Exhaust radiation:</li> </ul>
		<ul style="list-style-type: none"> <li>FC RIC 385</li> </ul>
		c. Secondary radiation – NORMAL
	RO	CHECK PZR PORVs and Block Valves:
		a. Power to Block Valves – AVAILABLE
		<ul style="list-style-type: none"> <li>BB HIS-8000A (NO)</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS-8000B</li> </ul>

Op Test No.: 1 Scenario # 1 Event # 5, 6, 7, & 8 Page 27 of 36

Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		b. PZR PORVs – CLOSED
		• BB HIS-455A
		• BB HIS-456A
		c. Block Valves – BOTH OPEN
		• BB HIS-8000A (NO)
		• BB HIS-8000B
	Crew	CHECK If ECCS Flow Should Be Reduced:
		a. RCS subcooling – GREATER THAN 30°F
		b. Secondary heat sink:
		• Narrow range level in at least one intact SG – GREATER THAN 7% [25%]
		OR
		• Total feed flow to intact SGs – GREATER THAN 300,00 LBM/HR
		c. RCS pressure – STABLE OR RISING
		d. PZR level – GREATER THAN 9% [29%] (NO)
	RO	CHECK If Containment Spray should Be Stopped:
		a. Spray Pumps – ANY RUNNING
	SRO	Go to Step 8. OBSERVE CAUTIONS prior to Step 8.

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
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**CAUTION: If RCS pressure lowers in an uncontrolled manner to less than 325 PSIG, the RHR pumps must be manually restarted to supply water to the RCS.**

	RO	CHECK If RHR Pumps Should Be Stopped:
		a. CHECK RCS pressure:
		1. Pressure – GREATER THAN 325 PSIG
		2. Pressure – STABLE OR RISING
		b. RHR Pumps – ANY RUNNING WITH SUCTION ALIGNED TO RWST
		c. RESET SI if necessary:
		• SB HS-42A
		• SB HS-43A
		d. STOP RHR Pumps and PLACE in standby:
		• EJ HIS-1
		• EJ HIS-2
		e. MONITOR RCS pressure
	CREW	CHECK SG and RCS Pressures:
		• CHECK pressure in all SGs – STABLE OR RISING
		• CHECK RCS pressure – STABLE OR LOWERING
	CREW	CHECK If Diesel Generators Should Be Stopped:

Op Test No.: 1 Scenario # 1 Event # 5, 6, 7, & 8 Page 29 of 36

Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		a. AC emergency buses – ENERGIZED BY OFFSITE POWER
		• NB01 (NO)
		• NB02 (NO)
		TRY to restore offsite power to AC emergency buses using EOP Addendum 7, Restoring Offsite Power.
		b. RESET SI if necessary:
		• SB HS-42A
		• SB HS-43A
		c. LOAD equipment on AC emergency bus(es) as necessary using EOP Addendum 8, Loading Equipment on AC emergency Buses.
	CREW	INITIATE Evaluation of Plant Status:
		a. CHECK cold leg recirculation capability:
		• Train A – AVAILABLE
		• RHR Pump A (EJ HIS-1)
		• CCW Pump A (EG HIS-21) or CCW Pump C (EG HIS-23)
		• RWST To RHR Pump A Suction (BN HIS-8812A)
		• Containment Recirc Sump to RHR Pump A Suction (EJ HIS-8811A)
		• CCW to RHR HX A (EG HIS-101)
		• Train B – AVAILABLE
		• RHR Pump B (EJ HIS-2)
		• CCW Pump B (EG HIS-22) or CCW Pump D (EG HIS-24)
		• RWST To RHR Pump B Suction (BN HIS-8812B)

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• CCW to RHR HX B (EG HIS-102)</li> </ul>
		b. CHECK Auxiliary Building radiation – NORMAL
		<ul style="list-style-type: none"> <li>• Aux Building Process Radiation monitor:</li> </ul>
		<ul style="list-style-type: none"> <li>• GLP 604</li> </ul>
		<ul style="list-style-type: none"> <li>• Aux Building Area Radiation monitors</li> </ul>
		TRY to identify and isolate leakage:
		<ul style="list-style-type: none"> <li>• DIRECT Health Physics and Chemistry to assist in the evaluation as necessary.</li> </ul>
		IF the cause is a loss of RCS inventory outside containment, THEN Go To ECA-1.2, LOCA Outside Containment, Step 1.
		c. OBTAIN samples:
		1. DIRECT Chemistry to initiate post accident sampling:
		<ul style="list-style-type: none"> <li>• RCS boron concentration</li> </ul>
		<ul style="list-style-type: none"> <li>• RCS activity</li> </ul>
		<ul style="list-style-type: none"> <li>• Containment atmosphere</li> </ul>
		2. PLACE Hydrogen Analyzers in Service using EOP Addendum 16, Placing Hydrogen Analyzers In Service.
		3. CONSULT Plant Engineering Staff for assessing additional sampling requirements for fuel damage.
		d. EVALUATE plant equipment for long term recovery as necessary:
		<ul style="list-style-type: none"> <li>• Hydrogen Recombiners</li> </ul>
		<ul style="list-style-type: none"> <li>• Radwaste systems</li> </ul>
		<ul style="list-style-type: none"> <li>• Radiation monitoring</li> </ul>
		<ul style="list-style-type: none"> <li>• Post accident monitoring</li> </ul>
		<ul style="list-style-type: none"> <li>• Operating safeguards equipment:</li> </ul>

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Event Description: RCS Leak - Loss of Off-Site Power – SBLOCA – DG Trip – HHSI Pump Failure

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• CCPs</li> </ul>
		<ul style="list-style-type: none"> <li>• SI Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• RHR Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• CS Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• ESW Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• CCW Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• Containment Cooler Fans</li> </ul>
		<ul style="list-style-type: none"> <li>• Containment Hydrogen Mixing Fans</li> </ul>
		<ul style="list-style-type: none"> <li>• AFW Pumps</li> </ul>
		<ul style="list-style-type: none"> <li>• Control Room ventilation</li> </ul>
		<ul style="list-style-type: none"> <li>• Auxiliary Building ventilation</li> </ul>
		<ul style="list-style-type: none"> <li>• Fuel Building ventilation</li> </ul>
		e. START additional plant equipment to assist in recovery as directed by SS/CRS
	CREW	CHECK If RCS Cooldown And Depressurization Is Required
		a. RCS pressure – GREATER THAN 325 PSIG
		b. Go to ES-1.2, Post LOCA Cooldown And Depressurization, Step 1
<b>Scenario may be terminated on transition to ES-1.2, or when all critical tasks are complete and at Lead Examiner discretion</b>		

**ATTACHMENT A**  
**Automatic Action Verification**

	BOP	CHECK Charging Pumps:
<b>CRITICAL TASK</b>	BOP	a. CCPs – BOTH RUNNING
		<ul style="list-style-type: none"> <li>• <b>BG HIS-1A (Must manually start HHSI Pump 'A')</b></li> </ul>
		<ul style="list-style-type: none"> <li>• BG HIS-2A</li> </ul>
	BOP	b. STOP NCP:
		<ul style="list-style-type: none"> <li>• BG HIS-3</li> </ul>
	BOP	CHECK SI And RHR Pumps
		<ul style="list-style-type: none"> <li>• SI Pumps – BOTH RUNNING (NO)</li> </ul>
		<ul style="list-style-type: none"> <li>• EM HIS-4</li> </ul>
		<ul style="list-style-type: none"> <li>• EM HIS-5</li> </ul>
		<ul style="list-style-type: none"> <li>• RHR Pumps – BOTH RUNNING</li> </ul>
		<ul style="list-style-type: none"> <li>• EJ HIS-1</li> </ul>
		<ul style="list-style-type: none"> <li>• EJ HIS-2</li> </ul>
	BOP	CHECK ECCS Flow:
	BOP	a. CCPs to Boron Inj Header – FLOW INDICATED
		<ul style="list-style-type: none"> <li>• EM FI-917A</li> </ul>
		<ul style="list-style-type: none"> <li>• EM FI-917B</li> </ul>
	BOP	b. RCS pressure – LESS THAN 1700 PSIG
	BOP	c. SI Pump Discharge – FLOW INDICATED
		<ul style="list-style-type: none"> <li>• EM FI-918</li> </ul>
		<ul style="list-style-type: none"> <li>• EM FI-922</li> </ul>
	BOP	d. RCS pressure – LESS THAN 325 PSIG

**ATTACHMENT A**  
**Automatic Action Verification**

	BOP	e. RHR To Accumulator Injection Loop – FLOW INDICATED
		<ul style="list-style-type: none"> <li>EJ FI-618</li> </ul>
		<ul style="list-style-type: none"> <li>EJ FI-619</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK ESW Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>EF HIS-55A</li> </ul>
		<ul style="list-style-type: none"> <li>EF HIS-56A</li> </ul>
	BOP	CHECK CCW Alignment:
	BOP	a. CCW Pumps – ONE RUNNING IN EACH TRAIN
		<ul style="list-style-type: none"> <li>Red Train:</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-21 or EG HIS-23</li> </ul>
		<ul style="list-style-type: none"> <li>Yellow Train</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-22 or EG HIS-24</li> </ul>
	BOP	b. CCW Service Loop Supply and Return valves for one operating CCW pump - OPEN
		<ul style="list-style-type: none"> <li>EG ZL-15 AND EG ZL-53</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>EG ZL-16 AND EG ZL-54</li> </ul>
	BOP	CHECK Containment Cooler Fans – RUNNING IN SLOW SPEED
		<ul style="list-style-type: none"> <li>GN HIS-9</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-17</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-5</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-13</li> </ul>
	BOP	CHECK Containment Hydrogen Mixing Fans – RUNNING IN SLOW SPEED

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>GN HIS-2</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-4</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-1</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-3</li> </ul>
	BOP	CHECK If Containment Spray Should Be Actuated:
	BOP	a. CHECK the following:
		<ul style="list-style-type: none"> <li>Containment pressure – GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>GN PR-934 indicates containment pressure – HAS BEEN GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Annunciator 59A CSAS - LIT</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Annunciator 59B CISB - LIT</li> </ul>
	BOP	b. Containment Spray Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>EN HIS-3</li> </ul>
		<ul style="list-style-type: none"> <li>EN HIS-9</li> </ul>
	BOP	c. ESFAS status panels CSAS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	d. ESFAS status panels CISB sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK If Main Steamlines Should Be Isolated:
	BOP	a. CHECK for any of the following:
		<ul style="list-style-type: none"> <li>Containment pressure – GREATER THAN 17 PSIG</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

		OR
		<ul style="list-style-type: none"> <li>GN PR-934 indicates containment pressure – HAS BEEN GREATER THAN 17 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Steamline pressure – LESS THAN 615 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>AB PR-514 or PR-535 indicates steamline pressure – HAS BEEN LESS THAN 615 PSIG</li> </ul>
	BOP	b. CHECK MSIVs and Bypass valves - CLOSED
	BOP	CHECK ECCS Valves – PROPER EMERGENCY ALIGNMENT
	BOP	a. ESFAS status panels SIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Isolation Phase A:
	BOP	a. ESFAS status panels CISA sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK SG Blowdown Isolation:
	BOP	ESFAS status panels SGBSIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK Both Trains of control Room Ventilation Isolation:

Facility:	Callaway	Scenario No.:	2	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
<p>Initial Conditions: 50% power, BOL.</p> <p>RE-52, Blowdown Discharge Pumps Discharge Monitor, is OOS.</p> <p>BB-PCV-455A PORV Leakage – Block Valve Closed.</p> <p>Motor Driven AFW Pump 'A' OOS.</p>					
Turnover:		Maintain stable plant conditions			
Critical Task:		<p>Insert negative reactivity by inserting control rods or initiating emergency boration prior to the end of step 4 of FR-S.1.</p> <p>Isolate AFW to faulted SG prior to occurrence of an ORANGE condition on the Integrity CSF Status Tree.</p>			
Event No.	Malf. No.	Event Type*	Event Description		
1 T+10	PRS01A	I – RO, SRO TS – SRO	Pressurizer pressure instrument fails high		
2 T+25	FWM03B	C – BOP, SRO	'B' Feedwater Control Valve fails closed in automatic		
3 T+35	PCS02B	I – ALL TS – SRO	Turbine First Stage Pressure Transmitter fails low		
4 T+50	CRF04_52 CRF04_53	M – ALL	Multiple Dropped Rods – requires reactor trip		
5	CRF13	C – ALL	ATWS		
6	MSS14A	C – BOP	Stuck open safety valve.		
<p>* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor</p>					

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## Scenario Event Description

### NRC Scenario 2

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The crew will assume the shift with instructions to maintain present plant conditions

The controlling pressurizer pressure transmitter will fail high, requiring the crew to select an alternate pressure channel to control heaters and spray in accordance with OTO-BB-6. The SRO will also determine the appropriate technical specification action requirements.

When the plant is stable, a Feedwater Control Valve will fail closed in automatic, requiring manual operation to restore SG level.

When SG level is restored, PT-506 will fail low, requiring the RO to place Rod Control in manual to stop rod motion, the BOP to select PT-505 for control, reset C-7, and place steam dumps in the Steam Pressure mode in accordance with OTO-AC-3. The SRO will also address Technical Specifications.

Multiple control rods will drop. A reactor trip is required but an ATWS occurs. The crew must take action to initiate RCS emergency boration and de-energize rod drive MG sets. A SG safety valve will stick open, requiring the crew to isolate AFW flow to the SG and attempt isolation.

The scenario may be terminated when the crew transitions to ES-1.1, SI Termination.

EOP Flow Path: E-0, FR-S.1, E-0, E-2, ES-1.1

## Scenario 2

### Scenario Malfunction List

- 1) Initialize at IC-17, 50%.
- 2) Run Batch File ilttwo.txt and verify the actions on the following page are loaded correctly.
- 3) Ensure immediate boration timer is reset.
- 4) Ensure BB PT-455 is selected as the controlling pressure channel.
- 5) Ensure First Stage Pressure Transmitter PT-506 is selected for control
- 6) Ensure NIS indicates 50% power.
- 7) Check Rx Trip switch has a red flag.
- 8) Ensure step counters for Control Bank "D" are set at 150 steps and all other step counters are set at 228 steps.
- 9) Ensure the digital display is selected to REP0480A and RET0499A.
- 10) Place 'A' MDAFP in PTL and hand a Hold Off tag on handswitch ALHIS23A.
- 11) Ensure Decrease Loading Rate Button is "ON".
- 12) Update the status board for "B" train week.
- 13) Update Status Board – 'A' MDAFP, TS 3.7.5, Condition C, 72 hrs. Current outage time is 16 hours.
- 14) Ensure Letdown orifi A and B are in service, and a caution tag placed on C
- 15) Ensure AEHV38 is appropriately throttled
- 16) White board has the following boron concentrations:
  - "A" CCP 5 days ago 1105 ppm
  - "B" CCP 15 days ago 1132 ppm
  - RCS boron = 1090
  - PZR boron = 1093
- 17) Ensure chart recorders are "rolled forward".
- 18) Microphones are available for each person being evaluated and a videotape is in the VCR.
- 19) Ensure the RM-11 is on the training system.
- 20) Ensure turnover sheets and log sheets are on the desks.
- 21) Ensure copies of the following procedures are in the file drawers:
  - OTO-BB-00006
  - OTO-AE-00001
  - OTO-AC-00003
  - E-0
  - FR-S.1
  - E-2
  - ES-1.1

## Scenario 2

### Scenario Malfunction List

```

File:                ilttwo.TXT
>Author:  S. P. Aufdemberge
>Date:    20050504
>
>
>=====SCENARIO SETUP ITEMS=====
>Remove 'A' MDAFP from service
>FILE  AL01A.TXT
>Simulates tag out of the MD AFP A in the Pull-to-lock position
bat al01a.txt
>Simulates de-energization of "A" PORV Block valve due to PORV Leakage
ior bbhis8000a_ic (-1 0) 0
irf bbs014 (-1 0) 0
>=====
>=====EVENT PRELOAD=====
>EVENT 1
>Pressurizer Pressure Channel BBPT0455 fails to 2500 over 60 seconds
>Manually Input Event 1
imf prs01a (1 0) 2500 60
>=====
>=====EVENT PRELOAD=====
>EVENT 2
>"B" Feed Reg Valve fails closed in Automatic over 90 seconds
>Manually Input Event 2
imf fwm03b (2 0) 0 90
>=====
>=====EVENT PRELOAD=====
>EVENT 3
>ACPT0506 fails low over 60 second ramp
>Manually Input Event 3
imf pcs02b (3 0) 0 60
>=====
>=====EVENT PRELOAD=====
> EVENT 4
>Multiple Dropped Rods
>Manually Input Event 4
imf crf04_52 (4)
imf crf04_53 (4)
>=====
>=====EVENT PRELOAD=====
>EVENT 5
>PROTECTIVE SYSTEM FAILURE (ATWS) Preloaded into scenario. No Manual Input >required
imf crf13 (-1 0) both
>=====
>=====EVENT PRELOAD=====
>EVENT 6
>Main Steam Safety Valve Fails 100% Open, with a 10 sec delay, and a 1 sec >ramp from trigger #6 (CONDITIONAL)
trgset 6 "sac.le.10"
imf mss14a (6 10) 100 1
>=====
>end of file

```

Scenario 2  
Crew Turnover

Separate Turnover Sheets provided

Op Test No.:	<u>1</u>	Scenario #	<u>2</u>	Event #	<u>1</u>	Page	<u>6</u>	of	<u>28</u>
Event Description: Pressurizer Pressure Instrument Failure									
Time	Position	Applicant's Actions or Behavior							

**Booth Operator Instructions:**

**When directed, insert command for PT-455 failure HIGH**

**Indications Available:**

**PRESSURIZER HIGH PRESSURE DEVIATION Annunciator 33B**

**PRESSURIZER PRESSURE LOW HEATERS ON Annunciator 33C**

**REACTOR PARTIAL TRIP Annunciator 83C**

**PT-455 indicates high**

	SRO	Refer to OTO-BB-0006, Pressurizer Pressure Control System Instrument Failures
	RO	Select an alternate channel (457/456)
	RO	Check PZR pressure 2200 – 2250 psig
	RO	Check P-11 correct state (Not Lit)
	BOP	Select recorder to valid channel
	SRO	Direct I&C to trip the affected bistables
	SRO	Refer to Tech Specs
		<ul style="list-style-type: none"> <li>• 3.3.1, Condition E, M</li> <li>• 3.3.2 Condition D, L</li> <li>• 3.3.4 Item 3</li> <li>• 3.4.1 (DNB)</li> </ul>

**After Technical Specifications have been addressed, proceed to Event 2**

Op Test No.: 1 Scenario # 2 Event # 2 Page 7 of 28

Event Description: "B" Feedwater Control Valve fails closed in automatic

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert command for Feedwater Control Valve failure****Indications Available:****'B' FRV failing closed****Feedwater flow to "B" SG Lowering****STEAM GENERATOR B FLOW MISMATCH Annunciator 109D**

	BOP	Determines SG "B" level is lowering.
	BOP	Place AE-FK-520, SG "B" MFW Reg Valve Control, in MANUAL, and restore SG level.
	SRO	Refer to OTO-AE-0001, Feedwater System Malfunctions.
	RO	Place Rod Control in AUTO
	BOP	Check Main Feed Pump tripped (NO)
	BOP	Check Main Feed Pump Speed controlling in auto and stable
	BOP	Check Main Feed Reg Valves controlling in Auto (NO) <ul style="list-style-type: none"> <li>• Ensure Manual control</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Check Main Feed Reg Bypass Valves in service (NO)</li> <li>• Check Condensate Pump operation</li> <li>• Check Heater Drain Pump operation</li> </ul>
	BOP	Verify SG NR level trend 45 – 55% and maintain
	RO	Monitor or operate rod control to maintain Tave/Tref +/- 5 °F

Op Test No.: 1 Scenario # 2 Event # 2 Page 8 of 28

Event Description: "B" Feedwater Control Valve fails closed in automatic

Time	Position	Applicant's Actions or Behavior
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	BOP	Check MFP Oil Pressure normal
	SRO	Perform communications per Ops Communications-01
	SRO	Verify Power change less than 15% in 1 hour

**When the plant is stable, proceed to Event 3**

Op Test No.: 1 Scenario # 2 Event # 3 Page 9 of 28

Event Description: Turbine First Stage Pressure Transmitter Fails Low

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:**

**When directed, insert command for First Stage Pressure Channel PT-506 failing low**

**Indications Available:**

**PT-506 indication failing low**

**Control Rods stepping in if in auto**

**Rx Deviation alarm**

	SRO	Refer to OTO-AC-00003, Turbine Impulse Pressure Channel Failure
	RO	Place Rod Control in MANUAL
	BOP	Identify the failed channel by comparing meter indications and identifying alarmed annunciators. (PT-506)
	BOP	Select the alternate impulse pressure channel by utilizing the Impulse Pressure selector switch AC PS-505Z.
	RO	Check Tave within 1.5°F of Tref (When restored, then maintain)
	RO	Check Rod Control in AUTO <ul style="list-style-type: none"> <li>Will place in AUTO if directed by SRO and Tave and Tref are matched</li> </ul>
	RO	Maintain Tavg at the corresponding Tref value for existing plant power. Ensure RX power is less than 3565 MWth.
	BOP	Place the Steam Dump Interlock Selector switches (AB-HS-64 and AB-HS-63) to the OFF/RESET position.

Op Test No.: 1 Scenario # 2 Event # 3 Page 10 of 28

Event Description: Turbine First Stage Pressure Transmitter Fails Low

Time	Position	Applicant's Actions or Behavior
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	BOP	Check C-7, Load Loss Stm Dump Armed - Extinguished
	BOP	Transfer Steam Dumps to the Steam Pressure Mode: <ul style="list-style-type: none"> <li>Set the AB PK-507, Steam Header Pressure controller for 7.28 turns (1092 psig)</li> <li>Place the Steam Dump Select to STEAM PRESS</li> </ul>
	BOP	Place the Steam Dump Bypass Interlock switches to ON
	CREW	Check the following permissives are in their correct state within 1 hour of the channel failure per Attachment B, permissives: <ul style="list-style-type: none"> <li>P-7 (LIT)</li> <li>P-13 (LIT)</li> </ul>
	SRO	Direct an RO to Place SW12 for PT-506 at AMSAC Test/Bypass Panel and place SW11, Bypass toggle switch, to the right hand position
	SRO	Refer to T/S LCO 3.3.1 (Improved T/S LCO 3.3.1) to ensure compliance with the requirements for minimum channels. <ul style="list-style-type: none"> <li>Condition T</li> </ul>
	RO	Restore Rod Control to Manual if directed

**Note:****10 minutes after the failure, ATWS System Trouble Alarm, 83F, will annunciate.****(No consequence)****When Tech Specs have been addressed, proceed to Event 4**

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 11 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor Instructions:****When directed, insert commands to initiate remainder of events as sequenced****Indications Available:****Two dropped control rods****Rod Bottom lights****Multiple annunciators**

	CREW	Recognizes more than one control rod dropped.
	SRO	Directs reactor trip.
	RO	Attempts to trip reactor. Reactor will not trip.
	SRO	Directs entry to FR-S.1
	RO	CHECK Reactor Trip:
		• Rod Bottom Lights – ALL LIT (NO)
		• Reactor Trip and Bypass Breakers –OPEN (NO)
		• Neutron Flux – LOWERING (Possible, if Control Rod insertion is in progress))
		Manually TRIP Reactor:
		• SB HS-1
		• SB-HS-42 (BOP)
		IF reactor will NOT trip, THEN PERFORM the following:
<b>CRITICAL TASK</b>	<b>RO</b>	<b>a. Manually INSERT control rods when AUTO slows below 48 SPM, or insert manually continuously.</b>

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 12 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
	BOP	b. OPEN supply breakers to PG19 and PG20:
		• PG HIS-16
		• PG HIS-18
		WHEN reactor is tripped, THEN CLOSE supply breakers to PG19 and PG20.
	BOP	CHECK Turbine trip:
		All Turbine Stop valves – CLOSED
	BOP	CHECK AFW Pumps Running:
		a. MD AFW Pumps – BOTH RUNNING (Must start “B” MDAFW Pump)
		• AL HIS-23A
		• AL HIS-22A
		b. TD AFW Pump – RUNNING IF NECESSARY (May need to start)
<b>CRITICAL TASK</b>	<b>RO</b>	<b>INITIATE Emergency Boration of RCS:</b>
		<b>Note:</b> If SI is actuated, HHSI will be providing boration flow via the RWST
		a. CHECK charging pumps – AT LEAST ONE RUNNING
		• CCP(s):
		• BG HIS-1A
		• BG HIS-2A
		OR

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 13 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>NCP:</li> </ul>
		<ul style="list-style-type: none"> <li>BG HIS-3</li> </ul>
	RO	b. ALIGN emergency boration flow path:
		1. START Boric Acid Transfer Pumps:
		<ul style="list-style-type: none"> <li>BG HIS-5A</li> </ul>
		<ul style="list-style-type: none"> <li>BG HIS-6A</li> </ul>
		2. OPEN Emergency Borate to Charging Pump Suction valve:
		<ul style="list-style-type: none"> <li>BG HIS-8104</li> </ul>
		3. CHECK Emergency Boration Flow – GREATER THAN 30 GPM
		<ul style="list-style-type: none"> <li>BG FI-183A</li> </ul>
		4. MAINTAIN charging flow – GREATER THAN EMERGENCY BORATION FLOW
		c. CHECK PZR Pressure – LESS THAN 2335 PSIG
	CREW	CHECK Containment Purge Isolation:
		a. ESFAS status panels CPIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	RO	CHECK If the Following Trips Have Occurred:

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 14 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		a. Reactor trip:
		• Rod Bottom Lights – ALL LIT (YES)
		• Reactor Trip and Bypass Breakers – OPEN (NO)
		• Neutron Flux – LOWERING (YES)
	BOP	b. Turbine trip:
		• All Turbine Stop Valves - CLOSED
	RO	CHECK If Reactor Is Subcritical:
		a. Power Range channels – LESS THAN 5% (POST ACCIDENT PR – LESS THAN 5%)
		b. Intermediate Range channels – NEGATIVE STARTUP RATE (POST ACCIDENT PR – STABLE OR LOWERING)
	SRO	Go to Step 16. OBSERVE CAUTION prior to Step 16. Directs entry to E-0.
	RO	CHECK Reactor Trip:
		• Rod Bottom Lights – ALL LIT (YES)
		• Reactor Trip and Bypass Breakers – OPEN (NO)
		◦ Dispatch AO to Open RTBs
		• Neutron Flux – LOWERING (YES)
	BOP	CHECK Turbine Trip:
		a. All turbine Stop Valves - CLOSED
	BOP	CHECK Power to AC Emergency Buses:

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 15 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		a. AC emergency buses – AT LEAST ONE ENERGIZED
		• NB01
		OR
		• NB02
		b. AC emergency buses – BOTH ENERGIZED
	CREW	CHECK SI Status:
		a. CHECK if SI is actuated:
		• Any SI annunciator 88A through 88D - LIT
		OR
		• SB069 SI Actuate RED light - LIT
		OR
		• LOCA Sequencer annunciators 30A or 31A - LIT
		b. CHECK both Trains of SI – ACTUATED
		• LOCA Sequencer annunciator 30A – LIT
		• LOCA Sequencer annunciator 31A – LIT
		• SB069 SI Actuate RED light – LIT SOLID (NOT blinking)
	BOP	PERFORM Attachment A, Automatic Action Verification, while continuing with this procedure.
	BOP	CHECK Generator Output Breakers - OPEN
		• MA ZL-3A (V55)
		• MA ZL-4A (V53)
	BOP	CHECK Feedwater Isolation:

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 16 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
	BOP	a. Main Feedwater Pumps - TRIPPED
		• Annunciator 120A, MFP A Trip – LIT
		• Annunciator 123A, MFP B Trip – LIT
	BOP	b. Main Feedwater Reg Valves – CLOSED
		• AE ZL-510 (SG A)
		• AE ZL-520 (SG B)
		• AE ZL-530 (SG C)
		• AE ZL-540 (SG D)
	BOP	c. Main Feedwater Reg Bypass Valves - CLOSED
		• AE ZL-550 (SG A)
		• AE ZL-560 (SG B)
		• AE ZL-570 (SG C)
		• AE ZL-580 (SG D)
	BOP	d. Feedwater Isolation Valves - CLOSED
		• AE HIS-39 (SG A)
		• AE HIS-40 (SG B)
		• AE HIS-41 (SG C)
		• AE HIS-42 (SG D)
	BOP	CHECK AFW Pumps:
		a. MD AFW Pumps – BOTH RUNNING (B MDAFW Pump is running. A MDAFW Pump is OFF)
		• AL HIS-23A
		• AL HIS-22A

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 17 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		b. TD AFW Pump – RUNNING IF NECESSARY
	BOP	CHECK AFW Valves – PROPER EMERGENCY ALIGNMENT
		<ul style="list-style-type: none"> <li>MD AFP Flow Control Valves – THROTTLED</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-7A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-9A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-11A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-5A</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>TD AFP Flow Control Valves – FULL OPEN (May isolate to faulted SG)</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-8A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-10A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-12A</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-6A</li> </ul>
	BOP	CHECK total AFW Flow – GREATER THAN 300,000 LBM/HR
	RO	CHECK PZR PORVs and Spray Valves:
	RO	a. PZR PORVs - CLOSED
		<ul style="list-style-type: none"> <li>BB HIS-455A</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS-456A</li> </ul>
	RO	b. PZR PORVs – BOTH IN AUTO
		<ul style="list-style-type: none"> <li>BB HIS-455A</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS-456A</li> </ul>
	RO	c. PORV Block Valves – BOTH OPEN (NO)

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 18 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>BB HIS-8000A (CLOSED)</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS-8000B</li> </ul>
	RO	d. Normal PZR Spray Valves - CLOSED
		<ul style="list-style-type: none"> <li>BB ZL-455B</li> </ul>
		<ul style="list-style-type: none"> <li>BB ZL-455C</li> </ul>
<b>NOTE: Seal injection flow should be maintained to all RCPs.</b>		
	RO	CHECK If RCPs Should Be Stopped:
	RO	a. RCPs – ANY RUNNING
	RO	b. ECCS Pumps – AT LEAST ONE RUNNING
		<ul style="list-style-type: none"> <li>CCP</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>SI Pump</li> </ul>
	RO	c. RCS pressure – LESS THAN 1425 PSIG (NO)
	CREW	CHECK RCS Temperatures:
		<ul style="list-style-type: none"> <li>Any RCP running – RCS TAVG STABLE AT 557°F OR TRENDING TO 557°F (NO)</li> </ul>
		If TEMPERATURE IS LESS THAN 557°F and LOWERING, then perform THE FOLLOWING:
	BOP	a. STOP dumping steam.
		b. IF cooldown continues, THEN CONTROL total feed flow:

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 19 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>MAINTAIN total feed flow greater than 300,000 LBM/HR until narrow range level is greater than 7% [25%] in at least one SG.</li> </ul>
	BOP	c. IF cooldown continues, THEN FAST CLOSE all MSIVs and Bypass valves: (May have been performed)
		<ul style="list-style-type: none"> <li>AB HS-79</li> </ul>
		<ul style="list-style-type: none"> <li>AB HS-80</li> </ul>
	BOP	CHECK If Any SG Is Faulted:
		a. CHECK pressures in all SGs:
		<ul style="list-style-type: none"> <li>ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER ("A" SG)</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>ANY SG COMPLETELY DEPRESSURIZED</li> </ul>
	SRO	b. Go To E-2, Faulted Steam Generator Isolation, Step 1.
<b>CAUTIONS: At least one SG must be maintained available for RCS cooldown.</b> <b>Any faulted SG or secondary break should remain isolated during subsequent recovery actions unless needed for RCS cooldown.</b>		
	BOP	CHECK MSIVs and Bypass Valves - CLOSED
	BOP	CHECK If Any SG Secondary Pressure Boundary Is Intact:
		a. CHECK pressures in all SGs – ANY STABLE OR RISING
	BOP	IDENTIFY Faulted SG(s):

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 20 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
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	BOP	a. CHECK pressures in all SGs:
		<ul style="list-style-type: none"> <li>ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER ("A")</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>ANY SG COMPLETELY DEPRESSURIZED</li> </ul>
	BOP	ISOLATE Faulted SG(s):
<b>CRITICAL TASK</b>	<b>BOP</b>	a. ISOLATE AFW flow to faulted SG(s):
		<ul style="list-style-type: none"> <li>CLOSE associated MD AFW Flow Control Valve(s):</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-7A (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>CLOSE associated TD AFW Flow Control Valve(s):</li> </ul>
		<ul style="list-style-type: none"> <li>AL HK-8A (SG A)</li> </ul>
	BOP	b. CHECK ASD from faulted SG(s) - CLOSED
		<ul style="list-style-type: none"> <li>AB PIC-1A (SG A)</li> </ul>
		c. Locally CLOSE TDAFP Steam Supply From Main steam Loop Manual Isolation valve from faulted SG(s):
		<ul style="list-style-type: none"> <li>ABV0085 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>ABV0087 (SB C)</li> </ul>
	BOP	d. CHECK Main Feedwater valves to faulted SG(s) - CLOSED
		<ul style="list-style-type: none"> <li>Main Feedwater Reg Valves:</li> </ul>
		<ul style="list-style-type: none"> <li>AE ZL-510 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>Main Feedwater Reg Valves:</li> </ul>
		<ul style="list-style-type: none"> <li>AE ZL-550 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>Feedwater Isolation Valve:</li> </ul>
		<ul style="list-style-type: none"> <li>AE HIS-39 (SG A)</li> </ul>

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 21 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
	BOP	e. CHECK SG Blowdown containment Isolation Valve from faulted SG(s) - CLOSED
		<ul style="list-style-type: none"> <li>BM HIS-1A (SG A)</li> </ul>
	BOP	f. CLOSE Steamline Low Point Drain valve from faulted SG(s):
		<ul style="list-style-type: none"> <li>AB HIS-9 (SG A)</li> </ul>
	BOP	CHECK CST To AFP Suction Header Pressure – GREATER THAN 2.7 PSIG
	CREW	CHECK Secondary Radiation:
	BOP/SRO	a. PERFORM EOP Addendum 11, Restoring SG Sampling After SI Actuation
		<ul style="list-style-type: none"> <li>PERFORM EOP Addendum 11, Restoring SG Sampling After SI Actuation</li> </ul>
		<ul style="list-style-type: none"> <li>DIRECT Chemistry to periodically sample all SGs for activity</li> </ul>
		<ul style="list-style-type: none"> <li>DIRECT Health Physics to survey steamlines in Auxiliary Building Area 5 as necessary</li> </ul>
	CREW	b. CHECK unisolated secondary radiation monitors:
		<ul style="list-style-type: none"> <li>SG Sample radiation:</li> </ul>
		<ul style="list-style-type: none"> <li>SJL 026</li> </ul>
		<ul style="list-style-type: none"> <li>SG ASD radiation:</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 111 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 112 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 113 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 114 (SG D)</li> </ul>
		<ul style="list-style-type: none"> <li>Turbine Driven Auxiliary Feedwater Pump Exhaust</li> </ul>

Op Test No.: 1 Scenario # 2 Event # 4,5,6 Page 22 of 28

Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve

Time	Position	Applicant's Actions or Behavior
		radiation:
		<ul style="list-style-type: none"> <li>FC RIC 385</li> </ul>
		c. Secondary radiation - NORMAL
	CREW	CHECK If ECCS Flow Should Be Reduced:
		a. RCS subcooling – GREATER THAN 30°F
		b. Secondary heat sink:
		<ul style="list-style-type: none"> <li>Narrow range level in at least one intact SG – GREATER THAN 7% [25%]</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Total feed flow to intact SGs – GREATER THAN 300,000 LBM/HR</li> </ul>
		c. RCS pressure – STABLE OR RISING
		d. PZR level – GREATER THAN 9% [29%]
	RO	RESET SI:
		<ul style="list-style-type: none"> <li>SB HS-42A</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-43A</li> </ul>
	RO	STOP All But One CCP:
		<ul style="list-style-type: none"> <li>BG HIS-1A</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>BG HIS-2A</li> </ul>
	SRO	Go To ES-1.1, SI Termination, Step 3.

Op Test No.: <u>1</u> Scenario # <u>2</u> Event # <u>4,5,6</u> Page <u>23</u> of <u>28</u>		
Event Description: Multiple dropped rods, ATWS, Stuck Open Main Steam Safety Valve		
Time	Position	Applicant's Actions or Behavior

<b>Scenario may be terminated upon transition to ES-1.1, or at Lead Examiner's discretion after all critical tasks are complete</b>		

**ATTACHMENT A**  
**Automatic Action Verification**

	BOP	CHECK Charging Pumps:
	BOP	a. CCPs – BOTH RUNNING
		• BG HIS-1A
		• BG HIS-2A
	BOP	b. STOP NCP:
		• BG HIS-3
	BOP	CHECK SI And RHR Pumps
		• SI Pumps – BOTH RUNNING
		• EM HIS-4
		• EM HIS-5
		• RHR Pumps – BOTH RUNNING
		• EJ HIS-1
		• EJ HIS-2
	BOP	CHECK ECCS Flow:
	BOP	a. CCPs to Boron Inj Header – FLOW INDICATED
		• EM FI-917A
		• EM FI-917B
	BOP	b. RCS pressure – LESS THAN 1700 PSIG
	BOP	c. SI Pump Discharge – FLOW INDICATED
		• EM FI-918
		• EM FI-922
	BOP	d. RCS pressure – LESS THAN 325 PSIG
	BOP	e. RHR To Accumulator Injection Loop – FLOW INDICATED
		• EJ FI-618

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>EJ FI-619</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK ESW Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>EF HIS-55A</li> </ul>
		<ul style="list-style-type: none"> <li>EF HIS-56A</li> </ul>
	BOP	CHECK CCW Alignment:
	BOP	a. CCW Pumps – ONE RUNNING IN EACH TRAIN
		<ul style="list-style-type: none"> <li>Red Train:</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-21 or EG HIS-23</li> </ul>
		<ul style="list-style-type: none"> <li>Yellow Train</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-22 or EG HIS-24</li> </ul>
	BOP	b. CCW Service Loop Supply and Return valves for one operating CCW pump - OPEN
		<ul style="list-style-type: none"> <li>EG ZL-15 AND EG ZL-53</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>EG ZL-16 AND EG ZL-54</li> </ul>
	BOP	CHECK Containment Cooler Fans – RUNNING IN SLOW SPEED
		<ul style="list-style-type: none"> <li>GN HIS-9</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-17</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-5</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-13</li> </ul>
	BOP	CHECK Containment Hydrogen Mixing Fans – RUNNING IN SLOW SPEED
		<ul style="list-style-type: none"> <li>GN HIS-2</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-4</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>GN HIS-1</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-3</li> </ul>
	BOP	CHECK If Containment Spray Should Be Actuated:
	BOP	a. CHECK the following:
		<ul style="list-style-type: none"> <li>Containment pressure – GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>GN PR-934 indicates containment pressure – HAS BEEN GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Annunciator 59A CSAS - LIT</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Annunciator 59B CISB - LIT</li> </ul>
	BOP	b. Containment Spray Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>EN HIS-3</li> </ul>
		<ul style="list-style-type: none"> <li>EN HIS-9</li> </ul>
	BOP	c. ESFAS status panels CSAS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	d. ESFAS status panels CISB sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK If Main Steamlines Should Be Isolated:
	BOP	a. CHECK for any of the following:
		<ul style="list-style-type: none"> <li>Containment pressure – GREATER THAN 17 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>GN PR-934 indicates containment pressure – HAS</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

		BEEN GREATER THAN 17 PSIG
		OR
		<ul style="list-style-type: none"> <li>Steamline pressure – LESS THAN 615 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>AB PR-514 or PR-535 indicates steamline pressure – HAS BEEN LESS THAN 615 PSIG</li> </ul>
	BOP	b. CHECK MSIVs and Bypass valves - CLOSED
	BOP	CHECK ECCS Valves – PROPER EMERGENCY ALIGNMENT
	BOP	a. ESFAS status panels SIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Isolation Phase A:
	BOP	a. ESFAS status panels CISA sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK SG Blowdown Isolation:
	BOP	ESFAS status panels SGBSIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK Both Trains of control Room Ventilation Isolation:
	BOP	a. ESFAS status panels CRVIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Purge Isolation:
	BOP	a. ESFAS status panels CPIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	Notify CRS of the following:
		<ul style="list-style-type: none"> <li>Manual actions taken</li> </ul>
		<ul style="list-style-type: none"> <li>Failed Equipment</li> </ul>
		<ul style="list-style-type: none"> <li>Attachment A, Automatic Action Verification, completed</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

	BOP	a. ESFAS status panels CRVIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Purge Isolation:
	BOP	a. ESFAS status panels CPIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	Notify CRS of the following:
		<ul style="list-style-type: none"> <li>Manual actions taken</li> </ul>
		<ul style="list-style-type: none"> <li>Failed Equipment</li> </ul>
		<ul style="list-style-type: none"> <li>Attachment A, Automatic Action Verification, completed</li> </ul>

Facility:	Callaway	Scenario No.:	3	Op Test No.:	NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
<p>Initial Conditions:    5 – 10% power, BOL.</p> <p>RE-52, Blowdown Discharge Pumps Discharge Monitor, is OOS.</p> <p>BB-PCV-455A PORV Leakage – Block Valve Closed.</p>					
<p>Turnover:                Increase power to 100% at 3% per hour</p>					
<p>Critical Task:            Isolate ruptured SG in step 3 of E-3.</p> <p>Establish and Maintain RCS temperature below that required for depressurization of the ruptured SG.</p>					
Event No.	Malfunction No.	Event Type*	Event Description		
1 T+0		R – RO N – BOP, SRO	Raise power.		
2 T+10	NIS03D	I – ALL TS – SRO	Power Range NI failure.		
3 T+30	MSS13B	I – BOP, SRO	Steam Dump pressure setpoint failure.		
4 T+40	BBV001	C – RO, SRO TS - SRO	RCP high vibration.		
5 T+60	RCS02A	M – ALL	SGTR. Reactor trip required.		
6	MSS07A	C – BOP	Atmospheric dump valve fails open, requiring manual isolation.		
7	Component Override KAHIS29	C – RO	Instrument air to containment fails closed, requiring alternate RCS depressurization.		
<p>*    (N)ormal,    (R)eactivity,    (I)nstrument,    (C)omponent,    (M)ajor</p>					

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## Scenario Event Description

### NRC Scenario 3

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The crew will assume the shift with instructions to raise reactor power in preparation for returning the unit to full power.

When the power ascension is in progress, a power range instrument will fail high, requiring the crew to respond in accordance with OTO-SE-1. The crew will manually control feedwater bypass flow and remove the failed channel from service. The SRO will also determine the appropriate technical specification action requirements.

When the plant is stable and technical specifications have been addressed, a steam dump pressure setpoint failure will require the crew to place steam dumps in off/reset and control reactor power and Tave manually in accordance with OTO-AB-1 and OTO-AB-4.

When the plant is stable, increasing RCP vibration will require the crew to enter OTO-BB-2 to determine that the RCP must be stopped in accordance with OTN-BB-3. The crew will stop the affected RCP after determining reactor power is below P-8. Actions of OTO-BB-4 will also be performed to defeat Loop Delta T and Tave inputs. The SRO will also determine the appropriate technical specification action requirements.

When the plant is stable, a SGTR develops, requiring the crew to trip the reactor and initiate Safety Injection. An atmospheric dump valve will fail open in automatic and require manual closure. Instrument Air to containment will fail closed, requiring alternate RCS depressurization.

The scenario may be terminated when ECCS pumps are stopped in E-3, Steam Generator Tube Rupture.

EOP Flow Path: E-0, E-3

**Scenario Malfunction List**

- 1) Initialize at IC-67. password = redsox, MONITOR CAF20(4) equal 1.0
- 2) Run Batch File "**iltthree.txt**", and verify the actions on the following page are loaded correctly.
- 3) Ensure Immediate Boration Timer is reset.
- 4) Check RX trip switch has a RED flag.
- 5) Ensure NIS indicates 10%
- 6) Ensure step counters for Control Bank "D" are set at 114 steps and all other step counters are set for 228.
- 7) Ensure the digital display is selected to REP0480A and RET0499A.
- 8) Ensure Decrease Loading Rate Button is "ON".
- 9) Update status board for "B" Protected Train week.
- 10) Place Letdown orifi A and B in service with a caution tag on C
- 11) White board has the following boron concentrations:
  - 'A' CCP "5 days ago" 1107 ppm
  - 'B' CCP "two weeks ago" 1135 ppm
- 12) Supply turnover and log sheets, Xe Predict, Dilution/Boration calculation and OTG-ZZ-00003.
- 13) Ensure the RM-11 is on the training system.
- 14) Microphones available for each person being evaluated and a video tape is in the VCR.
- 15) Ensure chart recorders are "rolled forward".
- 16) Ensure copies of the following procedures are in the file drawers:
  - OTO-SE-00001
  - OTO-AB-00004
  - OTO-AB-00001
  - OTO-BB-00002
  - OTN-BB-00003
  - E-0
  - E-3

### Scenario 3

```

>File:          iltthree.txt
>Author:   S. P. Aufdemberge
>Date:      20050517
>
>=====SCENARIO SETUP ITEMS=====
>Simulates de-energization of "A" PORV Block valve due to PORV Leakage
irf bbs014 (-1 0) 0
>BMRE52 OOS Pre-Setup
imf rms6_08 (-1 0)
>=====
>=====EVENT PRELOAD=====
>EVENT A
>Fail N44 to full scale high
imf nis03d (1 0) 200 10
>=====
>=====EVENT PRELOAD=====
>EVENT B
>Steam Dump Pressure Setpoint Failure
imf mss13b (2 0) 1500 100
>=====
>=====EVENT PRELOAD=====
>EVENT C
>RCP Hi Vibration
irf bbv001 (3 0) 6.1 30
>=====
>=====EVENT PRELOAD=====
>EVENT D
>SGTR A Leak grows from 0 to 300 over 100 seconds AUTOMATICALLY inserted when >BBHIS37 taken to stop or PTL.
trgset 4 "x21i115s"
imf rcs02a (4 120) 300 100
>=====
>=====EVENT PRELOAD=====
>EVENT E
>"A" ASD fails open requiring manual isolation
trgset 5 "x04o9o"
imf mss07a (5 0)
>=====
>=====EVENT PRELOAD=====
>EVENT F
>Instrument Air Fails closed requiring Alternate RCS Depressurization
trgset 6 "jstsis.eq.1"
ior kahis29_ic (6) on
ior kahis29_io (6) off
ior kahis29_og (6) on
ior kahis29_or (6) off
>=====
=====
To FAST CLOSE "A" MSIV ONLY:
SAS013A set to "OFF"
SAS013B set to "OFF"
SAS013C set to "OFF"
SAS017 set to "ENABLE"
SAS018A set to "FC"
>end of file

```

## Scenario 3

### **Crew Turnover**

Separate Turnover sheets provided

Op Test No.:	<u>1</u>	Scenario #	<u>3</u>	Event #	<u>1</u>	Page	<u>6</u>	of	<u>31</u>
Event Description:		Raise Power							
Time	Position	Applicant's Actions or Behavior							

	SRO	Refer to OTG-ZZ-0003, Plant Startup Hot Zero Power to 30% Power, section 6.3
	CREW	<p>Perform a Pre-Job Brief of power ascension:</p> <ul style="list-style-type: none"> <li>• General strategy for proceeding to 30% Power.</li> <li>• Any items not completed as expected to this point.</li> <li>• Applicable Precautions and Limitations</li> <li>• Activities that can be performed at any time during the next sections(s) of this procedure such as Stroking MFRV's and Placing Reboiler in service.</li> <li>• MFP and MFRV control status</li> <li>• Extraction Steam Line Drain and FW Preheating status</li> <li>• Steam Dump strategy</li> </ul> <p>Discuss the use of Optional Parameter Alarms as an aid to avoid undesired challenges to legal or system requirements</p>
	BOP	Initiate a 3% per hour loading rate
	RO	Commence raising reactor power
	RO	When power is >10%, verify P-7 and P-10 permissives are illuminated
<b>When control of the plant is demonstrated during startup, proceed to the next event</b>		

Op Test No.: 1 Scenario # 3 Event # 2 Page 7 of 31

Event Description: Power Range NI Failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor Instructions:****When directed, insert command for Power Range NI failure****Indications Available:****PRNI N-44 failing HIGH****Annunciators 78A, 78E, 82A for Power Range Channel deviation****REACTOR PARTIAL TRIP Annunciator 83C**

	BOP	Refer to Annunciator Response procedures
	SRO	Refer to OTO-SE-00001, Nuclear Instrument Malfunction
	RO	Check Power Range Instruments normal. <ul style="list-style-type: none"> <li>N-44 is failing high</li> </ul>
	RO	Ensure Rod Control is in MANUAL
	BOP	Place SG Main Feed Reg Bypass valves in MANUAL
	BOP	Control SG levels from 45 – 55%
	BOP	Stop any Main Turbine load changes (None in progress)
	RO	Maintain Tave/Tref within 1.5°F using manual rod control
	CREW	Check the following permissives are in their required state <ul style="list-style-type: none"> <li>P-7</li> <li>P-8</li> <li>P-9</li> <li>P-10</li> </ul>
	CREW	Select an operable channel on the NI Recorder

Op Test No.: 1 Scenario # 3 Event # 2 Page 8 of 31

Event Description: Power Range NI Failure

Time	Position	Applicant's Actions or Behavior
	CREW	Bypass the malfunctioning channel at the Detector Current Comparator Drawer <ul style="list-style-type: none"> <li>Place UPPER SECTION switch to N-44</li> <li>Place LOWER SECTION switch to N-44</li> <li>Place ROD STOP BYPASS switch to N-44</li> <li>Place POWER MISMATCH BYPASS switch to N-44</li> </ul>
	CREW	At the Comparator and Rate drawer, place Comparator Channel Defeat switch to N-44
	CREW	Ensure the following annunciator windows are extinguished: <ul style="list-style-type: none"> <li>78A, PR CHANNEL DEV</li> <li>78B, PR UPPER DETECTOR FLUX DEV</li> <li>78C, PR LOWER DETECTOR FLUX DEV</li> <li>82A, PR OVER PWR ROD STOP</li> </ul>
	RO	Check Rod Control in AUTO <ul style="list-style-type: none"> <li>Rod Control is in MANUAL</li> </ul>
	BOP	Return Feed Reg Bypass valves to automatic operation as required by the SRO
	BOP	Control SG levels at 45 – 55%
	CREW	Check Reactor Power >10% (NO) <ul style="list-style-type: none"> <li>Perform Attachment B, Low Power Trips Enabled, within the time limit specified in TS</li> </ul>
	SRO	Refer to applicable Tech Specs <ul style="list-style-type: none"> <li>TS 3.3.1 Condition D, E, S</li> </ul>

Op Test No.: <u>1</u> Scenario # <u>3</u> Event # <u>2</u> Page <u>9</u> of <u>31</u>		
Event Description: Power Range NI Failure		
Time	Position	Applicant's Actions or Behavior

<b>When Tech Specs have been identified, proceed to Event 3</b>		

Op Test No.: 1 Scenario # 3 Event # 3 Page 10 of 31

Event Description: Steam Dump Pressure Setpoint Failure

Time	Position	Applicant's Actions or Behavior
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**Booth Instructor Instructions:****When directed, insert command for the Steam Dump pressure transmitter failure****Indications Available:****Steam Dumps start to open**

	SRO	Refers to OTO-AB-00004, Steam Header Pressure Channel Failure
	BOP	Check Steam header pressure indicator AB PI-507 indicating significantly different than SG pressure indicators
	BOP	Check Feed Pump Speed Changing due to failed channel <ul style="list-style-type: none"> <li>• Must control feed pump speed using GE potentiometers with speed controller in manual, due to PT-507 failure</li> <li>• Restore programmed DP</li> </ul>
	BOP	Check Steam Dump Control in Pressure Mode
	BOP	Place Steam Header Pressure Controller in MANUAL
	BOP	Check steam dumps responding in MANUAL
	BOP	Manually control SG pressure to the desired value
	SRO	Initiate actions to repair failed transmitter
	SRO	Perform notifications per OPS-Communications-01

**When steam pressure is under manual control, proceed to the next event**

Op Test No.: 1 Scenario # 3 Event # 4 Page 11 of 31

Event Description: RCP High Vibration

Time	Position	Applicant's Actions or Behavior
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**Booth Operator Instructions:****When directed, insert command to initiate RCP high vibration****Indications Available:****RCP VIB DANGER Annunciator 70A****RCP VIB/SYS ALERT Annunciator 70B****NOTE:**

In Modes 1 & 2 when a RCP is stopped, the idle loop RTD channel is INOPERABLE and the actions of OTO-BB-00004, RTD Channel Failures, should be performed.

	SRO	Refer to OTO-BB-00002, Reactor Coolant Pump Off-Normal
	RO	Check RCP Vibrations
		a. RCP Vibration level;
		<ul style="list-style-type: none"> <li>ALL RCPs Less than 5 MILS on the frame</li> </ul>
		AND
		<ul style="list-style-type: none"> <li>ALL RCPs Less than 20 MILS on the shaft (at RP312, B YI-471) (See cue sheet posted behind back boards)</li> </ul>
		IF Reactor power LESS THAN 48%
		(P-8 extinguished on SB069)
	RO	SECURE the affected RCP IAW OTN-BB-00003. (Will stop pump in a subsequent step)
	RO	Continue to MONITOR RCP parameters for all RCPs.
	SRO	REFER to OTG-ZZ-00004, Power Operations, to shutdown the plant.

Op Test No.: 1 Scenario # 3 Event # 4 Page 12 of 31

Event Description: RCP High Vibration

Time	Position	Applicant's Actions or Behavior
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	SRO	Refer to T/S LCO 3.3.1, T/S LCO 3.3.2, and T/S LCO 3.4.4.
	CREW	Verify that permissive P8 is extinguished.
<b>CAUTION:</b> Consider the effects of securing the RCP WILL have on S/G level and Pzr Pressure control. The FRV in Auto should handle the transient but will later need to be closed and the FRV Bypass placed in service to prevent a high level Turbine Trip. If the "D" RCP is secured, Pzr Press control is accomplished by cycling heaters.		
	RO	STOP the Reactor Coolant Pump.
	CREW	In Modes 1, and 2, when a RCP is stopped, the idle loop RTD channel is INOPERABLE. PERFORM actions of OTO-BB-00004, RTD CHANNEL FAILURES, for the INOPERABLE RTD channel and refer to T/S LCO 3.3.1, T/S LCO 3.3.2, T/S LCO 3.4.4 and CARS 199601236.
	CREW	GO TO OTG-ZZ-00005, Plant Shutdown 20% Power to Hot Standby.
The next event is initiated on a trigger from RCP trip		

Op Test No.: 1 Scenario # 3 Event # 5, 6, 7 Page 13 of 31

Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
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**Indications Available:****PRESSURIZER LOW LEVEL DEVIATION Annunciator 32C****PRESSURIZER PRESSURE LOW HEATERS ON Annunciator 33C**

	RO	Determines PZR level dropping rapidly.
	SRO	Directs Reactor Trip and Safety Injection actuation.
	RO	CHECK Reactor Trip:
		<ul style="list-style-type: none"> <li>Rod Bottom Lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>Reactor Trip and Bypass Breakers – OPEN</li> </ul>
		<ul style="list-style-type: none"> <li>Neutron Flux – LOWERING</li> </ul>
	BOP	CHECK Turbine Trip:
		a. All Turbine Stop valves – CLOSED
	CREW	CHECK Power To AC Emergency Buses:
	RO/BOP	a. AC emergency buses – AT LEAST ONE ENERGIZED
		<ul style="list-style-type: none"> <li>NB01</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>NB02</li> </ul>
		b. AC emergency buses – BOTH ENERGIZED
		CHECK SI Status:

Op Test No.: 1 Scenario # 3 Event # 5, 6, 7 Page 14 of 31

Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
	RO	a. CHECK if SI is actuated:
		• Any SI annunciator 88A through 88D – LIT
		OR
		• SB069 SI Actuate RED light – LIT
		OR
		• LOCA Sequencer annunciators 30A or 31A – LIT
	RO	b. CHECK both Trains of SI – ACTUATED
		• LOCA Sequencer annunciator 30A – LIT
		• LOCA Sequencer annunciator 31A – LIT
		• SB069 SI Actuate RED light – LIT SOLID (NOT blinking)
	BOP	PERFORM Attachment A, Automatic Action Verification, while continuing with this procedure.
	BOP	CHECK Generator Output Breakers – OPEN
		• MA ZL-3A (V55)
		• MA ZL-4A (V53)
	BOP	CHECK Feedwater Isolation:
	BOP	a. Main Feedwater Pumps – TRIPPED
		• Annunciator 120A, MFP A Trip – LIT
		• Annunciator 123A, MFP B Trip - LIT
	BOP	b. Main Feedwater Reg Valves – CLOSED
		• AE ZL-510 (SG A)
		• AE ZL 520 (SG B)
		• AE ZL 530 (SG C)

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• AE ZL 540 (SG D)</li> </ul>
	BOP	c. Main Feedwater Reg Bypass Valves – CLOSED
		<ul style="list-style-type: none"> <li>• AE ZL-550 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL 560 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL 570 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE ZL 580 (SG D)</li> </ul>
	BOP	d. Feedwater Isolation valves - CLOSED
		<ul style="list-style-type: none"> <li>• AE HIS-39 (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-40 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-41 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>• AE HIS-42 (SG D)</li> </ul>
	BOP	CHECK AFW Pumps:
		a. MD AFW Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>• AL HIS-23A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL-HIS-22A</li> </ul>
		b. TD AFW Pumps – RUNNING IF NECESSARY
	BOP	CHECK AFW Valves – PROPER EMERGENCY ALIGNMENT
		<ul style="list-style-type: none"> <li>• MD AFP Flow Control Valves – THROTTLED</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-7A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-9A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-11A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-5A</li> </ul>
		<ul style="list-style-type: none"> <li>• TD AFP Flow Control Valves – FULL OPEN</li> </ul>

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>• AL HK-8A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-10A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-12A</li> </ul>
		<ul style="list-style-type: none"> <li>• AL HK-6A</li> </ul>
	BOP	CHECK Total AFW Flow – GREATER THAN 300,00 LBM/HR
	RO	CHECK PZR PORVs and Spray Valves:
		a. PZR PORVs – CLOSED
		<ul style="list-style-type: none"> <li>• BB HIS-455A</li> </ul>
		<ul style="list-style-type: none"> <li>• BB-HIS-456A</li> </ul>
		b. PZR PORVs – BOTH IN AUTO
		<ul style="list-style-type: none"> <li>• BB HIS-455A</li> </ul>
		<ul style="list-style-type: none"> <li>• BB-HIS-456A</li> </ul>
		c. PORV Block Valves – BOTH OPEN (NO)
		<ul style="list-style-type: none"> <li>• BB HIS-8000A (Closed)</li> </ul>
		<ul style="list-style-type: none"> <li>• BB-HIS-8000A</li> </ul>
		d. Normal PZR Spray Valves - CLOSED
		<ul style="list-style-type: none"> <li>• BB ZL-455A</li> </ul>
		<ul style="list-style-type: none"> <li>• BB-ZL-456A</li> </ul>
	RO	CHECK If RCPs Should Be Stopped:
		a. RCPs – ANY RUNNING

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		b. ECCS Pumps – AT LEAST ONE RUNNING
		• CCP
		OR
		• SI Pump
		c. RCS pressure – LESS THAN 1425 PSIG
	RO	CHECK RCS Temperatures:
		• Any RCP running – RCS TAVG STABLE AT 557°F OR TRENDING TO 557°F
	RO	CHECK If Any SG Is Faulted:
		a. CHECK pressures in all SGs:
		• ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER (NO)
		OR
		• ANY SG COMPLETELY DEPRESSURIZED
	RO	CHECK If SG Tubes Are Intact:
		• Levels in all SGs:
		• NO SG NARROW RANGE LEVEL RISING IN AN UNCONTROLLED MANNER
		• SG Steamline N16 radiation - NORMAL
		• N16 161 (SGA)
		• N16 162 (SGB)
		• N16 163 (SGC)
		• N16 164 (SGD)
		• Condenser Air Removal radiation – NORMAL BEFORE ISOLATION
		• GEG 925

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>SG Blowdown and Sample radiation – NORMAL BEFORE ISOLATION</li> </ul>
		<ul style="list-style-type: none"> <li>BML 256</li> </ul>
		<ul style="list-style-type: none"> <li>SJL 026</li> </ul>
		<ul style="list-style-type: none"> <li>SG ASD radiation - NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 111 (SG A) (NO)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 112 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 113 (SG C)</li> </ul>
		<ul style="list-style-type: none"> <li>AB RIC 114 (SG D)</li> </ul>
		<ul style="list-style-type: none"> <li>Turbine Driven Auxiliary Feedwater Pump Exhaust Radiation - NORMAL</li> </ul>
		<ul style="list-style-type: none"> <li>FC RIC 385</li> </ul>
	SRO	Go To E-3, Steam Generator Tube Rupture, Step 1
	RO	CHECK If RCPs Should Be Stopped:
		a. RCPs – ANY RUNNING
		b. ECCS pumps – AT LEAST ONE RUNNING
		<ul style="list-style-type: none"> <li>CCP</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>SI Pump</li> </ul>
		c. RCS pressure – LESS THAN 1425 PSIG
	CREW	IDENTIFY Ruptured SG(s):
		<ul style="list-style-type: none"> <li>Unexpected rise in any SG narrow range level ("A" SG)</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>High radiation from any SG sample</li> </ul>

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		OR
		<ul style="list-style-type: none"> <li>High radiation from any SG steamline</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>High radiation from any SG Blowdown line sample</li> </ul>
<b>CRITICAL TASK</b>	<b>BOP</b>	<b>ISOLATE Flow From Ruptured SG(s):</b>
		<b>a. ADJUST ruptured SG(s) ASD controller setpoint to 1160 PSIG:</b>
		<ul style="list-style-type: none"> <li>AB PIC-1A (SG A)</li> </ul>
		<b>b. CHECK ruptured SG(s) ADS - CLOSED</b>
		<ul style="list-style-type: none"> <li>AB PIC-1A (SG A)</li> </ul>
	<b>BOP</b>	<b>IF SG ASD is NOT closed, THEN PLACE SG ASD controller in MANUAL and CLOSE SGT ASD.</b>
		<b>c. Locally CLOSE TDAFP Steam Supply From Main Steam Loop Manual Isolation valve from ruptured SG(s):</b>
		<ul style="list-style-type: none"> <li>ABV0085 (SG B)</li> </ul>
		<ul style="list-style-type: none"> <li>ABV0087 (SG C)</li> </ul>
		<b>d. CHECK SG Blowdown and Sample Isolation valves from ruptured SG(s) – CLOSED</b>
		<ul style="list-style-type: none"> <li>Blowdown Containment Isolation Valve:</li> </ul>
		<ul style="list-style-type: none"> <li>BM HIS-1A (SG A)</li> </ul>
		<ul style="list-style-type: none"> <li>Upper Sample Inner Containment Isolation valve:</li> </ul>
		<ul style="list-style-type: none"> <li>BM HIS-19 (SG A)</li> </ul>
		<b>e. CLOSE Steamline Low Point Drain valve from ruptured</b>

Op Test No.: 1 Scenario # 3 Event # 5, 6, 7 Page 20 of 31

Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
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		<b>SG(s):</b>
		<ul style="list-style-type: none"> <li><b>AB HIS-9 (SG A)</b></li> </ul>
		<b>f. CHECK if C-9 interlocks - LIT</b>
<b>Cue:</b> <b>When Logic Channel Toggle Switches are placed in OFF during the next step, the associated FAIL light comes ON (Back Board Mockup)</b>		
		<b>g. CLOSE MSIV and MSIV Bypass valve from ruptured SG(s):</b>
		<ul style="list-style-type: none"> <li><b>CLOSE ruptured SG(s) MSIV (preferred order):</b></li> </ul>
		<ul style="list-style-type: none"> <li><b>FAST CLOSE using EOP Addendum 35, MSIV Fast Closure, at MSFIS cabinets SA075A and SA075B</b></li> </ul>
		<b>OR</b>
		<ul style="list-style-type: none"> <li><b>CLOSE all MSIV Bypass valves (preferred order):</b></li> </ul>
		<ul style="list-style-type: none"> <li><b>USE Main Steamline Isolation Bypass Valves Controller AB HIK-15</b></li> </ul>
		<b>OR</b>
		<ul style="list-style-type: none"> <li><b>Locally ISOLATE MSIV Bypass valve(s) as necessary</b></li> </ul>
	CREW	CHECK Ruptured SG(s) Level:
		<b>a. Narrow range level – GREATER THAN 7% [25%]</b>
		Stop Feed flow to the ruptured SG
		<ul style="list-style-type: none"> <li>Close MDAFP flow control valve AL-HK-7A</li> <li>Close TDAFP flow control valve AL-HK-8A</li> </ul>

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
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	BOP	CHECK Ruptured SG(s) Pressure – GREATER THAN 340 PSIG
	BOP	INITIATE RCS Cooldown:
		a. CHECK RCS pressure – LESS THAN 1970 PSIG
		<ul style="list-style-type: none"> <li>• P-11 light - LIT</li> </ul>
		b. BLOCK Steamline Pressure SI:
		<ul style="list-style-type: none"> <li>• SB HS-9</li> </ul>
		<ul style="list-style-type: none"> <li>• SB-HS-10</li> </ul>
<b>CRITICAL TASK</b>	<b>CREW</b>	<b>c. DETERMINE required core exit temperature: (variable)</b>
	BOP	d. DUMP steam to condenser from intact SG(s) at maximum rate:
		1. CHECK condenser - AVAILABLE
		<ul style="list-style-type: none"> <li>• C-9 interlocks – LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• MSIVs – ANY OPEN</li> </ul>
		2. PLACE Steam Header Pressure Controller in MANUAL and ZERO OUTPUT:
		<ul style="list-style-type: none"> <li>• AB PK-507</li> </ul>
		3. PLACE Steam Dump Select switch in STM PRESS position:
		<ul style="list-style-type: none"> <li>• AB US-500Z</li> </ul>
		4. ADJUST Steam Header Pressure Controller in STM PRESS mode to achieve maximum cooldown rate:

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> <li>AB PK-507</li> </ul>
	RO	<b>e. Core exit TCs – LESS THAN REQUIRED TEMPERATURE</b>
	BOP	<b>f. STOP RCS cooldown</b>
	BOP	<b>g. MAINTAIN core exit TCs – LESS THAN REQUIRED TEMPERATURE</b>
	BOP	CHECK Intact SG Levels:
		a. Narrow range levels – GREATER THAN 7% [25%]
		b. CONTROL feed flow to maintain narrow range levels between 27% and 50%
	RO	CHECK PZR PORVs And Block Valves:
		a. Power to Block Valves - AVAILABLE
		<ul style="list-style-type: none"> <li>BB HIS 8000A</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS 8000B</li> </ul>
		b. PZR PORVs - CLOSED
		<ul style="list-style-type: none"> <li>BB HIS 455A</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS 456B</li> </ul>
		c. Block Valves – AT LEAST ONE OPEN
		<ul style="list-style-type: none"> <li>BB HIS 8000A</li> </ul>
		<ul style="list-style-type: none"> <li>BB HIS 8000B</li> </ul>

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
	RO	RESET SI:
		<ul style="list-style-type: none"> <li>SB HS-42A</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-43A</li> </ul>
	RO	RESET Containment Isolation Phase A and Phase B
		<ul style="list-style-type: none"> <li>Phase A (CISA):</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-53</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-56</li> </ul>
		<ul style="list-style-type: none"> <li>Phase B (CISB):</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-52</li> </ul>
		<ul style="list-style-type: none"> <li>SB HS-55</li> </ul>
	RO	ESTABLISH Instrument Air To Containment:
		a. CHECK if ESW To Air Compressor valves - OPEN
		<ul style="list-style-type: none"> <li>EF HIS-43</li> </ul>
		<ul style="list-style-type: none"> <li>EF HIS-44</li> </ul>
		b. START Air Compressor(s):
		<ul style="list-style-type: none"> <li>KA HIS-3C</li> </ul>
		<ul style="list-style-type: none"> <li>KA HIS-2C</li> </ul>
		c. OPEN Instrument Air Supply Containment Isolation valve:
		<ul style="list-style-type: none"> <li>KA HIS-29 (<b>will not open</b>)</li> </ul>
		PERFORM the following:
		IF valve CANNOT be opened, THEN locally OPEN valve. (2000 Aux South piping pen room, P-30) (Will NOT open)

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
	RO	CHECK If RHR Pumps Should Be Stopped:
		a. RHR Pumps – ANY RUNNING WITH SUCTION ALIGNED TO RWST
		b. RCS pressure – GREATER THAN 325 PSIG
		c. STOP RHR Pumps and PLACE in standby:
		• EJ HIS-1
		• EJ HIS-2
		d. MONITOR RCS pressure
	BOP	CHECK If RCS Cooldown Should Be Stopped:
		a. Core exit TCs – LESS THAN REQUIRED TEMPERATURE
		b. STOP RCS cooldown
	CREW	c. <b>MAINTAIN</b> core exit TCs – LESS THAN REQUIRED TEMPERATURE
	BOP	CHECK Ruptured SG(s) Pressure – STABLE OR RISING
	RO	CHECK RCS Subcooling – GREATER THAN 50°F
		DEPRESSURIZE RCS To minimize Break Flow And Refill PZR:
		a. Normal PZR spray – AVAILABLE (NO)

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
	RO	DEPRESSURIZE RCS Using PZR PORV To Minimize Break Flow And Refill PZR:
		a. PZR PORV – AT LEAST ONE AVAILABLE
		• BB HIS-455A
		OR
		• BB HIS-456A
		b. OPEN one PZR PORV until any of the following conditions satisfied:
		• Both of the following:
		1. RCS pressure – LESS THAN RUPTURED SG(s) PRESSURE
		2. PZR level – GREATER THAN 9% [29%]
		OR
		• PZR level – GREATER THAN 74% [64%]
		OR
		• RCS subcooling LESS THAN 30°F
		c. CLOSE PZR PORV:
		• BB HIS-455A
		• BB HIS-456A
	RO	CHECK RCS Pressure – RISING
	CREW	CHECK If ECCS Flow Should Be Terminated:
		a. RCS subcooling – GREATER THAN 30°F
		b. Secondary heat sink:

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Event Description: SGTR; Reactor Trip Required, ADV Fails Open, IA to CTMT Fails Closed

Time	Position	Applicant's Actions or Behavior
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		<ul style="list-style-type: none"> <li>Narrow range level in at least one intact SG – GREATER THAN 7% [25%]</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Total feed flow to SG(s) – GREATER THAN 300,000 LBM/HR</li> </ul>
		c. RCS pressure – STABLE OR RISING
		d. PZR level – GREATER THAN 9% [29%]
	RO	STOP ECCS Pumps And Place In Standby:
		a. Both SI Pumps:
		<ul style="list-style-type: none"> <li>EM HIS-4</li> </ul>
		<ul style="list-style-type: none"> <li>EM HIS-5</li> </ul>
		b. All but one CCP:
		<ul style="list-style-type: none"> <li>BG HIS-1A</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>BG HIS-2A</li> </ul>

**Scenario may be terminated when ECCS pumps are stopped, or at Lead Examiner's discretion when all critical tasks have been met.**

**ATTACHMENT A**  
**Automatic Action Verification**

	BOP	CHECK Charging Pumps:
	BOP	a. CCPs – BOTH RUNNING
		• BG HIS-1A
		• BG HIS-2A
	BOP	b. STOP NCP:
		• BG HIS-3
	BOP	CHECK SI And RHR Pumps
		• SI Pumps – BOTH RUNNING
		• EM HIS-4
		• EM HIS-5
		• RHR Pumps – BOTH RUNNING
		• EJ HIS-1
		• EJ HIS-2
	BOP	CHECK ECCS Flow:
	BOP	a. CCPs to Boron Inj Header – FLOW INDICATED
		• EM FI-917A
		• EM FI-917B
	BOP	b. RCS pressure – LESS THAN 1700 PSIG
	BOP	c. SI Pump Discharge – FLOW INDICATED
		• EM FI-918
		• EM FI-922
	BOP	d. RCS pressure – LESS THAN 325 PSIG
	BOP	e. RHR To Accumulator Injection Loop – FLOW INDICATED

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>EJ FI-618</li> </ul>
		<ul style="list-style-type: none"> <li>EJ FI-619</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK ESW Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>EF HIS-55A</li> </ul>
		<ul style="list-style-type: none"> <li>EF HIS-56A</li> </ul>
	BOP	CHECK CCW Alignment:
	BOP	a. CCW Pumps – ONE RUNNING IN EACH TRAIN
		<ul style="list-style-type: none"> <li>Red Train:</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-21 or EG HIS-23</li> </ul>
		<ul style="list-style-type: none"> <li>Yellow Train</li> </ul>
		<ul style="list-style-type: none"> <li>EG HIS-22 or EG HIS-24</li> </ul>
	BOP	b. CCW Service Loop Supply and Return valves for one operating CCW pump - OPEN
		<ul style="list-style-type: none"> <li>EG ZL-15 AND EG ZL-53</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>EG ZL-16 AND EG ZL-54</li> </ul>
	BOP	CHECK Containment Cooler Fans – RUNNING IN SLOW SPEED
		<ul style="list-style-type: none"> <li>GN HIS-9</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-17</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-5</li> </ul>
		<ul style="list-style-type: none"> <li>GN HIS-13</li> </ul>
	BOP	CHECK Containment Hydrogen Mixing Fans – RUNNING IN SLOW SPEED
		<ul style="list-style-type: none"> <li>GN HIS-2</li> </ul>

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>• GN HIS-4</li> </ul>
		<ul style="list-style-type: none"> <li>• GN HIS-1</li> </ul>
		<ul style="list-style-type: none"> <li>• GN HIS-3</li> </ul>
	BOP	CHECK If Containment Spray Should Be Actuated:
	BOP	a. CHECK the following:
		<ul style="list-style-type: none"> <li>• Containment pressure – GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>• GN PR-934 indicates containment pressure – HAS BEEN GREATER THAN 27 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>• Annunciator 59A CSAS - LIT</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>• Annunciator 59B CISB - LIT</li> </ul>
	BOP	b. Containment Spray Pumps – BOTH RUNNING
		<ul style="list-style-type: none"> <li>• EN HIS-3</li> </ul>
		<ul style="list-style-type: none"> <li>• EN HIS-9</li> </ul>
	BOP	c. ESFAS status panels CSAS sections:
		<ul style="list-style-type: none"> <li>• SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	d. ESFAS status panels CISB sections:
		<ul style="list-style-type: none"> <li>• SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>• SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK If Main Steamlines Should Be Isolated:
	BOP	a. CHECK for any of the following:
		<ul style="list-style-type: none"> <li>• Containment pressure – GREATER THAN 17 PSIG</li> </ul>
		OR

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>GN PR-934 indicates containment pressure – HAS BEEN GREATER THAN 17 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>Steamline pressure – LESS THAN 615 PSIG</li> </ul>
		OR
		<ul style="list-style-type: none"> <li>AB PR-514 or PR-535 indicates steamline pressure – HAS BEEN LESS THAN 615 PSIG</li> </ul>
	BOP	b. CHECK MSIVs and Bypass valves - CLOSED
	BOP	CHECK ECCS Valves – PROPER EMERGENCY ALIGNMENT
	BOP	a. ESFAS status panels SIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Isolation Phase A:
	BOP	a. ESFAS status panels CISA sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK SG Blowdown Isolation:
	BOP	ESFAS status panels SGBSIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
<b>CAUTION: If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.</b>		
	BOP	CHECK Both Trains of control Room Ventilation Isolation:
	BOP	a. ESFAS status panels CRVIS sections:

**ATTACHMENT A**  
**Automatic Action Verification**

		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	CHECK Containment Purge Isolation:
	BOP	a. ESFAS status panels CPIS sections:
		<ul style="list-style-type: none"> <li>SA066X WHITE lights – ALL LIT</li> </ul>
		<ul style="list-style-type: none"> <li>SA066Y WHITE lights – ALL LIT</li> </ul>
	BOP	Notify CRS of the following:
		<ul style="list-style-type: none"> <li>Manual actions taken</li> </ul>
		<ul style="list-style-type: none"> <li>Failed Equipment</li> </ul>
		<ul style="list-style-type: none"> <li>Attachment A, Automatic Action Verification, completed</li> </ul>

Facility: Callaway Task No.:

Task Title: Determine the volume and RMCS controls settings for raising RWST level. JPM No.: 2005 NRC RO/SRO A1-2

K/A Reference: 2.1.25 (2.8)

Examinee: NRC Examiner:

Facility Evaluator: Date:

**Method of testing: This JPM can be performed in any setting with the required references available.**

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

### READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The unit is coming out of a refueling outage.
- A significant leak occurred during the refuel pool draindown process.
- RWST level is 92%.
- RWST Boron Concentration is 2375 PPM.
- BAST concentration is 7000 ppm

Task Standard: Volume addition and controls settings within the specified range.

Required Materials:

- Straight Edge
- Calculator

General References: OTN-BG-00002, REACTOR MAKEUP CONTROL AND BORON THERMAL REGENERATION SYSTEM, Rev. 020

Handouts:

- OTN-BG-0002
- RWST Level/Volume Curve

Initiating Cue: You have been directed to determine the volume addition required to establish the RWST level to 98% and the Reactor Makeup Control System settings to maintain RWST boron concentration at it's current value with a makeup flow rate of 90 GPM

Time Critical Task: No

Validation Time: 10 Minutes

**SIMULATOR SETUP**

N/A

(Denote Critical Steps with a √)

**Evaluator Note:**            **There is no required sequence of steps. The candidate may first refer to OTN-BG-00002.**

√ **Performance Step: 1**      Determine the volume to be added.

**Standard:**                      Refers to RWST Level/Volume Curve and determines  $\geq 23,500$  gallons but  $\leq 25,500$  must be added.

**Comment:**

**Evaluator Cue:**            **Provide a copy of the RWST Level/Volume Curve if the book is not available where the JPM is performed or the existing document cannot be marked.**

**Performance Step: 2**      Locate/review the applicable procedure.

**Standard:**                      Locates OTN-BG-00002 and determines that Section 5.5 – MANUAL MODE OF RMCS OPERATION applies.

**Comment:**

**Evaluator Cue:**            **Provide OTN-BG-00002, Section 5.5.**

**Procedure NOTES  
preceding the step:**

- If the makeup water is to be blended for use somewhere other than the Chemical and Volume Control System, ensure that the VCT level is sufficient for expected plant operating conditions.
- If makeup is required to the Spent Fuel Pool refer to OTN-EC-00001

- √ **Performance Step: 3** Determine the desired boric acid and makeup water flow rates, for blended flow using Figure 7-2.

**Standard:**

Refers to Figure 7-2 and determines by interpolation:

- Boric Acid flow = 30.54 GPM.
- Makeup Water flow = 59.46 GPM

**Evaluator Cue:**

**Assume that adequate supply capacity is available to perform the evolution.**

- √ **Performance Step: 4** Determines RMCS settings based upon required blended flow rates

**Standard:**

Refers to Figure 7-2 and determines:

- Boric Acid flow BG-FK-111 potentiometer setting 5.63.
- Blended flow BG-FK-110 potentiometer setting 7.63.

**Evaluator Cue:**

**Assume that adequate supply capacity is available to perform the evolution.**

**Terminating Cue:**

After the controls settings are determined, this JPM is complete.

Job Performance Measure No.: 2005 NRC RO/SRO A1-2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## INITIAL CONDITIONS:

- The unit is coming out of a refueling outage.
- A significant leak occurred during the refuel pool draindown process.
- RWST level is 92%.
- RWST Boron Concentration is 2375 PPM.
- BAST concentration is 7000 ppm

## INITIATING CUE:

You have been directed to determine the volume addition required to establish the RWST level to 98% and the Reactor Makeup Control System settings to maintain RWST boron concentration at its current value with a makeup flow rate of 90 GPM.

Facility: Callaway Task No.:

Task Title: Determine the volume and RMCS controls settings for raising RWST level. JPM No.: 2005 NRC RO/SRO A1-2

K/A Reference: 2.1.25 (2.8)

Examinee: NRC Examiner:

Facility Evaluator: Date:

**Method of testing: This JPM can be performed in any setting with the required references available.**

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

### READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The unit is coming out of a refueling outage.
- A significant leak occurred during the refuel pool draindown process.
- RWST level is 92%.
- RWST Boron Concentration is 2375 PPM.
- BAST concentration is 7000 ppm

Task Standard: Volume addition and controls settings within the specified range.

Required Materials:

- Straight Edge
- Calculator

General References: OTN-BG-00002, REACTOR MAKEUP CONTROL AND BORON THERMAL REGENERATION SYSTEM, Rev. 020

Handouts:

- OTN-BG-0002
- RWST Level/Volume Curve

Initiating Cue: You have been directed to determine the volume addition required to establish the RWST level to 98% and the Reactor Makeup Control System settings to maintain RWST boron concentration at it's current value with a makeup flow rate of 90 GPM

Time Critical Task: No

Validation Time: 10 Minutes

**SIMULATOR SETUP**

N/A

---

(Denote Critical Steps with a √)

**Evaluator Note:**            **There is no required sequence of steps. The candidate may first refer to OTN-BG-00002.**

√ **Performance Step: 1**      Determine the volume to be added.

**Standard:**                      Refers to RWST Level/Volume Curve and determines  $\geq 23,500$  gallons but  $\leq 25,500$  must be added.

**Comment:**

**Evaluator Cue:**            **Provide a copy of the RWST Level/Volume Curve if the book is not available where the JPM is performed or the existing document cannot be marked.**

**Performance Step: 2**      Locate/review the applicable procedure.

**Standard:**                      Locates OTN-BG-00002 and determines that Section 5.5 – MANUAL MODE OF RMCS OPERATION applies.

**Comment:**

**Evaluator Cue:**            **Provide OTN-BG-00002, Section 5.5.**

**Procedure NOTES  
preceding the step:**

- If the makeup water is to be blended for use somewhere other than the Chemical and Volume Control System, ensure that the VCT level is sufficient for expected plant operating conditions.
- If makeup is required to the Spent Fuel Pool refer to OTN-EC-00001

- √ **Performance Step: 3** Determine the desired boric acid and makeup water flow rates, for blended flow using Figure 7-2.

**Standard:**

Refers to Figure 7-2 and determines by interpolation:

- Boric Acid flow = 30.54 GPM.
- Makeup Water flow = 59.46 GPM

**Evaluator Cue:**

**Assume that adequate supply capacity is available to perform the evolution.**

- √ **Performance Step: 4** Determines RMCS settings based upon required blended flow rates

**Standard:**

Refers to Figure 7-2 and determines:

- Boric Acid flow BG-FK-111 potentiometer setting 5.63.
- Blended flow BG-FK-110 potentiometer setting 7.63.

**Evaluator Cue:**

**Assume that adequate supply capacity is available to perform the evolution.**

**Terminating Cue:**

After the controls settings are determined, this JPM is complete.

Job Performance Measure No.: 2005 NRC RO/SRO A1-2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## INITIAL CONDITIONS:

- The unit is coming out of a refueling outage.
- A significant leak occurred during the refuel pool draindown process.
- RWST level is 92%.
- RWST Boron Concentration is 2375 PPM.
- BAST concentration is 7000 ppm

## INITIATING CUE:

You have been directed to determine the volume addition required to establish the RWST level to 98% and the Reactor Makeup Control System settings to maintain RWST boron concentration at its current value with a makeup flow rate of 90 GPM.

Facility: Callaway Plant

Task No.:

Task Title: Determine isolation points for a  
tagging requestJPM No.: 2005 NRC RO A2

K/A Reference: 2.2.13 (3.6)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance:   X  Classroom   X   Simulator \_\_\_\_\_ Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Containment Spray Pump "A" flow element EN FE-5 is leaking on the high side tap.

A job has been initiated to drain the associated piping and repair the flow element

Task Standard: Tagging boundaries are identified to provide minimum isolation of EN FE-5

Required Materials: ODP-ZZ-00310, Workmen's Protection Assurance  
M-22BN01, M-22EN01, E-23EN01General References: ODP-ZZ-0310, Workmen's Protection Assurance  
M-22BN01, M-22EN01, E-23EN01

Initiating Cue: You have been directed to identify the tagging boundaries to allow work to be performed on flow element EN FE-5.

Time Critical Task: NO

Validation Time: 15 Minutes

**SIMULATOR SETUP**

None Required

## PERFORMANCE INFORMATION

***(Denote Critical Steps with a check mark)***

**START TIME:** \_\_\_\_\_

**Performance Step: 1**      Obtains required drawings

**Standard:**                      Locates print rack and identifies required drawings

**Evaluator Note:**              **Isolation points may be identified in any order**

**Comment:**

√ **Performance Step: 2**      EN HV-1, Containment Recirc Sump Supply valve will be closed

**Standard:**                      Locates and marks EN HV-1 closed

**Comment:**

√ **Performance Step: 3**      EN HV-6, Containment Spray "A" discharge to Containment will be closed

**Standard:**                      Locates and marks EN HV-6 closed

**Comment:**

√ **Performance Step: 4**      EN V-24, Recirculation valve to RWST, will be closed

**Standard:**                      Locates and marks EN V-24 closed

**Comment:**

## PERFORMANCE INFORMATION

- √ **Performance Step: 5** BN HV-4, RWST suction supply to Containment Spray Pump "A", will be closed
- Standard:** Locates and marks BN HV-4 closed
- Comment:**
- 
- √ **Performance Step: 6** EITHER ONE of EN V-90, EN V-92 or EN V-67, Containment Spray line drain or vent valves, will be open
- Standard:** Locates and marks any of EN V-90, EN V-92, or EN V-67 open
- Comment:** **More than 1 valve is acceptable**
- 
- Performance Step: 7** Pump breaker may be opened and electrically isolated
- Standard:** Identifies isolation of Containment Spray Pump "A" electrical circuit breaker
- Comment:** **May also tag breakers for MOVs, but not required**
- 
- Terminating Cue:** **When the applicant has determined the isolation boundaries for the work to be performed.**

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2005 NRC RO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      Containment Spray Pump "A" flow element EN FE-5 is leaking on the high side tap.

A job has been initiated to drain the associated piping and repair the flow element

INITIATING CUE:      You have been directed to identify the tagging boundaries to allow work to be performed.

Facility: Callaway Plant Task No.:

Task Title: Review a tagging request for approval JPM No.: 2005 NRC SRO A2

K/A Reference: 2.2.13 (3.6)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom X Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Containment Spray Pump "A" flow element EN FE-5 is leaking on the high side tap.  
A job has been initiated to drain the associated piping and repair the flow element

Task Standard: Tagging boundaries are identified to provide minimum isolation of EN FE-5. WPA not approved due to 2 deficiencies

Required Materials: ODP-ZZ-00310, Workmen's Protection Assurance  
M-22BN01, M-22EN01, E-23EN01

General References: ODP-ZZ-0310, Workmen's Protection Assurance  
M-22BN01, M-22EN01, E-23EN01

Initiating Cue: You have been directed to review the WPA for approval to allow work to be performed on flow element EN FE-5.

Time Critical Task: NO

Validation Time: 15 minutes

**SIMULATOR SETUP**

None Required

## PERFORMANCE INFORMATION

***(Denote Critical Steps with a check mark)***

**START TIME:** \_\_\_\_\_

**Performance Step: 1**      Obtains required drawings  
**Standard:**                      Locates print rack and identifies required drawings

**Evaluator Note:**              **Isolation points may be identified in any order**

**Comment:**

**Performance Step: 2**      Reviews WPA to determine appropriate isolation points for  
Containment Spray Pump "A" flow element FE-5  
**Standard:**                      Reviews tag listing

**Comment:**

√ **Performance Step: 3**      Determines that BN HV-4, RWST suction supply to Containment  
Spray Pump "A" must be closed and tagged  
**Standard:**                      Identifies deficiency on tagging request. Local handwheel must  
be tagged as part of valve isolation

**Comment:**

√ **Performance Step: 4**      Determines that Containment Spray Pump "A" breaker must be  
tagged  
**Standard:**                      Identifies that the Containment Spray Pump "A" breaker is not  
tagged and requires tagging

**Comment:**

- √ **Performance Step: 5** Return the WPA without approval  
**Standard:** Determines that WPA cannot be approved

**Comment:**

**Terminating Cue:** When the applicant has provided disposition of the WPA,  
this JPM is complete

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC RO A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS:      Containment Spray Pump "A" flow element EN FE-5 is leaking on the high side tap.

A job has been initiated to drain the associated piping and repair the flow element

INITIATING CUE:      You have been directed to review the WPA for approval to allow work to be performed on flow element EN FE-5.

Facility: Callaway Plant Task No.: N/A

Task Title: Determine Maximum Allowable Stay Time JPM No.: 2005 NRC RO A3

K/A Reference: 2.3.2 (2.5)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Classroom \_\_\_\_\_ Simulator \_\_\_\_\_ Plant X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A job is being performed on RHR Pump "A" that requires isolating and draining system piping.

You have been directed to open RHR Pump "A" drain valve EJ V-148 and route a hose to the local floor drain

Task Standard: Correct RWP is selected and stay time identified as 30 minutes based upon exceeding maximum dose

Required Materials: RWPs, Survey Maps

General References: RWPs, Survey Maps

Initiating Cue: Identify the appropriate RWP for entry and determine maximum allowable stay time before a dosimeter limit is exceeded.

Time Critical Task: NO

Validation Time: 8 Minutes

**SIMULATOR SETUP**

None Required

PERFORMANCE INFORMATION

---

***(Denote Critical Steps with a check mark)***

**START TIME:** \_\_\_\_\_

√ **Performance Step: 1** Determine RWP required for task performed

**Standard:** Selects RWP 500501WPA

**Comment:**

√ **Performance Step: 2** Determines stay time based upon dosimeter setting

**Standard:** Determines dosimeter setting is 10 mr total dose and 100 mr/hr dose rate.

**Standard:** Selects survey map #1111, RHR Pump "A" room

**Standard:** Determines dose rate in the area of the work is 20 mr/hr

√ **Standard:** Determines maximum stay time at 20 mr/hr is 30 minutes to avoid exceeding 10 mr total dose.

**Comment:**

**Terminating Cue:** When the candidate indicates stay time for the work performed, this JPM is complete

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC RO A3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: A job is being performed on RHR Pump "A" that requires isolating and draining system piping.

You have been directed to open RHR Pump "A" drain valve EJ V-148 and route a hose to the local floor drain

INITIATING CUE: Identify the appropriate RWP for entry and determine maximum allowable stay time before a dosimeter limit is exceeded.

Facility: Callaway Task No.:

Task Title: Evaluate plant conditions, upgrade the emergency classification and make a PAR. JPM No.: 2005 NRC SRO A4

K/A Reference: 2.4.44 (4.0)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- A large break LOCA is in progress.
  - Attempts to initiate Containment Spray have failed.
  - A Site Emergency was declared 20 minutes ago based on loss of the RCS subcooling and radiation monitor GT-RE-59 reading  $3.1\text{E}+3$  R/hr.
  - One minute ago containment pressure lowered rapidly and now continues to lower at a slower rate.
  - Wind speed is 5 Miles/Hr.
  - Wind direction is from  $218^\circ$
  - The outside temperature is  $88^\circ\text{F}$ .

Task Standard: Upgrades classification and makes a PAR.

Required Materials: SENTRY Computer

- General References:
- EIP-ZZ-00101, CLASSIFICATION OF EMERGENCIES, Rev. 032
  - EIP-ZZ-00102, EMERGENCY IMPLEMENTING ACTIONS, Rev. 034
  - EIP-ZZ-00212, PROTECTIVE ACTION RECOMMENDATIONS, Rev. 021

Handouts: EIP-ZZ-00101, EIP-ZZ-00102, EIP-ZZ-00212

Initiating Cue: Reevaluate the Emergency Classification and perform required follow up actions required of the Emergency Coordinator.

Time Critical Task: Yes

Validation Time: 24 Minutes

**SIMULATOR SETUP**

N/A

JPM Setup:

Ensure SENTRY Screen is called up on computer with plant 'WIND SECTOR' data deleted, then minimize screen prior to JPM performance

(Denote Critical Steps with a √)

**Performance Step: 1** Review changing conditions.

**Standard:**

- Enters EIP-ZZ-00101
- Reviews Group 2 (Fission Product Barrier) EAL's
- Declares General Emergency based on uncontrolled depressurization of containment.

**Comment:**

√ **Performance Step: 2** Enters EIP-ZZ-00102

**Standard:** Announces GE and reason to control room personnel.

**Comment:** The candidate may work through the next several steps using EIP-ZZ-00102, ATTACHMENT 5 (flowcharted procedure steps).  
Mark the time of the GE announcement: \_\_\_\_\_.  
ATTACHMENT 4, OFF SITE NOTIFICATION FORM, must be provided to the communicator within 15 minutes from this time.

**Performance Step: 3** Manually initiate ERFIS.

**Standard:** Locates ERFIS button.

**Comment:**

**Evaluator Cue:** ERFIS was actuated when the Site Emergency was declared.

**Performance Step: 4** Notify On-site personnel

- Standard:**
- Completes ATTACHMENT 1
  - Sounds plant emergency alarm.
  - Makes the scripted announcement and repeats.

**Comment:**

**Evaluator Cue:** For the purpose of examination security, direct the candidate to simulate the alarm actuation and announcement.

**Performance Step: 5** Have SAS activate the callout.

**Standard:** Acknowledges cue.

**Comment:**

**Evaluator Cue:** SAS was activated when the Site Emergency was declared.

√ **Performance Step: 6** Complete the SENTRY screen or fill out ATTACHMENT 4.

- Standard:** Completes the SENTRY screen. Critical task data:
- GE
  - Release in progress
  - Wind speed and direction
  - PAR – Evacuate 2 miles all around and 5 miles in downwind sectors B, C, and D

**Comment:**

- 
- √ **Performance Step: 7** Provide ATTACHMENT 4 to the communicator.
- Standard:** Provides ATTACHMENT 4 to the communicator within 15 minutes after the GE declaration.
- Comment:** **Mark the time that ATTACHMENT 4 is provided to the communicator: \_\_\_\_\_.**
- Terminating Cue:** **After ATTACHMENT 4 is provided to the communicator, this JPM is complete.**

Job Performance Measure No.: 2005 NRC SRO A4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## INITIAL CONDITIONS:

- A large break LOCA is in progress.
- Attempts to initiate Containment Spray have failed.
- A Site Emergency was declared 20 minutes ago based on loss of the RCS subcooling and radiation monitor GT-RE-59 reading  $3.1\text{E}+3$  R/hr.
- One minute ago containment pressure lowered rapidly and now continues to lower at a slower rate.
- Wind speed is 5 Miles/Hr
- Wind direction is from  $218^\circ$
- The outside temperature is  $88^\circ\text{F}$ .

## INITIATING CUE:

Reevaluate the Emergency Classification and perform required follow up actions required of the Emergency Coordinator.

Facility: Callaway Task No.:

Task Title: Borate RCS During Cooldown JPM No.: 2005 NRC JPM P1  
Outside the Control Room

K/A Reference: 068 EA 1.11 3.9 / 4.1

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance:  X  Actual Performance: \_\_\_\_\_  
Classroom \_\_\_\_\_ Simulator \_\_\_\_\_ Plant  X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The control room is damaged beyond use and systems are aligned as per OTO-ZZ-00001, Control Room Inaccessibility. The plant is shutdown with control from the Aux S/D Panel due to a fire. The plant is in Mode 3 at normal operating temperature and pressure. Pressurizer level is 25%, RCS boron concentration is 1000 ppm, and all shutdown and control rods are fully inserted. Core burnup is 295 EFPD. The "B" CCP is in service.

Task Standard: RCS boration from outside the control room has been completed

Required Materials: OTS-ZZ-00001, Cooldown From Outside the Control Room, Revision 13  
Curve Book Table 1-8  
Figure 7-3

General References: OTS-ZZ-00001, Cooldown From Outside the Control Room, Revision 13

Initiating Cue: You have been directed by the Shift Supervisor to perform Section 4.1 of OTS-ZZ-00001 to borate the RCS from the Boric Acid Tanks.

Time Critical Task: NO

Validation Time: 39 minutes

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a controlled copy of OTS-ZZ-00001, Cooldown From Outside the Control Room.

**Standard:** Operator should obtain procedure copy.

**Comment:**

Step 2.0

**Performance Step: 2** Review the Precautions and Limitations of OTS-ZZ-00001.

**Standard:** Operator should review all precautions and limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

**Performance Step: 3** Review the Initial Conditions of OTS-ZZ-00001.

**Standard:** Operator should review all Initial Conditions.

**Comment:**

**Evaluator's Cue:** All Initial Conditions are satisfied.

**Ask if the Operator understands the Initial Conditions and Initiating Cues.**

Step 4.1

**Performance Step: 4** Borate the RCS to Xenon-Free Cold Shutdown as follows.

**Standard:** Operator should determine to borate the RCS to Cold Xenon-Free Shutdown.

**Comment:**

## PERFORMANCE INFORMATION

- Step 4.1.1
- √ **Performance Step: 5** Determine the required boron concentration for cold shutdown using Curve Book Table 1-8.
- Standard:** Operator should determine required boron concentration is approximately 1100 - 1200 ppm.
- Comment:**
- Step 4.1.1.1
- √ **Performance Step: 6** Determine the number of gallons of 4 WT % boric acid from the BAT required to achieve the boron concentration in Step 4.1.1 using Figure 7-3 of the Curve Book.
- Standard:** Operator should calculate  $1567 \pm 200$  GAL.
- If nomograph is used, then 1350 – 1400 gallons will be the volume indicated
- $$V_B = \frac{515676}{8.33} \ln \left( \frac{7000-1000}{7000-1150} \right)$$
- Comment:** **Nomograph indicates approximately 1350 -1400 gallons**
- Cue:** **If requested, Boric Acid Tank concentration is 7000 ppm**
- Step 4.1.2.1
- √ **Performance Step: 7** Start a Boric Acid Transfer Pump “A” or “B” with local control switch or with the pushbutton on the associated breaker pump A(B) NG01AHF4 (NG02AAF4).
- Standard:** Operator should start “A” or “B” Boric Acid Pump.
- Evaluator’s Cue:** **Direct the candidate to use the local HIS for the Boric Acid Pump**
- Comment:**
- Evaluator’s Cue:** **The Boric Acid Transfer Pump is running.**

## PERFORMANCE INFORMATION

Step 4.1.2.2	
√ <b>Performance Step: 8</b>	Open the Immediate Boration valve BGHV8104.
<b>Standard:</b>	Operator goes to "A" SI Pump Room and manually OPENS BG-HV-8104.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BGHV8104 is OPEN.</b>
Step 4.1.2.3	
<b>Performance Step: 9</b>	Monitor boric acid flow on Local Indicator BGFI183B.
<b>Standard:</b>	Operator should monitor boric acid flow on BGFI183B.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BGFI183B is outside the room</b>
	<b>Local Indicator shows 100 GPM.</b>
Step 4.1.4	
<b>Performance Step: 10</b>	Determine the boration time required by dividing the gallons of acid by the flow rate indicated.
<b>Standard:</b>	$\frac{1567 \text{ GAL}}{100 \text{ GPM}} = 16 \text{ MIN } (\pm 3 \text{ MIN})$
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>The required time has elapsed.</b>
Step 4.1.5.1	
<b>Performance Step: 11</b>	When the required time has elapsed, stop the Boric Acid Transfer Pump.
<b>Standard:</b>	Operator should secure "A" or "B" Boric Acid Pump with the local control switch or the pushbutton on the breaker A – NG01AHF4 B – NG02AAF4
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>The Boric Acid Transfer Pump is STOPPED.</b>

PERFORMANCE INFORMATION

---

Step 4.1.5.2

**Performance Step: 12** CLOSE BGHV8104.**Standard:** Operator should CLOSE BGHV8104.**Comment:****Evaluator's Cue:** **BGHV8104 is CLOSED.**

Step 4.1.7

**Performance Step: 13** Have the RCS sampled to ensure the required SDM has been obtained.**Standard:** Operator should call for Chemistry to sample RCS for boron.**Comment:****Evaluator's Cue:** **When called, Hot Lab Chem Tech will sample RCS for boron.****Terminating Cue:** **When boration of the RCS has been performed, this JPM is complete.****STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC JPM P1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: The control room is damaged beyond use and systems are aligned as per OTO-ZZ-00001, Control Room Inaccessibility. The plant is shutdown with control from the Aux S/D Panel due to a fire. The plant is in Mode 3 at normal operating temperature and pressure. Pressurizer level is 25%, RCS boron concentration is 1000 ppm, and all shutdown and control rods are fully inserted. Core burnup is 295 EFPD. The "B" CCP is in service.

INITIATING CUE: You have been directed by the Shift Supervisor to perform Section 4.1 of OTS-ZZ-00001 to borate the RCS from the Boric Acid Tanks.

Facility: Callaway

Task No.:

Task Title: Locally Close Valves for CIS-BJPM No.: 2005 NRC JPM P2

K/A Reference: 103 A2.03 3.5 / 3.8

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:Simulated Performance:  X Actual Performance:  Classroom   Simulator   Plant  X **READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant was at 100% power when a Loss of All AC Power occurred. The Control Room entered emergency procedure ECA-0.0, Loss of All AC Power. A containment spray signal has been received and required valve positions can not be performed from the Control Room.

Task Standard: Upon completion of this JPM, valves associated with Penetrations 74, 75, and 76 will be closed or verified closed.

Required Materials: None

General References: ECA-0.0, Loss of All AC Power, Revision 5

Initiating Cue: The Control Room supervisor has directed you to perform Local Operator Actions of Step 21B RNO (CISB Outer Containment Valves), of ECA-0.0. Reposition any required valves and inform him when done.

Time Critical Task: NO

Validation Time: 10 minutes

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

Evaluator Note: All valves will be in the normal positions as stated in the JPM

**Performance Step: 1** Obtain a verified working copy of ECA-0.0, Loss of All AC Power.  
**Standard:** Operator should obtain ECA-0.0 copy.

**Comment:**

**Evaluator's Cue:** Provide operator with copy of ECA-0.0.

**Performance Step: 2** Go to the Aux Building North Piping Penetration Room #1323.  
**Standard:** Operator should go to the North Piping Penetration Room #1323.

**NOTE:** Operator should go thru HP Access.

**Comment:**

**Performance Step: 3** Verify CLOSED EG-HV-58, CCW to RCS outer CTMT ISO.  
**Standard:** Operator should demonstrate knowledge of how to verify a motor-operated valve OPEN/CLOSED.

**NOTE:** Pen 74, valves in Steps 3 through 8 can be operated in any order.

**Comment:**

**Evaluator Cue:** EG-HV-58 is open

- √ **Performance Step: 4** CLOSE EG-HV-58, CCW to RCS Outer CTMT ISO.  
**Standard:** Operator should CLOSE EG-HV-58.
- NOTE:** **Operator should be able to describe how to CLOSE a limitorque valve.**
- Standard:** Valves in Steps 3 through 8 can be operated in any order.
- Comment:**
- Evaluator's Cue:** **EG-HV-58 is now CLOSED.**
- 
- Performance Step: 5** Verify CLOSED EG-HV-71, CCW to RCS Outer CTMT ISO.  
**Standard:** Operator should verify position of EG-HV-71.
- NOTE:** **Pen 74**
- Standard:** Valves in Steps 3 through 8 can be operated in any order.
- Comment:**
- Evaluator's Cue:** **EG-HV-71 is OPEN.**

## PERFORMANCE INFORMATION

√ **Performance Step: 6** Operator should CLOSE EG-HV-71, CCW to RCS Outer CTMT ISO.

**Standard:** Operator should CLOSE EG-HV-71.

**NOTE:** **Pen 74**

**Standard:** Valves in Steps 3 through 8 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-71 is now CLOSED.**

**Performance Step: 7** Verify CLOSED EG-HV-126, CCW to RCS CTMT Bypass.

**Standard:** Operator should verify CLOSED EG-HV-126, CCW to RCS CTMT Bypass.

**NOTE:** **Pen 74**

**Standard:** Valves in Steps 3 through 8 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-126 is CLOSED.**

## PERFORMANCE INFORMATION

**Performance Step: 8** Verify CLOSED EG-HV-127, CCW to RCS CTMT Bypass.  
**Standard:** Operator should verify CLOSED EG-HV-127, CCW to RCS CTMT Bypass.

**NOTE:** **Pen 74**

**Standard:** Valves in Steps 3 through 8 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-127 is CLOSED.**

**Performance Step: 9** Verify CLOSED EG-HV-59, CCW from RCS Outer CTMT ISO.  
**Standard:** Operator should verify position of EG-HV-59.

**NOTE:** **Pen 75**

**Standard:** Valves in Steps 9 through 11 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-59 is OPEN.**

√ **Performance Step: 10** CLOSE EG-HV-59, CCW from Outer CTMT ISO.  
**Standard:** Operator should CLOSE EG-HV-59.

**NOTE:** **Pen 75**

**Standard:** Valves in Steps 9 through 11 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-59 is now CLOSED.**

## PERFORMANCE INFORMATION

**Performance Step: 11** Verify CLOSED EG-HV-131, CCW from RCS CTMT Bypass.  
**Standard:** Operator should verify CLOSED EG-HV-131.

**NOTE:** **Pen 75**

**Standard:** Valves in Steps 9 through 11 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-131 is CLOSED.**

**Performance Step: 12** Verify CLOSED EG-HV-61, CCW from RCS Outer CTMT ISO.  
**Standard:** Operator should verify position of EG-HV-61.

**NOTE:** **Pen 76**

**Standard:** Valves in Steps 12 through 14 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-61 is OPEN.**

√ **Performance Step: 13** CLOSE EG-HV-61, CCW from RCS Outer CTMT ISO.  
**Standard:** Operator should CLOSE EG-HV-61, CCW from RCS Outer CTMT ISO.

**NOTE:** **Pen 76**

**Standard:** Valves in Steps 12 through 14 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-61 is now CLOSED.**

PERFORMANCE INFORMATION

---

**Performance Step: 14** Verify CLOSED EG-HV-133, CCW from RCS CTMT BYPASS.

**Standard:** Operator should verify CLOSED EG-HV-133.

**NOTE:** **Pen 76**

**Standard:** Valves in Steps 12 through 14 can be operated in any order.

**Comment:**

**Evaluator's Cue:** **EG-HV-133 is CLOSED.**

**Performance Step: 15**

**Standard:** Operator should inform Control Room Supervisor Local Operator Action is completed to Isolated CIS-B Valves.

**Comment:**

**Evaluator's Cue:** **Control Room Supervisor acknowledges.**

**Terminating Cue:** **When all CIS-B valves are closed, the JPM is complete**

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC JPM P2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant was at 100% power when a Loss of All AC Power occurred. The Control Room entered emergency procedure ECA-0.0, Loss of All AC Power. A containment spray signal has been received and required valve positions can not be performed from the Control Room.

INITIATING CUE: The Control Room supervisor has directed you to perform Local Operator Actions of Step 21B RNO (CISB Outer Containment Valves), of ECA-0.0. Reposition any required valves and inform him when done.

Facility: Callaway Task No.:

Task Title: Perform Fire Water System Makeup to CST JPM No.: 2005 NRC JPM P3

K/A Reference: 061 K4.01 3.9 / 4.2

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance:  X  Actual Performance:

Classroom   Simulator   Plant  X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant has lost all AC power due to an earthquake. Plant operators are currently in emergency procedure ECA-0.0, Loss of All AC Power, stabilizing the plant.

Task Standard: Upon completion of this JPM, the operator will have commenced filling the CST from the Firewater System.

Required Materials: Key #131, Locked Valve and Breaker Key

General References: EOP Addendum 23, Local CST Emergency Fill

Initiating Cue: The Control Room Supervisor has directed you to fill the condensate storage tank using Addendum 23, Local CST Emergency Fill. Inform the Control Room Supervisor when you have started filling the CST.

Time Critical Task: NO

Validation Time: 10 minutes

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a copy of Addendum 23, Local CST Emergency Fill.  
**Standard:** Operator should obtain procedure copy.

**Comment:**

**Performance Step: 2** Review Addendum.  
**Standard:** Operator may review Addendum.

**Comment:**

**Performance Step: 3** Step 1.0  
Obtain hydrant wrench, 1 50 ft. section of 2 ½" fire hose, 1  
spanner wrench, 1 fire water to CST emergency fill connector.  
**Standard:** Operator should Obtain hydrant wrench, 1 50 ft. section of 2 ½"  
fire hose, 1 spanner wrench, 1 Fire Water to CST Emergency Fill  
Connector.

**Comment:**

√ **Performance Step: 4** Step 2.A  
Connect the CST Emergency Fill Connector to the Ecolo Chem  
Connection on APV0043.  
**Standard:** Operator should hook up CST Emergency Fill Connector to the  
Ecolo Chem Connection on APV0043 located plant south side of  
CST.

**Comment:**

**Evaluator's Cue:** CST Emergency Fill Connector is hooked up to APV0043

## PERFORMANCE INFORMATION

- Step 2.B
- √ **Performance Step: 5** Connect 2 ½" fire hose to the CST Emergency Fill Connector at APV0043.
- Standard:** Operator should connect the 2 ½" fire hose to the CST Emergency Fill Connector.
- Comment:**
- Evaluator's Cue:** **2 ½" fire hose is hooked up to the CST Emergency Fill Connector.**
- Step 2.C
- √ **Performance Step: 6** Hook up the 2 ½" hose to the fire hydrant.
- Standard:** Operator should hook up the 2 ½" hose to the fire hydrant.
- Comment:**
- Evaluator's Cue:** **2 ½" hose is hooked up to the fire hydrant.**
- Step 3.B
- √ **Performance Step: 7** Open APV0043, CST Deoxygenated Water Outlet Valve.
- Standard:** Operator should break the lock (or unlock) and open APV0043, CST Deoxygenated Water Outlet Valve.
- Comment:**
- Evaluator's Cue:** **APV0043 is OPEN.**
- Step 3.C
- √ **Performance Step: 8** Open fire water hydrant using hydrant wrench.
- Standard:** Operator should open fire water hydrant.
- Comment:**
- Evaluator's Cue:** **Fire water hydrant is OPEN.**

PERFORMANCE INFORMATION

---

## Step 4

**Performance Step: 9**

Ensure fire water is flowing to the CST.

**Standard:**

Operator should verify the fire water is flowing.

**Comment:****Evaluator's Cue:****2 ½" fire hose fills and fire water starts to flow.**

## Step 5

**Performance Step: 10**

Notify SS/CRS of CST Emergency Fill status.

**Standard:**

Operator should notify SS/OS of CST Fill from fire water.

**Comment:****Evaluator's Cue:****SS/CRS acknowledges.****Terminating Cue:****When the control room has been informed, this JPM is complete.****STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC JPM P3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant has lost all AC power due to an earthquake. Plant operators are currently in emergency procedure ECA-0.0, Loss of All AC Power, stabilizing the plant.

INITIATING CUE: The Control Room Supervisor has directed you to fill the condensate storage tank using Addendum 23, Local CST Emergency Fill. Inform the Control Room Supervisor when you have started filling the CST.

Facility: **Callaway Plant**

Task No.:

Task Title: Raise Reactor Power To  $10^{-8}$  AmpsJPM No.: 2005 NRC JPM S1

K/A Reference: 001 A2.11 (4.4/4.7)

001 AA1.05 (4.3/4.2)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance:   X  Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A reactor startup is in progress in accordance with OTG-ZZ-00002, Reactor Startup. The following conditions exist:

- All shutdown bank rods are fully withdrawn.
- Control Bank "D" is at 92 steps.
- The estimated critical position is 101 steps on Control Bank "D".
- Most recent ICRR predicts 100 steps on Control Bank D

Task Standard: The reactor is tripped in response to inappropriate continuous control rod motion.

Required Materials: None

General References: OTG-ZZ-00002, Reactor Startup

Handouts: OTG-ZZ-00002, Reactor Startup marked up through step 4.1.17

Initiating Cue: The Control Room Supervisor directs you to continue with the reactor startup and withdraw control rods to criticality in accordance with OTG-ZZ-00002, Reactor Startup, beginning at Step 4.1.18.

Time Critical Task: NO

Validation Time: 12 minutes

Callaway NRC JPM S1

NUREG 1021, Revision 9

**Simulator Setup:**    reset to IC-187

Password = startup

Run Batch File startup.txt

---

PERFORMANCE INFORMATION

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(Denote Critical Steps with a check mark)

**START TIME:** \_\_\_\_\_

**Evaluator Cue:**

**Inform the candidate that all precautions and limitations are satisfied**

**Performance Step: 1**      Candidate initiates control bank withdrawal, monitoring Source Range counts, Intermediate Range Amps, and P-6 bistables.

**Standard:**                Candidate determines that P-6 is energized and refers to Attachment 3

**Comment:**

**Performance Step: 2**      Verify one decade of overlap between the source and intermediate range level instruments.

**Standard:**                Observes Source Range and Intermediate Range instruments and determines that sufficient overlap exists

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 3**      Verify indication on both the source and intermediate startup rate instruments.

**Standard:**              Candidate determines that SR and IR startup rate indication exists

**Comment:**

**Performance Step: 4**      Transfer the SE NR-45 recorder to the intermediate ranges.

**Standard:**              Transfers NR-45 trend to IR channels

**Comment:**

√ **Performance Step: 5**      Prior to exceeding 5E4 CPS on SR instruments, BLOCK the Source Range High Flux Trips

√ **Standard:**              Block "A" Train by depressing the BLOCK pushbutton on SE HS-5.

**Standard:**              Verify SR TRIP A BLOC illuminates on SB069.

√ **Standard:**              Block "B" Train by depressing the BLOCK pushbutton on SE HS-10.

PERFORMANCE INFORMATION

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**Standard:** Verify SR TRIP B BLOCK illuminates on SB069.

**Standard:** Verify that the high voltage has been removed from the source range detectors.

**Comment:**

**Evaluator Cue:** **If the candidate reports that Source Range High Flux Trips have been blocked, acknowledge and provide direction to continue the control rod withdrawal**

**Performance Step: 6** Continue incremental rod withdrawal until the reactor is critical, as indicated by a stable positive startup rate with no rod motion, on the intermediate range instrumentation once the prompt jump has receded.

**Standard:** Candidate initiates control rod withdrawal in small increments

**Comment:**

**Note: The following steps represent the alternate path of this JPM**

**Performance Step: 7** Determine that rods are withdrawing with NO demand signal.

**Standard:** Candidate determines from CONTROL BANK D GROUP 1 and GROUP 2 ROD POSITION indication that rods are withdrawing with **NO** demand signal.

**Comment:**

## PERFORMANCE INFORMATION

√ **Performance Step: 8** Trip the reactor in response to inappropriate continuous rod motion.

Candidate trips the reactor in response to inappropriate continuous rod motion.

**Standard:**

**NOTE: Candidate may refer to OTO-SF-00001 and determine that a reactor trip is required based on Step 6 RNO.**

**Comment:**

<b>Terminating Cue:</b> When the Candidate trips the reactor, the evaluation for this JPM is complete.
--

**STOP TIME:** \_\_\_\_\_

## VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S1

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: Satisfactory/Unsatisfactory

Examiner's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**INITIAL CONDITIONS:**

A reactor startup is in progress in accordance with OTG-ZZ-00002, Reactor Startup. The following conditions exist:

- All shutdown bank rods are fully withdrawn.
- Control Bank "D" is at 92 steps.
- The estimated critical position is 101 steps on Control Bank "D".
- Most recent ICRR predicts 100 steps on Control Bank D

**INITIATING CUE:**

The Control Room Supervisor directs you to continue with the reactor startup and withdraw control rods to criticality in accordance with OTG-ZZ-00002, Reactor Startup, beginning at Step 4.1.18.

Facility: **Callaway** Task No.: 0111-011-01-013

Task Title: Isolate SI Accumulators During a LOCA JPM No.: 2005 NRC JPM S2

K/A Reference: 009 EA1.13 (4.4/4.4)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: **X**

Classroom \_\_\_\_\_ Simulator **X** Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

Task Standard: SI Accumulators A, B, and C are isolated. SI Accumulator D is vented.

Required Materials: None

General References: ES-1.2, Post LOCA Cooldown and Depressurization

Handouts: ES-1.2, Post LOCA Cooldown and Depressurization

Initiating Cue: The Control Room Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 23.

Time Critical Task: NO

Validation Time: 7 Minutes

**Simulator Setup:** Initialize IC-184

Password spa321

Run bat.siaccc.txt

## PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

**START TIME:** \_\_\_\_\_

**Performance Step: 1**      RCS subcooling based on core exit TCs - GREATER THAN 30°F  
(Step 23.a)

**Standard:**              Candidate verifies RCS subcooling based on core exit TCs is greater than 30°F

**Comment:**

**Performance Step: 2**      PRZR level - GREATER THAN 9% [29% ADVERSE CNMT]  
(Step 23.b)

**Standard:**              Candidate locates and verifies PRZR level indication is greater than 9%.

**Comment:**

**Performance Step: 3**      Restore power to EP-HV-8808A, B, C, D  
(Step 23.c)

**Standard:**              Candidate directs Local Operator to restore power to EP-HV-8808A - D

**Standard:**              Candidate contacts Local Operator to restore power

**Comment:**              **Booth Instructor: Inform candidate that power is restored to all 4 accumulator outlet valves**

## PERFORMANCE INFORMATION

- √ **Performance Step: 4**      Close EP-HIS-8808A, B, C, D  
(Step 23.d)
- Standard:**                      Candidate locates EP-HV-8808A, B, C and D control switches and places in CLOSE.
- Standard:**                      Candidate verifies green close light on and red open light off for each valve.
- Comment:**                      **EP HV-8808C does not close using the handswitch on the MCB.**

<b>NOTE:</b> The following step represents the alternate path portion of the JPM.
---

- √ **Performance Step: 5**      If any accumulator cannot be isolated, then open associated accumulator vent valve  
(Step 23.d RNO)
- Standard:**                      Locates control switch for EITHER EP HIS-8950D OR EP HIS-8950E, and places switch in OPEN **OR** places BOTH switches in OPEN.
- Standard:**                      Observes Green Light OFF, Red Light ON, and accumulator C pressure lowering.
- Comment:**

<b>Terminating Cue:</b> When the Candidate verifies that accumulator C pressure is lowering, the evaluation for this JPM is complete.
---

**STOP TIME:**                      \_\_\_\_\_

## VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S2

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result: Satisfactory/Unsatisfactory

Examiner's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**INITIAL CONDITIONS:** A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

**INITIATING CUE:** The Control Room Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 23.

Facility: Callaway Plant

Task No.:

Task Title: Respond to a Stuck Open  
Pressurizer Spray ValveJPM No.: 2005 NRC JPM S3

K/A Reference: 010 A2.02 (3.9/3.9)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance:   X  Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A Reactor Trip has occurred. The crew has transitioned to ES-0.1, Reactor Trip Response

Task Standard: RCPs A and D are tripped

Required Materials: ES-0.1

General References: ES-0.1

Handouts: None

Initiating Cue: The Control Room Supervisor directs you to perform actions to stabilize the plant in accordance with ES-0.1

Time Critical Task: NO

Validation Time: 8 minutes

**SIMULATOR SETUP**

Reset to IC-188

Password = spray

PERFORMANCE INFORMATION

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(Denote Critical Steps with an asterisk)

**START TIME:** \_\_\_\_\_

**Performance Step: 1**      Check RCS temperature – ANY RCP Running – Tave stable at or trending to 557°F.

**Standard:**                Candidate verifies RCPs are running and Tave is at approximately 557°F.

**Comment:**

**Performance Step: 2**      Check Generator Output Breakers open.

**Standard:**                Candidate verifies ML ZA-3A (V55) and ML ZA-4A (V53) indicate OPEN.

**Comment:**

**Performance Step: 3**      Check all AC busses energized by Off-Site power

**Standard:**                Determines that PA01 and PA02, NB01 and NB02 are energized by off-site power

**Comment:**

**Performance Step: 4**      Check Pressurizer Pressure Control – Pressure greater than 1849 psig

**Standard:**                Candidate evaluates pressurizer pressure and determines it is greater than 1849 psig.

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 5** Check Pressurizer Pressure stable at or trending to 2235 psig.  
**Standard:** Candidate determines that Pressurizer Pressure is below 2235 psig and lowering.

**Comment:**

**Note: The following steps represent the alternate path of this JPM**

**Performance Step: 6** Check PORVs closed  
**Standard:** Candidate verifies BB-HIS-455A and 456A indicate CLOSED.

**Comment:**

**Performance Step: 7** Check Spray Valves closed  
**Standard:** Candidate determines that Spray Valve BB-PCV-455B is OPEN

**Comment:**

√ **Performance Step: 8** Close Spray Valve  
**Standard:** Candidate places BB-PCV-455B controller in MANUAL and attempts to reduce output to ZERO. Determines valve remains OPEN

**Comment:**

√ **Performance Step: 9** Stop RCPs A and D  
**Standard:** Candidate places RCP A and D control switches in STOP

**Comment:**

**Performance Step: 10**    Verify PRZR Heaters – ON

**Standard:**                Candidate verifies PRZR Heaters – ON.

**Comment:**

**Terminating Cue:**                **When A and D RCPs are tripped or upon completion of ES-0.1 Step 3, this JPM is complete.**

**STOP TIME:**                \_\_\_\_\_

Job Performance Measure No.: Callaway NRC JPM S3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: A reactor Trip has occurred. The crew has transitioned to ES-0.1, Reactor Trip Response

INITIATING CUE: The Control Room Supervisor directs you to perform actions to stabilize the plant in accordance with ES-0.1

Facility: Callaway Task No.:

Task Title: Start "A" Reactor Coolant Pump JPM No.: 2005 NRC JPM S4

K/A Reference: 002 K6.02 3.6 / 3.8

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
Classroom \_\_\_\_\_ Simulator  X  Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant is in mode 3 at 557°F and 2235 psig. "A" Reactor Coolant Pump had been secured for breaker work on PA0107. CCW is in operation and is supplying cooling water to the Thermal Barrier Cooling coils per OTN-EG-00001. There are no personnel in CTMT at this time.

Task Standard: Upon completion of this JPM, the operator will have tripped "A" RCP due to high seal leakoff flow.

Required Materials: None

General References: OTN-BB-00003, Reactor Coolant Pumps, Revision 15

Initiating Cue: Tags have been cleared on PA0107 and signed off. The Control Room Supervisor has directed you to start "A" RCP per OTN-BB-00003, Section 4.1. WPA was restored to the OTN-BB-00003 required positions. Inform the Control Room Supervisor when the "A" Reactor Coolant Pump has been started and the lift oil pump is secured.

Time Critical Task: NO

Validation Time: 16 minutes

**SIMULATOR SETUP**

## NOTES:

Use IC-7. Secure "A" RCP, close "A" seal inj and leakoff with BB HIS-8351A and BB HIS-8141A.

Close "A" PZR Spray Valve and place in MANUAL

Set Event 1 'x21i115r.eq.true'

1 is cv06a severity 8, 12 second ramp, 10 second delay

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-BB-00003, Reactor Coolant Pumps.

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 2

**Performance Step: 2** Review the Precautions and Limitations of OTN-BB-00003.

**Standard:** Operator should review the Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Section 3

**Performance Step: 3** Review the Initial Conditions of OTN-BB-00003.

**Standard:** Operator should read the Initial Conditions.

**Comment:**

**Evaluator's Cue:** All Initial Conditions are satisfied.

NOTE Prior To Step 4.1.1

**Performance Step: 4** If the position of the CCW Outlet Throttle Valves are known to have changed, perform Section 5.2.

**Standard:** Operator may ask if the WPA altered CCW Outlet Throttle Valve Positions.

**Comment:**

**Evaluator's Cue:** The CCW Outlet Throttle Valves position did not change.

## PERFORMANCE INFORMATION

	Step 4.1.1.1
<b>Performance Step: 5</b>	Initiate Seal Water Injection Flow to "A" RCP. OPEN the RCP Seal Injection Isolation Valve BB HV-8351A with BB-HIS-8351A.
<b>Standard:</b>	Operator should initiate seal water injection flow with BB HIS-8351A, RCP "A" Seal WTR INJ VLV, OPEN on RL021.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BB HIS-8351A RED light goes ON and GREEN light goes OFF.</b>
	Step 4.1.1.2
<b>Performance Step: 6</b>	OPEN "A" RCP #1 Seal Leakoff Isolation Valve with Handswitch BB HIS-8141A.
<b>Standard:</b>	Operator should OPEN, RCP "A" Seal WTR Return VLV with BB HIS-8141A, on RL001.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BB HIS-8141A RED light goes ON and GREEN light goes OFF.</b>
	Step 4.1.3
<b>Performance Step: 7</b>	Verify current OSP-BG-00005 or adjust the Seal Water Injection Throttle Valve (BG-V-198) to establish 8 GPM flow to all RCP's.
<b>Standard:</b>	Operator should determine seal flow on BB FR-157, RCP "A" Seal Leakoff and Injection Flow, on RL021 or verify OSP-BG-00005 is current.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>OSP-BG-00005 is current all RCP's show a flow of 8 gpm on the Blue Pen for BG FR-157, 156, 155, and 154.</b>

## PERFORMANCE INFORMATION

## Step 4.1.3.1

**Performance Step: 8**

Verify "A" RCP Seal Differential Pressure is &gt; 200 psid.

**Standard:**

Operator should read BB PI-153A, RCP "A" Seal DP, on RL021.

**Comment:****Evaluator's Cue:****"A" RCP DP indicates > 400 psid.**

## Step 4.1.3.2

**Performance Step: 9**

Annunciator 73A RCP #2 Seal Flow HI Alarm is CLEARED.

**Standard:**

Operator should determine status of annunciator 73A, RCP #2 Seal Flow HI Alarm is CLEARED.

**Comment:****Evaluator's Cue:****Annunciator 73A is NOT on.**

## Step 4.1.3.3

**Performance Step: 10**

Verify Annunciator 42C VCT pressure HI/LO is CLEARED.

**Standard:**

Operator should determine status of Annunciator 42C, VCT Press HI/LO, on RL018 is CLEARED.

**Comment:****Evaluator's Cue:****Annunciator 42C is NOT on.**

## Step 4.1.3.4

**Performance Step: 11**

Verify Annunciator 74D RCP Oil RSVR LEV HI/LO CLEARED.

**Standard:**

Operator should determine status of Annunciator 74D, RCP Oil RSVR LEV HI/LO, on RL022 is CLEARED.

**Comment:****Evaluator's Cue:****Annunciator 74D is NOT on.**

## PERFORMANCE INFORMATION

	Step 4.1.3.5
<b>Performance Step: 12</b>	Verify Annunciator 71A, RCP #1 Seal dP LO CLEARED.
<b>Standard:</b>	Operator should determine status of Annunciator 71A, RCP #1 Seal DP LO, on RL022 is cleared.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Annunciator 71A RCP #1 seal dP LO is NOT on.</b>
	Step 4.1.3.6
<b>Performance Step: 13</b>	Verify Annunciators 70 – 73E RCP A – D Standpipe LEV LO CLEARED.
<b>Standard:</b>	Operator should determine status of Annunciator 70E, RCP “A” Standpipe, LEV LO, on RL022 is CLEARED.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Annunciator 70E is NOT on.</b>
	Step 4.1.3.7
<b>Performance Step: 14</b>	Verify Annunciators 70 – 73C RCP A – D THERM BAR CCW Flow CLEARED.
<b>Standard:</b>	Operator should determine status of Annunciator 70C, RCP “A” THERM BAR CCW Flow, on RI022 is CLEARED.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Annunciator 70C is NOT on.</b>
	Step 4.1.3.8
<b>Performance Step: 15</b>	Verify #1 Seal Backpressure $\geq$ 15 psig. (VCT pressure).
<b>Standard:</b>	Operator should obtain VCT pressure from BG PI-115 on RL002.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>VCT pressure indicates 32 psig on BG PI-115.</b>

## PERFORMANCE INFORMATION

	Step 4.1.3.9
<b>Performance Step: 16</b>	Verify "A" RCP Seal Leakoff is within the NORMAL operating range of Figure 1 on Page 4 of Attachment 1.
<b>Standard:</b>	Operator should verify "A" RCP Seal Leakoff Flow is within the NORMAL operating range of Figure 1 on page 4 of Attachment 1.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>"A" RCP Seal Leakoff Return is within the NORMAL operating range.</b>
	Step 4.1.3.9
<b>Performance Step: 17</b>	Obtain "A" RCP Seal Leakoff Indication from BG FR-157.
<b>Standard:</b>	Operator should obtain "A" RCP Seal Leakoff Indication from BG FR-157.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BG FR-157 indicates Seal Leakoff is at 3 gpm on the Green Pen, the Red Pen is FULL SCALE.</b>
	Step 4.1.4.1
<b>Performance Step: 18</b>	Dispatch someone to inspect "A" RCP and warn personnel in the vicinity.
<b>Standard:</b>	Operator not required to call due to no personnel in CTMT.
<b>Comment:</b>	
	Step 4.1.4.2
√ <b>Performance Step: 19</b>	Start "A" RCP's Oil Lift Pump with switch BB HIS-41.
<b>Standard:</b>	Operator should select RUN ON BB HIS-41, RCP "A" Lift Pump.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>BB HIS-41 RED light is ON, after 20 seconds, the WHITE light on "A" Oil Lift Pump goes ON.</b>

## PERFORMANCE INFORMATION

	Step 4.1.4.3
<b>Performance Step: 20</b>	Allow the Oil Lift Pump to RUN for at least 2 minutes.
<b>Standard:</b>	Operator should wait two (2) minutes from start time before performing next step.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Two (2) minutes has elapsed.</b>
	Step 4.1.4.6
<b>Performance Step: 21</b>	Make plant announcement: ATTENTION IN THE PLANT STARTING THE "A" RCP. STAND CLEAR OF THE PUMP AND PA01 SWITCHGEAR.
<b>Standard:</b>	Operator should make plant announcement about starting "A" RCP.  Should wait 10 – 15 seconds between announcement and starting pump.
<b>Comment:</b>	
	Step 4.1.4.7
√ <b>Performance Step: 22</b>	Start "A" RCP by using Switch BB HIS-37.
<b>Standard:</b>	Operator should select RUN on BB HIS-37, RCP "A".
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>"A" RCP BB HS-37 RED light is ON and GREEN light is OFF.</b>
	Step 4.1.4.5.1
<b>Performance Step: 23</b>	Monitor RCP starting current and running current.
<b>Standard:</b>	Operator should monitor BB-II-1, RCP "A" Amps, and observe starting current decay away on RL021 to less than 351 amps.
<b>Comment:</b>	

PERFORMANCE INFORMATION

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**The following steps represent the alternate path of this JPM**

**Performance Step: 24** Acknowledge annunciators.

**Standard:** Operator should determine that control room annunciators 70B and 72A are received. 72A, RCP #1 SEAL FLO HI, is an unexpected alarm.

**Comment:**

**Evaluator's Cue:**

**Performance Step: 25** Determine RCP "A" #1 seal flow

**Standard:** Operator should observe recorder BG FR-157 and verify seal flow is > 5 GPM

**Comment:**

**Evaluator's Note:** Candidate **MAY** refer to the OTAs or OTO-BB-00002 to determine action required on high seal flow.

√ **Performance Step: 26** Trip "A" RCP

**Standard:** Places RCP "A" control switch in STOP

**Comment:**

**Terminating Cue:** When RCP "A" is stopped, this JPM is complete.

**STOP TIME:** \_\_\_\_\_

Job Performance Measure No.: 2005 NRC JPM S4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant is in mode 3 at 557°F and 2235 psig. "A" Reactor Coolant Pump had been secured for breaker work on PA0107. CCW is in operation and is supplying cooling water to the Thermal Barrier Cooling coils per OTN-EG-00001. There are no personnel in CTMT at this time.

INITIATING CUE: Tags have been cleared on PA0107 and signed off. The Control Room Supervisor has directed you to start "A" RCP per OTN-BB-00003, Section 4.1. WPA was restored to the OTN-BB-00003 required positions. Inform the Control Room Supervisor when the "A" Reactor Coolant Pump has been started and the lift oil pump is secured.

Facility: Callaway Task No.:

Task Title: Place Steam Dumps in Steam Pressure Mode JPM No.: 2005 NRC JPM S5

K/A Reference: 041 A4.08 3.0 / 3.1

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
Classroom \_\_\_\_\_ Simulator  X  Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant is shutting down for a fall outage. Reactor power is approximately 17.5%. The crew is performing OTG-ZZ-00005.

Task Standard: Upon completion of this JPM, the operator has placed the steam dumps in the steam pressure mode and then closed the failed steam dumps prior to causing the steam dumps to close due to Permissive P-12 (LO LO TAVE – 550°F)

Required Materials: None

General References: OTN-AB-00001, Main Steam System, Revision 13

Initiating Cue: The Control Room Supervisor has directed you to verify the Steam Dump Controller, AB PK-507, is set for 1092 PSIG, then transfer the Steam Dump Selector switch to the Steam Pressure Mode per OTN-AB-00001, Main Steam System, Section 4.5 and inform the CRS when done.

Time Critical Task: NO

Validation Time: 9 minutes

**SIMULATOR SETUP**

Use IC- 68 password redsox

Use event trigger mode and set X05I162S.EQ.TRUE.SET

Malfunction MSS13b to AB PT-507 reading 1500 psig, 90 second ramp,  
0 second time delay, set to event trigger.

**Ensure AB PK-0507 is set at something other than 7.28.**

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-AB-00001, Main Steam System.

**Standard:** Operator should obtain a procedure copy.

**Comment:**

Section 2.0

**Performance Step: 2** Review the Precautions and Limitations of OTN-AB-00001.

**Standard:** Operator should read the Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Section 3.0

**Performance Step: 3** Review the Initial Conditions of OTN-AB-00001.

**Standard:** Operator should read the Initial Conditions.

**Comment:**

**Evaluator's Cue:** All Initial Conditions are satisfied.

**Ask if the operator understands the Initial conditions and Initiating Cues.**

**Performance Step: 4** The operator may verify AB PK-0507 is set for 1092 psig.

**Standard:** OOA-RL-00004 states that 1092 psig = 7.28.

**Comment:**

## PERFORMANCE INFORMATION

NOTE: CAUTION prior to Step 4.5.1

**Performance Step: 5** Ensure Steam Header Pressure Controller AB PK-507 matches steam dump demand AB UI-500.

**Standard:** Operator should ensure AB PK-507 Steam Header Pressure Controller matches AB UI-500.

**Comment:**

Step 4.5.1

**Performance Step: 6** Place the Steam Dump Selector Switch AB US-0500Z to Reset.

**Standard:** Operator should place Steam Dump Selector Switch AB US-0500Z to Reset.

**Comment:**

Step 4.5.1

√ **Performance Step: 7** Place the Steam Dump Selector Switch AB US-0500Z to the Steam Pressure Mode.

**Standard:** Operator should place the Steam Dump Selector Switch AB US-0500Z to the Steam Pressure Mode.

**NOTE:** **When operator notices the steam dump failure, he may then omit Steps 8 and 9 and continue with Step 10.**

**Comment:**

Step 4.5.1.1

**Performance Step: 8** Verify C-7, Loss of Load Interlock Light is OFF.

**Standard:** Operator should verify C-7, Loss of Load Interlock Light is OFF on SC066W Panel.

**Comment:**

PERFORMANCE INFORMATION

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Step 4.5.2

**Performance Step: 9**

Operator may inquire if cooldown is required.

**Standard:**

Operator may ask if a plant cooldown is required.

**Comment:****Evaluator's Cue:****Respond by informing the operator that a cooldown is not required at this time.****Note: The following steps represent the alternate path of this JPM**

√ **Performance Step: 10** Place Steam Dump Interlock Select Switches AB HS-63, 64 in the OFF/RESET position.

**Standard:**

Operator should place both Steam Dump Selector Switches AB HAS-63, 64 in the OFF position.

Operator should CLOSE Steam Dumps by any means prior to Steam Dumps automatically closing at 550°F due to P-12, LO LO Tave. (May also go back to Tave Mode)

**Comment:****Terminating Cue:****When Steam Dumps are closed, this JPM is complete.****STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

---

Job Performance Measure No.: 2005 NRC JPM S5

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant is shutting down for a fall outage. Reactor power is approximately 17.5%. The crew is performing OTG-ZZ-00005.

INITIATING CUE: The Control Room Supervisor has directed you to verify the Steam Dump Controller, AB PK-507, is set for 1092 PSIG, then transfer the Steam Dump Selector switch to the Steam Pressure Mode per OTN-AB-00001, Main Steam System, Section 4.5 and inform the CRS when done.

Facility: Callaway Task No.:

Task Title: Placing Containment H2 Analyzer In Service JPM No.: 2005 NRC JPM S6

K/A Reference: 028 A4.03 3.1 / 3.3

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant has experienced a Large Loss of Coolant Accident. A Safety Injection has occurred.

Task Standard: Upon completion of this JPM, the operator will have placed "A" hydrogen analyzer in-service.

Required Materials: None

General References: OTN-GS-00001, Containment Hydrogen Control System, Revision 10

Initiating Cue: The Control Room Supervisor has directed you to place the "A" Containment Hydrogen Analyzer, SGS02A, in service per OTN-GS-00001, Section 4.2. The pre-service startup and standby alignment of hydrogen analyzers has already been completed, (Section 4.1). Inform the Control room Supervisor when SGS02A is in service.

Time Critical Task: NO

Validation Time: 10 minutes

**Simulator Setup**

Reset to IC-184

CTMT H2 Indication

Set Malf Meter

- GSAI19
- Ramp Start=0
- Ramp Time=60 Sec
- Delay Time=15 Sec
- Value=1.5
- Event Trigger=1
- Set Event Trigger 1
- 1=X20I36A

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-GS-0001.

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 2

**Performance Step: 2** Review Precautions and Limitations.

**Standard:** Operator should review Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Step 4.2.1

**Performance Step: 3** Ensure Section 4.1, Pre-service Startup and Standby Alignment of hydrogen analyzers is complete.

**Standard:** Operator may verify Section 4.1 has been completed.

**NOTE:** **Given in Initial Conditions.**

**Comment:**

**Evaluator's Cue:** **Section 4.1 has been completed.**

## PERFORMANCE INFORMATION

	Step 4.2.2
<b>Performance Step: 4</b>	Ensure the H2 mixing fans and CTMT coolers re in service.
<b>Standard:</b>	Operator should verify H2 mixing fans and CTMT coolers are in service.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>All H2 mixing fans and CTMT coolers are in service.</b>
	Step 4.2.3
<b>Performance Step: 5</b>	Restore electrical power to Hydrogen Analyzer "A" CTMT ISO Valves place GS HIS-40 in Non-Iso.
<b>Standard:</b>	Operator should place GS HIS-40, Hydrogen Analyzer "A" CTMT ISO Valve, in Non-Iso located on RL011.
<b>NOTE:</b>	<b>Steps 5 and 6 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-40 is in the Non-Iso position.</b>
	Step 4.2.3
<b>Performance Step: 6</b>	Restore electrical power to Hydrogen Analyzer "A" CTMT ISO Valves, place GS HIS-42 in the Non-Iso position.
<b>Standard:</b>	Operator should place GS HIS-42, Hydrogen Analyzer "A" CTMT ISO Valve in Non-Iso.
<b>NOTE:</b>	<b>Steps 5 and 6 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-42 is in the Non-Iso position.</b>

## PERFORMANCE INFORMATION

Step 4.2.4	
√ <b>Performance Step: 7</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-13 with pushbutton GS HIS-13.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS-HV-13 with pushbutton GS HIS-13.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-13 shows RED light goes ON and GREEN light goes OFF.</b>
Step 4.2.4	
√ <b>Performance Step: 8</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-14 with pushbutton GS HIS-14.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-14 with pushbutton GS HIS-14.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-14 shows RED light goes ON and GREEN light goes OFF.</b>
Step 4.2.4	
√ <b>Performance Step: 9</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-12 with pushbutton GS HIS-12.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-12 with pushbutton GS HIS-12.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-12 shows RED light goes ON and GREEN light goes OFF.</b>

## PERFORMANCE INFORMATION

- Step 4.2.4
- √ **Performance Step: 10** Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-17 with pushbutton GS HIS-17.
- Standard:** Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-17 with pushbutton GS HIS-17.
- NOTE:** Steps 7 through 11 may be performed in any order.
- Comment:**
- Evaluator's Cue:** GS HIS-17 shows RED light goes ON and GREEN light goes OFF.
- Step 4.2.4
- √ **Performance Step: 11** Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-18 with pushbutton GS HIS-18.
- Standard:** Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-18 with pushbutton GS HIS-18.
- NOTE:** Steps 7 through 11 may be performed in any order.
- Comment:**
- Evaluator's Cue:** GS HIS-18 shows RED light goes ON and GREEN light goes OFF.
- Step 4.2.6
- √ **Performance Step: 12** Place Hydrogen Analyzer "A" in the ANALYZ position by taking switch GS HIS-16A for SGS02A to "ANLYZ".
- Standard:** Operator should take switch GS HIS-16A to "ANLYZ" on RL020
- Comment:**

## PERFORMANCE INFORMATION

	Step 4.2.6.1
<b>Performance Step: 13</b>	Monitor GS AI-19 for hydrogen concentration.
<b>Standard:</b>	Operator should monitor GS AI-19 for hydrogen concentration.
<b>Comment:</b>	<b>Meter will begin to deflect 15 seconds after placing GS HIS-16 in ANALYZ</b>
<b>Evaluator's Cue:</b>	<b>Hydrogen concentration indicates approximately 0% on GS AI-19.</b>
	Step 4.2.6.1 Note b
<b>Performance Step: 14</b>	Verify Hydrogen Analyzer SGS02A was in the Standby Lineup.
<b>Standard:</b>	Operator may verify "A" Hydrogen Analyzer was in the Standby Lineup.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Note "A" Hydrogen analyzer was in the Standby Position.</b>
	Step 4.2.6.1 Note b
<b>Performance Step: 15</b>	Wait for a 15 minute warmup period prior to taking data.
<b>Standard:</b>	Operator should wait a minimum of 15 minutes for "A" hydrogen analyzer use.
<b>Comment:</b>	<b>Ensure meter has risen to 1 – 1.5% before continuing</b>
<b>Evaluator's Cue:</b>	<b>Over 15 minutes has gone by.</b>
	Step 4.2.6.1
<b>Performance Step: 16</b>	Monitor containment hydrogen concentration on GS AI-19.
<b>Standard:</b>	Operator should monitor GS AI-19 for hydrogen concentration.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS AI-19 shows hydrogen concentration to be at 1.5%.</b>

PERFORMANCE INFORMATION

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**Terminating Cue:**                      **When the candidate has determined that H2 concentration is 1.5, this JPM is complete.**

**STOP TIME:**                      \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2005 NRC JPM S6

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant has experienced a Large Loss of Coolant Accident. A Safety Injection has occurred.

INITIATING CUE: The Control Room Supervisor has directed you to place the "A" Containment Hydrogen Analyzer, SGS02A, in service per OTN-GS-00001, Section 4.2. The pre-service startup and standby alignment of hydrogen analyzers has already been completed, (Section 4.1). Inform the Control room Supervisor when SGS02A is in service.

Facility: Callaway Task No.:

Task Title: Placing Containment H2 Analyzer In Service JPM No.: 2005 NRC JPM S6

K/A Reference: 028 A4.03 3.1 / 3.3

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant has experienced a Large Loss of Coolant Accident. A Safety Injection has occurred.

Task Standard: Upon completion of this JPM, the operator will have placed "A" hydrogen analyzer in-service.

Required Materials: None

General References: OTN-GS-00001, Containment Hydrogen Control System, Revision 10

Initiating Cue: The Control Room Supervisor has directed you to place the "A" Containment Hydrogen Analyzer, SGS02A, in service per OTN-GS-00001, Section 4.2. The pre-service startup and standby alignment of hydrogen analyzers has already been completed, (Section 4.1). Inform the Control room Supervisor when SGS02A is in service.

Time Critical Task: NO

Validation Time: 10 minutes

**Simulator Setup**

Reset to IC-184

CTMT H2 Indication

Set Malf Meter

- GSAI19
- Ramp Start=0
- Ramp Time=60 Sec
- Delay Time=15 Sec
- Value=1.5
- Event Trigger=1
- Set Event Trigger 1
- 1=X20I36A

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-GS-0001.

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 2

**Performance Step: 2** Review Precautions and Limitations.

**Standard:** Operator should review Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Step 4.2.1

**Performance Step: 3** Ensure Section 4.1, Pre-service Startup and Standby Alignment of hydrogen analyzers is complete.

**Standard:** Operator may verify Section 4.1 has been completed.

**NOTE:** **Given in Initial Conditions.**

**Comment:**

**Evaluator's Cue:** **Section 4.1 has been completed.**

## PERFORMANCE INFORMATION

	Step 4.2.2
<b>Performance Step: 4</b>	Ensure the H2 mixing fans and CTMT coolers re in service.
<b>Standard:</b>	Operator should verify H2 mixing fans and CTMT coolers are in service.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>All H2 mixing fans and CTMT coolers are in service.</b>
	Step 4.2.3
<b>Performance Step: 5</b>	Restore electrical power to Hydrogen Analyzer "A" CTMT ISO Valves place GS HIS-40 in Non-Iso.
<b>Standard:</b>	Operator should place GS HIS-40, Hydrogen Analyzer "A" CTMT ISO Valve, in Non-Iso located on RL011.
<b>NOTE:</b>	<b>Steps 5 and 6 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-40 is in the Non-Iso position.</b>
	Step 4.2.3
<b>Performance Step: 6</b>	Restore electrical power to Hydrogen Analyzer "A" CTMT ISO Valves, place GS HIS-42 in the Non-Iso position.
<b>Standard:</b>	Operator should place GS HIS-42, Hydrogen Analyzer "A" CTMT ISO Valve in Non-Iso.
<b>NOTE:</b>	<b>Steps 5 and 6 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-42 is in the Non-Iso position.</b>

## PERFORMANCE INFORMATION

Step 4.2.4	
√ <b>Performance Step: 7</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-13 with pushbutton GS HIS-13.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS-HV-13 with pushbutton GS HIS-13.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-13 shows RED light goes ON and GREEN light goes OFF.</b>
Step 4.2.4	
√ <b>Performance Step: 8</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-14 with pushbutton GS HIS-14.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-14 with pushbutton GS HIS-14.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-14 shows RED light goes ON and GREEN light goes OFF.</b>
Step 4.2.4	
√ <b>Performance Step: 9</b>	Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-12 with pushbutton GS HIS-12.
<b>Standard:</b>	Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-12 with pushbutton GS HIS-12.
<b>NOTE:</b>	<b>Steps 7 through 11 may be performed in any order.</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS HIS-12 shows RED light goes ON and GREEN light goes OFF.</b>

## PERFORMANCE INFORMATION

- Step 4.2.4
- √ **Performance Step: 10** Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-17 with pushbutton GS HIS-17.
- Standard:** Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-17 with pushbutton GS HIS-17.
- NOTE:** Steps 7 through 11 may be performed in any order.
- Comment:**
- Evaluator's Cue:** GS HIS-17 shows RED light goes ON and GREEN light goes OFF.
- Step 4.2.4
- √ **Performance Step: 11** Open "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-18 with pushbutton GS HIS-18.
- Standard:** Operator should OPEN "A" Hydrogen Analyzer CTMT Isolation Valve GS HV-18 with pushbutton GS HIS-18.
- NOTE:** Steps 7 through 11 may be performed in any order.
- Comment:**
- Evaluator's Cue:** GS HIS-18 shows RED light goes ON and GREEN light goes OFF.
- Step 4.2.6
- √ **Performance Step: 12** Place Hydrogen Analyzer "A" in the ANALYZ position by taking switch GS HIS-16A for SGS02A to "ANLYZ".
- Standard:** Operator should take switch GS HIS-16A to "ANLYZ" on RL020
- Comment:**

## PERFORMANCE INFORMATION

	Step 4.2.6.1
<b>Performance Step: 13</b>	Monitor GS AI-19 for hydrogen concentration.
<b>Standard:</b>	Operator should monitor GS AI-19 for hydrogen concentration.
<b>Comment:</b>	<b>Meter will begin to deflect 15 seconds after placing GS HIS-16 in ANALYZ</b>
<b>Evaluator's Cue:</b>	<b>Hydrogen concentration indicates approximately 0% on GS AI-19.</b>
	Step 4.2.6.1 Note b
<b>Performance Step: 14</b>	Verify Hydrogen Analyzer SGS02A was in the Standby Lineup.
<b>Standard:</b>	Operator may verify "A" Hydrogen Analyzer was in the Standby Lineup.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Note "A" Hydrogen analyzer was in the Standby Position.</b>
	Step 4.2.6.1 Note b
<b>Performance Step: 15</b>	Wait for a 15 minute warmup period prior to taking data.
<b>Standard:</b>	Operator should wait a minimum of 15 minutes for "A" hydrogen analyzer use.
<b>Comment:</b>	<b>Ensure meter has risen to 1 – 1.5% before continuing</b>
<b>Evaluator's Cue:</b>	<b>Over 15 minutes has gone by.</b>
	Step 4.2.6.1
<b>Performance Step: 16</b>	Monitor containment hydrogen concentration on GS AI-19.
<b>Standard:</b>	Operator should monitor GS AI-19 for hydrogen concentration.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GS AI-19 shows hydrogen concentration to be at 1.5%.</b>

PERFORMANCE INFORMATION

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**Terminating Cue:**                      **When the candidate has determined that H2 concentration is 1.5, this JPM is complete.**

**STOP TIME:**                      \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2005 NRC JPM S6

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant has experienced a Large Loss of Coolant Accident. A Safety Injection has occurred.

INITIATING CUE: The Control Room Supervisor has directed you to place the "A" Containment Hydrogen Analyzer, SGS02A, in service per OTN-GS-00001, Section 4.2. The pre-service startup and standby alignment of hydrogen analyzers has already been completed, (Section 4.1). Inform the Control room Supervisor when SGS02A is in service.

Facility: Callaway Task No.:

Task Title: Paralleling Diesel Generator "A" To XNB01 JPM No.: 2005 NRC JPM S7

K/A Reference: 064 A4.01 4.0 / 4.3

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating in Mode 3. The "A" Emergency Diesel Generator has been started per OTN-NE-0001A, Section 5.3. NB01 is energized from its normal off-site power source. XNB01 LTC is in manual and Tap 13 is set for modes 1 through 4.

Task Standard: NE01 is connected to NB01 and is carrying at least 2 Mwe load.

Required Materials: None

General References: OTN-NE-0001A, Standby Diesel Generation System Train "A", Rev. 14

Initiating Cue: You have been directed to parallel the "A" Diesel Generator to NB01 and load to at least 2 MW per OTN-NE-0001A, Section 5.4. Inform the Control Room Supervisor when NE01 is running loaded > 2 Mwe.

Time Critical Task: NO

Validation Time: 15 minutes

**SIMULATOR SETUP**

## NOTES:

May be run with JPM S4

Ensure "A" Emergency Diesel Generator is running unloaded if performing on the simulator. Use remote NBHS0037 place in manual. Monitor NEPSLTC (1).

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-NE-0001A, Standby Diesel Generation System Train "A".

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 3

**Performance Step: 2** Review the Precautions and Limitations of OTN-NE-0001A.

**Standard:** Operator should read the Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Section 4

**Performance Step: 3** Review the Prerequisites of OTN-NE-0001A.

**Standard:** Operator should read the Initial Conditions.

**Comment:**

**Evaluator's Cue:** All prerequisites are satisfied.

## PERFORMANCE INFORMATION

## Step 5.4.1

**Performance Step: 4**

Ensure that the Local Master Transfer Switch KJHS0009 is in the AUTO position.

**Standard:**

Operator should verify absence of MCB ANN 20E and/or request Local Observation of Master Transfer Switch.

**Comment:****Evaluator's Cue:**

**The Local Master Transfer Switch KJHS0009 is in the AUTO position.**

## Step 5.4.2

**Performance Step: 5**

At RL015, Check NE-HIS-25, NB01 EMERG SUPPLY BREAKER NB0111, is OPEN.

**Standard:**

Green light for NE-HIS-25 is ON

**Comment:**

## Step 5.4.3

**Performance Step: 6**

Check NB-HIS-2, NB01 NORM SUPPLY BK R NB0112, is CLOSED

**Standard:**

Red light for NB-HIS-2 is ON

**Comment:**

## PERFORMANCE INFORMATION

	Step 5.4.4
<b>Performance Step: 7</b>	Check diesel generator voltage and frequency are stable in the following ranges: <ul style="list-style-type: none"><li>• 3740 to 4320 VAC indicated by NE EI-1, DG VOLTS</li><li>• 58.8 to 61.2 HZ indicated by NE ST-1, DG FREQ/SPD</li></ul>
<b>Standard:</b>	Determines that voltage is stable at approximately 4100 – 4200 VAC and frequency is stable at 60 HZ
<b>Comment:</b>	
	Step 5.4.5
<b>Performance Step: 8</b>	Ensure operating parameters are being monitored and recorded per Attachment 1
<b>Standard:</b>	Refer to Attachment 1
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Parameters are being monitored by another operator</b>
	Step 5.4.6
<b>Performance Step: 9</b>	If the White Parallel Operation Light is not lit, momentarily place NE HS-5, NE01 Unit Parallel SW to the parallel position.
<b>Standard:</b>	Operator should determine WHITE parallel light is NOT lit by calling the EO at NE107. After determining white light not lit, places NE HS-5 to PARALLEL.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>When asked if WHITE Parallel Operation Light is lit on NE107, report that it is NOT lit.</b>

## PERFORMANCE INFORMATION

## Step 5.4.7

**Performance Step: 10**

Check the White Parallel Operation Light is lit on NE107.

**Standard:**

Operator should contact EO to verify the White Parallel Light is lit on NE107.

**Comment:****Evaluator's Cue:****The White Parallel Light is lit on NE107.**

## Step 5.4.8

**Performance Step: 11**

Verify Main Control board Annunciator 22B, Voltage Control Freeze is lit.

**Standard:**

Operator should verify Annunciator 22B, Voltage Control Freeze is lit.

**Comment:****Evaluator's Cue:****Annunciator 22B, Voltage Control Freeze is lit.**

## Step 5.4.9

**Performance Step: 12**

Verify EITHER Computer Point NBQ0003 indicates Capacitor Bank NB03 is in FREEZE OR Disconnect NB0301 is OPEN.

**Standard:**

Operator should verify NBQ0003 is in FREEZE or DISCONNECTED.

**Comment:****Evaluator's Cue:****Computer Point NBQ0003 indicates Capacitor Bank NB03 is in FREEZE mode.**

## PERFORMANCE INFORMATION

	Step 5.4.10
<b>Performance Step: 13</b>	Verify EITHER Computer Point NBX0001 indicates FREEZE or transformer XNB01 LTC is in MANUAL and set at the appropriate Tap Changer setting.
<b>Standard:</b>	Operator should verify XNB01 LTC is in MANUAL and Tap Setting 13 is selected OR Computer Point NBX0001 indicates FREEZE
<b>NOTE:</b>	<b>Given in Initial Conditions</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Annunciator 19D, XNB01 XFMR/VOLT CTRL TRBL is LIT AND Computer Point NBX0001 indicates FREEZE.</b>
	Step 5.4.11
<b>Performance Step: 14</b>	Periodically monitor and adjust voltage and frequency to maintain 4160 VAC and 60 HZ (nominal).
<b>Standard:</b>	Operator will adjust parameters as necessary
<b>Comment:</b>	
	Step 5.4.12
√ <b>Performance Step: 15</b>	Place the Sync Transfer Switch NE HS-27 in the ON position.
<b>Standard:</b>	Operator selects ON with Sync Transfer Switch NE HS-27.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE HS-27 is in the ON position.</b>

## PERFORMANCE INFORMATION

Step 5.4.13	
√ <b>Performance Step: 16</b>	Place the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker Position.
<b>Standard:</b>	Operator should place the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker Position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB HS-10 is selected to DG Feeder BKR Position. The Sync Scope is rotating in fast direction; Sync Lights NB ZL-9 are flashing.</b>
Step 5.4.14	
<b>Performance Step: 17</b>	Adjust the diesel generator speed using Governor Control, KJ HS-7A until the Synchroscope NB EI-3 is rotating slowly in the fact direction.
<b>Standard:</b>	Operator turns KJ HS-7A, DG NE01 GOV, to RAISE if speed is SLOW and to LOWER if speed FAST as indicated by 4.16 KV Bus NB01 Sync Scope, NB EI-13 on RL015 to satisfy Synch check Relay.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Synchroscope NB EI-3 is rotating slowly in the FAST direction.</b>
Step 5.4.15	
<b>Performance Step: 18</b>	Adjust NE01 voltage to be within +50, -0 volts of the NB01 Bus Voltage using the Auto Voltage Regulator NE HS-13A.
<b>Standard:</b>	Operator should adjust NE01 voltage to be within +50, -0 volts of the NB01 Bus Voltage using the Auto Voltage Regulator NE HS-13A.
<b>Comment:</b>	

## PERFORMANCE INFORMATION

	Step 5.4.15
<b>Performance Step: 19</b>	Determine NE01 voltage by placing the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker position and reading NB EI-28.
<b>Standard:</b>	Operator should place NB HS-10 in the D/G Feeder Breaker Position and read NB EI-28 to determine NE01 voltage.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE EI-28 voltage is 4190 volts when NB HS-10 is in the D/G Feeder Breaker Position.</b>
	Step 5.4.15
<b>Performance Step: 20</b>	Determine NB01 voltage by placing the Synchroscope Selector Switch NB HS-10 in the Main FDR BKR Position and reading the voltage from NB EI-28.
<b>Standard:</b>	Operator should determine NB01 voltage by placing NB HS-10 in the Main FDR BKR Position and reading voltage from NB EI-28.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB EI-28 voltage is 4160 when NB HS-10 is in the Main FDR BKR Position.</b>
	Step 5.4.16
√ <b>Performance Step: 21</b>	When NE01 voltage has been verified to be within +50, -0 volts of NB01 voltage, ensure the Synchroscope Selector Switch NB HS-10 is placed in the D/G Feeder Breaker Position.
<b>Standard:</b>	Operator should place NB HS-10 in the D/G Feeder Breaker Position.
<b>Comment:</b>	
	Step 5.4.17
<b>Performance Step: 22</b>	Verify proper operation of Sync Light NB ZL-9.
<b>Standard:</b>	Operator should verify proper operation of NB ZL-9.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Dimmest at 12 o'clock and brightest at 6 o'clock on Synch Scope NB EI-3</b>

## PERFORMANCE INFORMATION

## Step 5.4.18

**Performance Step: 23** Verify that the Diesel Generator to Bus Synchronizing Light NE ZL-27A illuminates when the Synchroscope is between the 11 o'clock and the 12 o'clock position.

**Standard:** Operator should verify that the Diesel Generator to Bus Synchronizing Light NE ZL-27A illuminates when the Synchroscope is between the 11 o'clock and the 12 o'clock position.

**Comment:**

**Evaluator's Cue:** NE ZL-27A is coming on at five (5) degrees before the 12 o'clock position and off at five (5) degrees after 12 o'clock.

## Step 5.4.19

**Performance Step: 24** Allow Synchroscope NB EI-3 to complete one revolution to verify proper speed for synchronization.

**Standard:** Operator should observe the Sync Scope for one complete revolutions and adjust the speed as necessary.

**Comment:**

**Evaluator's Cue:** Synchroscope is rotating in the FAST direction at about the speed of the second hand of a clock.

## Step 5.4.20

✓ **Performance Step: 25** When the Synchroscope reaches the 11 o'clock position turn NE HIS-25 to CLOSE and hold until Breaker NB0111 indicates CLOSED, then release the control switch.

**Standard:** When Sync Scope reaches the 11 o'clock position and Synch Check Permissive Light ON, CLOSE NB01 EMERG SPLY BKR NB0111 with Switch NE HIS-25 and hold until the RED light is ON and the GREEN light is OFF, then the operator should release the switch.

**Comment:**

**Evaluator's Cue:** NE HIS-25 RED light is ON and the GREEN light is OFF.

## PERFORMANCE INFORMATION

Step 5.4.21	
√ <b>Performance Step: 26</b>	Immediately upon closure of the D/G Breaker Pickup Load to at least 0.2 MW by operating the D/G Governor Control JK HS-7A in the RAISE direction if necessary.
<b>Standard:</b>	Operator should RAISE DG Load to prevent NB0111 Reverse Power Trip using KJ HS-7A.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>D/G Load is greater than 0.2 MW.</b>
Step 5.4.22	
<b>Performance Step: 27</b>	Adjust Diesel Generator Voltage with the Auto Voltage Regulator NE HS-13A to maintain a power factor of 0.9 LAG.
<b>Standard:</b>	Operator should adjust D/G VAR Loading using NE HS-13A, Auto Voltage Regulator.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Power factor is 0.9 LAG.</b>
Step 5.4.23	
<b>Performance Step: 28</b>	Return the Synchroscope Selector Switch NB HS-10 to the "OFF" position.
<b>Standard:</b>	Operator should return the Synchroscope Selector Switch NB HS-10 to the "OFF" position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB HS-10 is in "OFF".</b>
Step 5.4.24	
<b>Performance Step: 29</b>	Place Sync Transfer Switch NE HS-27 in the OFF position.
<b>Standard:</b>	Operator should place Sync Transfer Switch NE HS-27 in the OFF position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE HS-27 is in OFF.</b>

Step 5.4.25

**Performance Step: 30** Increase Diesel Generator Load as directed by the SS/OS.

**Standard:** The operator should increase Diesel Generator Load as directed by the Control Room Supervisor.

**NOTE:** Initial Conditions directed NE01 BE Loaded to > 2MW.

**Comment:**

**Evaluator's Cue:** If asked, report that 'it has been 5 minutes at current increment'

**Evaluator's Cue:** The Control Room Supervisor directs you to increase D/G Load to > two (2) MW.

√ **Performance Step: 31** Step 5.4.25  
Increase Diesel Generator Load, by placing KJ HS-7A in the RAISE position, to > two (2) MW.

**Standard:** Operator should go to RAISE on KJ HS-7A on RL015 to RAISE D/G Load to > two (2) MW.

**Comment:**

**Evaluator's Cue:** D/G Load is > two (2) MW.

**Performance Step: 32** Inform the Control Room Supervisor that NE01 is loaded > 2 MWe.

**Standard:** Operator should inform the Control Room Supervisor that NE01 is loaded > 2 Mwe.

**Comment:**

**Evaluator's Cue:** The Control Room Supervisor acknowledges.

**Terminating Cue:** When DG load is >2 MW, this JPM is complete.

**STOP TIME:** \_\_\_\_\_

Job Performance Measure No.: 2005 NRC JPM S7

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: The plant is operating in Mode 3. The "A" Emergency Diesel Generator has been started per OTN-NE-0001A, Section 5.3. NB01 is energized from its normal off-site power source. XNB01 LTC is in manual and Tap 13 is set for modes 1 through 4.

INITIATING CUE: You have been directed to parallel the "A" Diesel Generator to NB01 and load to at least 2 MW per OTN-NE-0001A, Section 5.4. Inform the Control Room Supervisor when NE01 is running loaded > 2 Mwe.

Facility: Callaway

Task No.:

Task Title: Paralleling Diesel Generator "A" To  
XNB01JPM No.: 2005 NRC JPM S7

K/A Reference: 064 A4.01 4.0 / 4.3

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:   X    
Classroom \_\_\_\_\_ Simulator   X   Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating in Mode 3. The "A" Emergency Diesel Generator has been started per OTN-NE-0001A, Section 5.3. NB01 is energized from its normal off-site power source. XNB01 LTC is in manual and Tap 13 is set for modes 1 through 4.

Task Standard: NE01 is connected to NB01 and is carrying at least 2 Mwe load.

Required Materials: None

General References: OTN-NE-0001A, Standby Diesel Generation System Train "A", Rev. 14

Initiating Cue: You have been directed to parallel the "A" Diesel Generator to NB01 and load to at least 2 MW per OTN-NE-0001A, Section 5.4. Inform the Control Room Supervisor when NE01 is running loaded > 2 Mwe.

Time Critical Task: NO

Validation Time: 15 minutes

**SIMULATOR SETUP**

## NOTES:

May be run with JPM S4

Ensure "A" Emergency Diesel Generator is running unloaded if performing on the simulator. Use remote NBHS0037 place in manual. Monitor NEPSLTC (1).

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-NE-0001A, Standby Diesel Generation System Train "A".

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 3

**Performance Step: 2** Review the Precautions and Limitations of OTN-NE-0001A.

**Standard:** Operator should read the Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Section 4

**Performance Step: 3** Review the Prerequisites of OTN-NE-0001A.

**Standard:** Operator should read the Initial Conditions.

**Comment:**

**Evaluator's Cue:** All prerequisites are satisfied.

## PERFORMANCE INFORMATION

## Step 5.4.1

**Performance Step: 4**

Ensure that the Local Master Transfer Switch KJHS0009 is in the AUTO position.

**Standard:**

Operator should verify absence of MCB ANN 20E and/or request Local Observation of Master Transfer Switch.

**Comment:****Evaluator's Cue:**

**The Local Master Transfer Switch KJHS0009 is in the AUTO position.**

## Step 5.4.2

**Performance Step: 5**

At RL015, Check NE-HIS-25, NB01 EMERG SUPPLY BREAKER NB0111, is OPEN.

**Standard:**

Green light for NE-HIS-25 is ON

**Comment:**

## Step 5.4.3

**Performance Step: 6**

Check NB-HIS-2, NB01 NORM SUPPLY BK R NB0112, is CLOSED

**Standard:**

Red light for NB-HIS-2 is ON

**Comment:**

## PERFORMANCE INFORMATION

	Step 5.4.4
<b>Performance Step: 7</b>	Check diesel generator voltage and frequency are stable in the following ranges: <ul style="list-style-type: none"><li>• 3740 to 4320 VAC indicated by NE EI-1, DG VOLTS</li><li>• 58.8 to 61.2 HZ indicated by NE ST-1, DG FREQ/SPD</li></ul>
<b>Standard:</b>	Determines that voltage is stable at approximately 4100 – 4200 VAC and frequency is stable at 60 HZ
<b>Comment:</b>	
	Step 5.4.5
<b>Performance Step: 8</b>	Ensure operating parameters are being monitored and recorded per Attachment 1
<b>Standard:</b>	Refer to Attachment 1
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Parameters are being monitored by another operator</b>
	Step 5.4.6
<b>Performance Step: 9</b>	If the White Parallel Operation Light is not lit, momentarily place NE HS-5, NE01 Unit Parallel SW to the parallel position.
<b>Standard:</b>	Operator should determine WHITE parallel light is NOT lit by calling the EO at NE107. After determining white light not lit, places NE HS-5 to PARALLEL.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>When asked if WHITE Parallel Operation Light is lit on NE107, report that it is NOT lit.</b>

## PERFORMANCE INFORMATION

## Step 5.4.7

**Performance Step: 10**

Check the White Parallel Operation Light is lit on NE107.

**Standard:**

Operator should contact EO to verify the White Parallel Light is lit on NE107.

**Comment:****Evaluator's Cue:**

**The White Parallel Light is lit on NE107.**

## Step 5.4.8

**Performance Step: 11**

Verify Main Control board Annunciator 22B, Voltage Control Freeze is lit.

**Standard:**

Operator should verify Annunciator 22B, Voltage Control Freeze is lit.

**Comment:****Evaluator's Cue:**

**Annunciator 22B, Voltage Control Freeze is lit.**

## Step 5.4.9

**Performance Step: 12**

Verify EITHER Computer Point NBQ0003 indicates Capacitor Bank NB03 is in FREEZE OR Disconnect NB0301 is OPEN.

**Standard:**

Operator should verify NBQ0003 is in FREEZE or DISCONNECTED.

**Comment:****Evaluator's Cue:**

**Computer Point NBQ0003 indicates Capacitor Bank NB03 is in FREEZE mode.**

## PERFORMANCE INFORMATION

	Step 5.4.10
<b>Performance Step: 13</b>	Verify EITHER Computer Point NBX0001 indicates FREEZE or transformer XNB01 LTC is in MANUAL and set at the appropriate Tap Changer setting.
<b>Standard:</b>	Operator should verify XNB01 LTC is in MANUAL and Tap Setting 13 is selected OR Computer Point NBX0001 indicates FREEZE
<b>NOTE:</b>	<b>Given in Initial Conditions</b>
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Annunciator 19D, XNB01 XFMR/VOLT CTRL TRBL is LIT AND Computer Point NBX0001 indicates FREEZE.</b>
	Step 5.4.11
<b>Performance Step: 14</b>	Periodically monitor and adjust voltage and frequency to maintain 4160 VAC and 60 HZ (nominal).
<b>Standard:</b>	Operator will adjust parameters as necessary
<b>Comment:</b>	
	Step 5.4.12
√ <b>Performance Step: 15</b>	Place the Sync Transfer Switch NE HS-27 in the ON position.
<b>Standard:</b>	Operator selects ON with Sync Transfer Switch NE HS-27.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE HS-27 is in the ON position.</b>

## PERFORMANCE INFORMATION

Step 5.4.13	
√ <b>Performance Step: 16</b>	Place the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker Position.
<b>Standard:</b>	Operator should place the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker Position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB HS-10 is selected to DG Feeder BKR Position. The Sync Scope is rotating in fast direction; Sync Lights NB ZL-9 are flashing.</b>
Step 5.4.14	
<b>Performance Step: 17</b>	Adjust the diesel generator speed using Governor Control, KJ HS-7A until the Synchroscope NB EI-3 is rotating slowly in the fact direction.
<b>Standard:</b>	Operator turns KJ HS-7A, DG NE01 GOV, to RAISE if speed is SLOW and to LOWER if speed FAST as indicated by 4.16 KV Bus NB01 Sync Scope, NB EI-13 on RL015 to satisfy Synch check Relay.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Synchroscope NB EI-3 is rotating slowly in the FAST direction.</b>
Step 5.4.15	
<b>Performance Step: 18</b>	Adjust NE01 voltage to be within +50, -0 volts of the NB01 Bus Voltage using the Auto Voltage Regulator NE HS-13A.
<b>Standard:</b>	Operator should adjust NE01 voltage to be within +50, -0 volts of the NB01 Bus Voltage using the Auto Voltage Regulator NE HS-13A.
<b>Comment:</b>	

## PERFORMANCE INFORMATION

	Step 5.4.15
<b>Performance Step: 19</b>	Determine NE01 voltage by placing the Synchroscope Selector Switch NB HS-10 in the D/G Feeder Breaker position and reading NB EI-28.
<b>Standard:</b>	Operator should place NB HS-10 in the D/G Feeder Breaker Position and read NB EI-28 to determine NE01 voltage.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE EI-28 voltage is 4190 volts when NB HS-10 is in the D/G Feeder Breaker Position.</b>
	Step 5.4.15
<b>Performance Step: 20</b>	Determine NB01 voltage by placing the Synchroscope Selector Switch NB HS-10 in the Main FDR BKR Position and reading the voltage from NB EI-28.
<b>Standard:</b>	Operator should determine NB01 voltage by placing NB HS-10 in the Main FDR BKR Position and reading voltage from NB EI-28.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB EI-28 voltage is 4160 when NB HS-10 is in the Main FDR BKR Position.</b>
	Step 5.4.16
√ <b>Performance Step: 21</b>	When NE01 voltage has been verified to be within +50, -0 volts of NB01 voltage, ensure the Synchroscope Selector Switch NB HS-10 is placed in the D/G Feeder Breaker Position.
<b>Standard:</b>	Operator should place NB HS-10 in the D/G Feeder Breaker Position.
<b>Comment:</b>	
	Step 5.4.17
<b>Performance Step: 22</b>	Verify proper operation of Sync Light NB ZL-9.
<b>Standard:</b>	Operator should verify proper operation of NB ZL-9.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Dimmest at 12 o'clock and brightest at 6 o'clock on Synch Scope NB EI-3</b>

## PERFORMANCE INFORMATION

## Step 5.4.18

**Performance Step: 23** Verify that the Diesel Generator to Bus Synchronizing Light NE ZL-27A illuminates when the Synchroscope is between the 11 o'clock and the 12 o'clock position.

**Standard:** Operator should verify that the Diesel Generator to Bus Synchronizing Light NE ZL-27A illuminates when the Synchroscope is between the 11 o'clock and the 12 o'clock position.

**Comment:**

**Evaluator's Cue:** NE ZL-27A is coming on at five (5) degrees before the 12 o'clock position and off at five (5) degrees after 12 o'clock.

## Step 5.4.19

**Performance Step: 24** Allow Synchroscope NB EI-3 to complete one revolution to verify proper speed for synchronization.

**Standard:** Operator should observe the Sync Scope for one complete revolutions and adjust the speed as necessary.

**Comment:**

**Evaluator's Cue:** Synchroscope is rotating in the FAST direction at about the speed of the second hand of a clock.

## Step 5.4.20

√ **Performance Step: 25** When the Synchroscope reaches the 11 o'clock position turn NE HIS-25 to CLOSE and hold until Breaker NB0111 indicates CLOSED, then release the control switch.

**Standard:** When Sync Scope reaches the 11 o'clock position and Synch Check Permissive Light ON, CLOSE NB01 EMERG SPLY BKR NB0111 with Switch NE HIS-25 and hold until the RED light is ON and the GREEN light is OFF, then the operator should release the switch.

**Comment:**

**Evaluator's Cue:** NE HIS-25 RED light is ON and the GREEN light is OFF.

## PERFORMANCE INFORMATION

Step 5.4.21	
√ <b>Performance Step: 26</b>	Immediately upon closure of the D/G Breaker Pickup Load to at least 0.2 MW by operating the D/G Governor Control JK HS-7A in the RAISE direction if necessary.
<b>Standard:</b>	Operator should RAISE DG Load to prevent NB0111 Reverse Power Trip using KJ HS-7A.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>D/G Load is greater than 0.2 MW.</b>
Step 5.4.22	
<b>Performance Step: 27</b>	Adjust Diesel Generator Voltage with the Auto Voltage Regulator NE HS-13A to maintain a power factor of 0.9 LAG.
<b>Standard:</b>	Operator should adjust D/G VAR Loading using NE HS-13A, Auto Voltage Regulator.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>Power factor is 0.9 LAG.</b>
Step 5.4.23	
<b>Performance Step: 28</b>	Return the Synchroscope Selector Switch NB HS-10 to the "OFF" position.
<b>Standard:</b>	Operator should return the Synchroscope Selector Switch NB HS-10 to the "OFF" position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NB HS-10 is in "OFF".</b>
Step 5.4.24	
<b>Performance Step: 29</b>	Place Sync Transfer Switch NE HS-27 in the OFF position.
<b>Standard:</b>	Operator should place Sync Transfer Switch NE HS-27 in the OFF position.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NE HS-27 is in OFF.</b>

Step 5.4.25

**Performance Step: 30** Increase Diesel Generator Load as directed by the SS/OS.**Standard:** The operator should increase Diesel Generator Load as directed by the Control Room Supervisor.**NOTE:** Initial Conditions directed NE01 BE Loaded to > 2MW.**Comment:****Evaluator's Cue:** If asked, report that 'it has been 5 minutes at current increment'**Evaluator's Cue:** The Control Room Supervisor directs you to increase D/G Load to > two (2) MW.

Step 5.4.25

√ **Performance Step: 31** Increase Diesel Generator Load, by placing KJ HS-7A in the RAISE position, to > two (2) MW.**Standard:** Operator should go to RAISE on KJ HS-7A on RL015 to RAISE D/G Load to > two (2) MW.**Comment:****Evaluator's Cue:** D/G Load is > two (2) MW.**Performance Step: 32** Inform the Control Room Supervisor that NE01 is loaded > 2 MWe.**Standard:** Operator should inform the Control Room Supervisor that NE01 is loaded > 2 Mwe.**Comment:****Evaluator's Cue:** The Control Room Supervisor acknowledges.**Terminating Cue:** When DG load is >2 MW, this JPM is complete.**STOP TIME:** \_\_\_\_\_

Job Performance Measure No.: 2005 NRC JPM S7

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: The plant is operating in Mode 3. The "A" Emergency Diesel Generator has been started per OTN-NE-0001A, Section 5.3. NB01 is energized from its normal off-site power source. XNB01 LTC is in manual and Tap 13 is set for modes 1 through 4.

INITIATING CUE: You have been directed to parallel the "A" Diesel Generator to NB01 and load to at least 2 MW per OTN-NE-0001A, Section 5.4. Inform the Control Room Supervisor when NE01 is running loaded > 2 Mwe.

Facility: Callaway Task No.:

Task Title: Reinitiate CTMT Purge Following CPIS JPM No.: 2005 NRC JPM S8

K/A Reference: 013 A2.06 3.7 / 4.0

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X  
Classroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: Callaway Plant is in Mode 1. A containment mini purge was in progress to prepare for a containment entry. One hour ago, a CPIS/CRVIS occurred due to a spike on GTRE0022. Repairs have been made to GTRE0022 and it is now operable. Outside air temperature is expected to remain > 50°F.

Task Standard: Upon completion of this JPM, the operator will have reset CPIS and re-established containment mini purge.

Required Materials: Copy of Gaseous Radwaste Release Permit  
Covers installed on the ESFAS Switches for GTRE0022 and GTRE0033

General References: OTN-GT-00001, Containment Purge System, Revision 20  
CAR 199301739, 199400025, 199501723, 199700736

Initiating Cue: The Control Room Supervisor has directed you to re-initiate the containment mini purge per OTN-GT-00001, Section 5.6. The Control Room Supervisor has decided to not realign the control building HVAC at this time. The SS has authorized reinitiating CTMT mini purge. Inform the Control Room Supervisor when the mini purge has been re-initiated.

Time Critical Task: NO

Validation Time: 22 minutes

**SIMULATOR SETUP**

Reset to IC – 68 (May be run with S5)

NOTES:                      Manually initiate a CPIS and CRVIS (both trains).

*(Denote Critical Steps with a check mark)*

**START TIME:** \_\_\_\_\_

**Performance Step: 1** Obtain a verified working copy of OTN-GT-00001, Containment Purge System.

**Standard:** Operator should obtain procedure copy.

**Comment:**

Section 3

**Performance Step: 2** Review Precautions and Limitations of OTN-GT-00001.

**Standard:** Operator should review Precautions and Limitations.

**Comment:**

**Evaluator's Cue:** All Precautions and Limitations are satisfied.

Section 4

**Performance Step: 3** Review Prerequisites of OTN-GT-00001.

**Standard:** Operator should review Prerequisites.

**Comment:**

**Evaluator's Cue:** All Prerequisites are satisfied.

Step 5.6.1

**Performance Step: 4** The purge may be reinitiated w/out terminating the release permit provided the time between stopping and restarting the release does not exceed two hours.

**Standard:** Operator should realize purge was only secured for one hour and SS has given permission to reinitiate purge.

**Comment:**

## PERFORMANCE INFORMATION

	Step 5.6.2
<b>Performance Step: 5</b>	Have the Count Room Technician verify alarm/trip setpoints for GT-RE-21B, GT-RE-22, and GT-RE-33 are correct per the release permit.
<b>Standard:</b>	Operator should contact the Count Room Technician to verify setpoint for GT-RE-21, 22 and 33 are correct per the release permit.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>The Count Room Technician has verified setpoints correct per the release permit.</b>
	Step 5.6.3
<b>Performance Step: 6</b>	If monitor readings are $\geq$ the hihi alarm setpoint, close the permit, resample, and generate a new permit.
<b>Standard:</b>	Operator should use the RM11 console to determine the color of channels 211, 212, 221, 222, 223, 331, 332, and 333 are NOT lit RED.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>RM 11 channels 211, 212, 221, 222, 223, 331, 332, and 333 are lit GREEN.</b>
	Step 5.6.4
<b>Performance Step: 7</b>	Check SA036D and SA036E. If any bistable trip lights are lit, record on the URO Log and reset the bistable by depressing and then releasing the bistable trip light.
<b>Standard:</b>	Operator should go to the SA036D and SA036E panel in the back of the Control Room and verify NO bistable lights lit.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>NO bistable lights are lit on SA036D and SA036E.</b>

## PERFORMANCE INFORMATION

Step 5.6.5  
**Performance Step: 8** If required, with SS/CRS permission, reset the following:  
**Standard:**

**Comment:**

**Evaluator's Note:** The SS has authorized resetting switches.

√ **Performance Step: 9** Step 5.6.6  
Reset CPIS by depressing SA HS-15, CTMT purge Train B ISO on RL018.

**NOTE:** Steps 9 through 12 may be performed in any order.

**Standard:** Operator should depress the reset button on SA HS-15, CTMT Purge Train B ISO on RL018.

**Comment:**

**Evaluator's Note:** The reset button on SA HS-15 has been depressed.

**Performance Step: 10** Step 5.6.6  
Reset CRVIS by depressing SA HS-13, Ctrl Bldg Vent Train B ISO.

**NOTE:** Steps 9 through 12 may be performed in any order.

**Standard:** Operator should depress the reset button on SA HS-13, Ctrl Bldg Vent Train B ISO on RL018.

**Comment:**

**Evaluator's Note:** The reset button on SA HS-13 has been depressed.

## PERFORMANCE INFORMATION

- √ **Performance Step: 11** Step 5.6.5  
Reset CPIS by depressing SA HS-11, CTMT Purge Train A ISO on RL018.

**NOTE:** Steps 9 through 12 may be performed in any order.

**Standard:** Operator should depress the reset button on SA HS-11, CTMT Purge Train A ISO on RL018.

**Comment:**

**Evaluator's Cue:** The reset button on SA HS-11 has been depressed.

- Performance Step: 12** Step 5.6.5  
Reset CRVIS by depressing SA HS-9, Ctrl Bldg Vent Train A ISO on RL018.

**NOTE:** Steps 9 through 12 may be performed in any order.

**Standard:** Operator should depress the reset button on SA HS-9, Ctrl Bldg Vent Train A ISO on RL018.

**Comment:**

**Evaluator's Cue:** The reset button on SA HS-9 has been depressed.

- Performance Step: 13** Step 5.6.7  
Ensure CPIS and CRVIS lights OUT on ESFAS status panels; if required use SA HS-24 and/or SA HS-23, ESF panel mode SEL switches, to reset.

**Standard:** Operator should ensure CPIS and CRVIS lights OUT on ESFAS status panels.

**Comment:**

**Evaluator's Cue:** CPIS and CRVIS lights on ESFAS status panel are OUT.

## PERFORMANCE INFORMATION

Step 5.6.8

**Performance Step: 14** Ensure MCB annunciators 59D (CPIS) and 63A (CRVIS) are clear.

**Standard:** Operator should verify MCB annunciators 59D and 63A are clear.

**Comment:**

**Evaluator's Cue:** **MCB annunciators 59D and 63A are clear.**

Step 5.6.9

**Performance Step: 15** If required, realign the Control Building HVAC per OTN-GK-00001.

**Standard:** The operator should continue with Step 5.6.10 and not align Control Building HVAC at this time.

**Given in Initial Conditions.**

**Comment:**

**Evaluator's Cue:** **The O.S. has determined to align mini-purge prior to realigning the Control Building HVAC.**

Step 5.6.10

**Performance Step: 16** Reinitiate Mini-Purge per Section 5.2 of this procedure.

**Standard:** Operator should go to Section 5.2.

**Comment:**

Section 5.2.1

**Performance Step: 17** Ensure Shutdown Purge is not in service.

**Standard:** Operator should verify Shutdown Purge is not in service.

**Comment:**

**Evaluator's Cue:** **Shutdown Purge is not in service.**

## PERFORMANCE INFORMATION

## Step 5.2.2

**Performance Step: 18** Monitor or trend SD-RE-41, SD-RE-42, and GT-PDI-040.

**Standard:** Operator monitor or trend SD-RE-41, SD-RE-42, and GT-PD-040. Operator may use time trend “minivent”.

**Comment:**

**Evaluator’s Cue:** SD-RE-41, SD-RE-42, and GT-PD-040 are all stable.

## Step 5.2.3

**Performance Step: 19** Record containment pressure, using GTPDI0040 or GTD0040, on the Gaseous Radwaste Permit.

**Standard:** Operator should record containment pressure GTPDI0040 or GTD0040, on the Gaseous Radwaste Permit.

**Comment:**

**Evaluator’s Cue:** **Containment pressure has been recorded.**

## Step 5.2.4

**Performance Step: 20** Ensure that GTRE0022 and GTRE0033 are not in bypass, and ensure the “CTMT Purge In Prog – Do Not Bypass” cover over the ESFAS switches for GTRE0022 and GTRE0033.

**Standard:** Operator should verify GTRE0022 and GTRE0033 are not in bypass and covers have been placed over GTRE0022 and GTRE0033 ESFAS Switches.

**Comment:**

**Evaluator’s Cue:** **GTRE022 and GTRE0033 are not in bypass.**

**Covers have been placed over GTRE0022 and GTRE0033 ESFAS Switches.**

## PERFORMANCE INFORMATION

- Step 5.2.6
- √ **Performance Step: 22** Start CGT02 Containment Mini Purge Exhaust Fan using GT HIS-20.
- Standard:** Operator should select RUN on GT HIS-20, CTMT Mini Purge Exh Fan.
- Comment:**
- Evaluator's Cue:** **GT HIS-20 RED lights illuminate and GREEN lights extinguish.**
- Step 5.2.7
- √ **Performance Step: 23** Open GTHZ0011 using GT HIS-11.
- NOTE:** **Steps 23 – 26 may be accomplished in any order.**
- Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-11.
- Comment:**
- Evaluator's Cue:** **GT HIS-11 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.**
- Step 5.2.8
- √ **Performance Step: 24** Open GTHZ0012 using GT HIS-12.
- NOTE:** **Steps 23 – 26 may be accomplished in any order.**
- Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-12.
- Comment:**
- Evaluator's Cue:** **GT HIS-12 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.**

## PERFORMANCE INFORMATION

Step 5.2.9	
√ <b>Performance Step: 25</b>	Open GTHZ0028 using GT HIS-28.
<b>NOTE:</b>	<b>Steps 23 – 26 may be accomplished in any order.</b>
<b>Standard:</b>	Operator should depress and hold the OPEN pushbutton for GT HIS-28.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GT HIS-28 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.</b>
Step 5.2.10	
√ <b>Performance Step: 26</b>	Open GTHZ0029 using GT HIS-29.
<b>NOTE:</b>	<b>Steps 23 – 26 may be accomplished in any order.</b>
<b>Standard:</b>	Operator should depress and hold the OPEN pushbutton for GT HIS-29.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>GT HIS-29 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.</b>
Step 5.2.11	
<b>Performance Step: 27</b>	Record the date and time the CTMT Purge Exhaust and Mini Purge Exhaust Dampers are opened on the Gaseous Radwaste Release Permit.
<b>Standard:</b>	Operator should record the date and time the CTMT Purge Exhaust and Mini Purge Exhaust Dampers are opened on the Gaseous Radwaste Release Permit.
<b>Comment:</b>	
<b>Evaluator's Cue:</b>	<b>The Gaseous Radwaste Release Permit has been updated.</b>

PERFORMANCE INFORMATION

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## Step 5.2.12

**Performance Step: 28**

Inform Count Room Technician when purge initiated.

**Standard:**

Operator should notify the Count Room Technician of the time the purge was initiated.

**Comment:****Evaluator's Cue:****Count Room Technician acknowledges.**

## Step 5.2.13

√ **Performance Step: 29**

When CTMT pressure is less than 10" WG, OPEN GTHZ0041 and GTHZ0042 using GT HIS-41.

**Standard:**

Operator should depress and hold the OPEN pushbutton on GT HIS-41 when CTMT pressure is less than 10" WG.

**Comment:****Evaluator's Cue:****CTMT pressure is less than 10" WG.****GT HIS-41 RED light illuminates and five (5) seconds later, the GREEN light extinguishes.**

## PERFORMANCE INFORMATION

- Step 5.2.14
- √ **Performance Step: 31** When CTMT pressure is less than 4.25" WG, OPEN GTHZ0026 using GT HIS-26.

**NOTE:** Steps 31 and 32 may be performed in any order.

**Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-26 when CTMT pressure is less than 4.25" WG.

**Comment:**

**Evaluator's Cue:** CTMT pressure is now 2.5" WG.  
GT HIS-26 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.

- Step 5.2.14
- √ **Performance Step: 32** When CTMT pressure is less than 4.25" WG, OPEN GTHZ0027 using GT HIS-27.

**NOTE:** Steps 31 and 32 may be performed in any order.

**Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-27 when CTMT pressure is less than 4.25" WG.

**Comment:**

**Evaluator's Cue:** CTMT pressure is now 2.5" WG.  
GT HIS-27 RED light illuminates and three (3) seconds later, the GREEN light extinguishes.

- Step 5.2.15
- √ **Performance Step: 33** Start SGT02, CTMT Mini Purge Air Supply Unit with GT HIS-23.
- Standard:** Operator should select RUN on GT HIS-23.

**Comment:**

**Evaluator's Cue:** GT HIS-23 RED light illuminates and the GREEN light extinguishes.

## PERFORMANCE INFORMATION

- Step 5.2.16
- ✓ **Performance Step: 34** OPEN GTHZ0005 using GT HIS-5.
- NOTE:** Steps 34 and 35 may be performed in any order.
- Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-5.
- Comment:**
- Evaluator's Cue:** GT HIS-5 RED light illuminates and two (2) seconds later, the GREEN light extinguishes.
- 5.2.17
- ✓ **Performance Step: 35** OPEN GTHZ0004 using GT HIS-4.
- NOTE:** Steps 34 and 35 may be performed in any order.
- Standard:** Operator should depress and hold the OPEN pushbutton for GT HIS-4.
- Comment:**
- Evaluator's Cue:** GT HIS-4 RED light illuminates and two (2) seconds later, the GREEN light extinguishes.
- Performance Step: 36** Inform the Control Room Supervisor that CTMT Mini Purge has been reinitiated.
- Standard:** Operator should inform the Control Room Supervisor that Mini Purge has been reinitiated.
- Comment:**
- Evaluator's Cue:** Control Room Supervisor acknowledges.
- Terminating Cue:** When Mini-Purge is reinitiated, this JPM is complete.

**STOP TIME:** \_\_\_\_\_

Job Performance Measure No.: 2005 NRC JPM S8

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: Callaway Plant is in Mode 1. A containment mini purge was in progress to prepare for a containment entry. One hour ago, a CPIS/CRVIS occurred due to a spike on GTRE0022. Repairs have been made to GTRE0022 and it is now operable. Outside air temperature is expected to remain > 50°F.

INITIATING CUE: The Control Room Supervisor has directed you to re-initiate the containment mini purge per OTN-GT-00001, Section 4.7. The Control Room Supervisor has decided to not realign the control building HVAC at this time. The SS has authorized reinitiating CTMT mini purge. Inform the Control Room Supervisor when the mini purge has been re-initiated.