SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: NRC SCENARIO 1

SCENARIO NUMBER: ESG-NRC-S1

EFFECTIVE DATE: Effective when approved.

EXPECTED DURATION: 80 minutes

REVISION NUMBER: 02

PROGRAM:

[ ] L.O. REQUAL

[X] INITIAL LICENSE

[ ] OTHER _____

REVISION SUMMARY:

1. Added MSL RMS Channel A failure for CRS TS entry.
2. Added MALF AN-D3E3 CRYWOLF ANN D3E3 120VAC UPS TROUBLE from validation comments
3. Modified PC06 to ramp leak from 10 to 50% over 8 minutes from validation comments. This is consistent with ESG-005 rates.
4. Validation time 80 minutes.

PREPARED BY: Archie E. Faulkner — 12/5/2008
Instructor — DATE

APPROVED BY: Mark W Carrish — 12/11/08
Operations Training Manager or Designee — DATE

APPROVED BY: _____ — 12/11/8
Operations Director or Designee — DATE

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APPROVED BY:	**Operations Training Manager or Designee**	**DATE**
APPROVED BY:	***Operations Director or Designee***	**DATE**

I. OBJECTIVE(S):

Enabling Objectives

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Raise Reactor Power with Control Rods
B. Inerting the Containment
C. Stuck Control Rod
D. Main Steam Line RMS failure
E. Loss of 1AD482 inverter
F. Steam leak in the steam tunnel
G. Small break LOCA/
H. RHR pump room flooding/ (Failure to isolate)
I. Emergency Depressurization/ SRV Failure to open

III. SCENARIO SUMMARY:

The scenario starts with the plant at approximately 4% power at rated pressure. The crew will withdraw Control Rods to 8% power in preparation to place the reactor Mode Switch to Run. The crew will commence inerting the drywell. During the rod withdrawal, a rod will stick. The crew's efforts to unstick the rod will be successful. After the reactivity manipulation and containment inerting are complete, "A" Main Steam Line Rad Monitor will fail upscale resulting in a Tech Spec entry. The 1A-D-482 inverter will develop a fault resulting in TACS isolation requiring restoration, and loss of various indications. Once TACS has been restored, the plant will develop a steam leak in the steam tunnel requiring the unit to be shutdown and the crew to close the Main Steam Isolation Valves.

A LOCA will develop after closing the MSIVs. When RHR Pump D is started, a Suppression Pool leak develops on the suction piping to the pump. Attempts to isolate the leak and to makeup will be unsuccessful, requiring an Emergency Depressurization of the RPV **(Critical Task)**. An SRV will fail to open when required and the crew will be required to open an additional SRV **(Critical Task)**. The scenario will be terminated when the reactor is depressurized and level is above – 185 inches.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to IC-94; 4% power, MOC. Pull step 259
	INSERT control rods through step 234.
	DEINERT containment to >4% O2. Secure lineup, but leave H2O2 analyzers in service.
	ENSURE lineup to inert containment is up to 5.1.8 of HC.OP-SO.GS-0001.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	INITIAL IO.ZZ-0003 Section 5.3 up to and including step 5.3.39.
	INITIAL SO.GS-0001 Section 5.1 up to and including step 5.1.8.
	MARKUP OP-HC-103-105 Forms 1 and 2 to support inerting containment.
	ENSURE Data Collection is trending the following parameters:
	• Reactor power
	• W/R Reactor Water Level
	• W/R Reactor Pressure
	• Fuel Zone RPV Level
	COMPLETE the Simulator Ready for Training/Examination Checklist.
	PRE-BRIEF the crew for the power change and Containment Inerting

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION:	LCPNEP01 >= 300
		COMMAND:	DMF CD033843
		PURPOSE:	Deletes malfunction when drive pressure is 300 psig
	5	EVENT ACTION:	ZLMS20A
		COMMAND:	
		PURPOSE:	CLOSED light for A MSIV
	6	EVENT ACTION:	ZLRHPMR(4)
		COMMAND:	IMF RH07D
		PURPOSE:	Inserts flooding malfunction when RHR D pump is running
	7	EVENT ACTION:	ZDRHF0C(20)
		COMMAND:	
		PURPOSE:	HV-F004D Switch to CLOSE
	9	EVENT ACTION:	ZDCWZPDM >= 1.0
		COMMAND:	
		PURPOSE:	D SACS Pump MAN PB
	10	EVENT ACTION:	ZDCWZPDA >= 1.0
		COMMAND:	DMF CW15D
		PURPOSE:	D SACS Pump AUTO PB
	11	EVENT ACTION:	ZDCWZPDS >= 1.0
		COMMAND:	
		PURPOSE:	D SACS Pump START PB
		EVENT ACTION:	
		COMMAND:	
		PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CD033843 Control Rod 38-43 stuck	---	---	None	---	---
	AD02EC ADS/Relief valve F013E sticks closed	---	---	None	---	---
	RM9509 Main Steam Line Channel A Radiation Monitor fails upscale	---	---	ET-2	---	9980000
	ED09A2 Loss of 120VAC Class 1E Instr bus 1AD482	1	---	ET-3	---	---
	AN-D3E3 CRYWOLF ANN D3E3 120VAC UPS TROUBLE	1	---	ET-3	---	---
	CW15D D SACS Pump Process Auto Start Fail	---	---	ET-3	---	---
	MS04A Steam line A leak in tunnel	---	600	ET-4	---	100
	RR31A2 Recirc Loop A large break	300	300	ET-5	---	3
	RR31B2 Recirc loop B large break	300	300	ET-5	---	3
	RH07D RHR leak via pump D suction	---	---	ET-6	---	---
	PC06 Suppression Pool Break	---	8:00	ET-6	10%	50%

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	RH21D HV-F004 RHR pump D suction valve	---	---	ET-7	---	TAGGED

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A31 C OVLO DP210 MAN-LOOP B Pumps-Pump	---	---	ET-9	OFF	ON
	5A31 D OVLO DP210 AUTO-LOOP B PUMPS-Pump	---	---	ET-9	OFF	OFF

Event / Instructor Activity	Expected Plant/Student Response	Comments
Raise Reactor Power with Control Rods: After the Crew assumes the watch.	• CRS directs the RO to raise Reactor power with Control Rods in accordance with RE guidance.	
NOTE: LPRM downscale alarms can be expected. As RE, inform crew alarms are expected for this rod pattern.	• RO withdraws Control Rods in accordance with HC.OP-SO.SF-0001 and CRS directions. ⇒ Selected rod PB comes ON (bright white). ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C). ⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
NOTE: Operator may single notch withdraw the rods, as necessary, in which case the CONTINUOUS WITHDRAW PB is NOT used.	• At the ROD SELECT MODULE, simultaneously press and hold both the WITHDRAW PB AND the CONTINUOUS WITHDRAW PB and observe the following: ⇒ The INSERT (white) light comes ON momentarily. ⇒ The WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON. ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement. • Prior to reaching the desired control rod position, simultaneously release both the WITHDRAW PB and the CONTINUOUS WITHDRAW PB and **OBSERVE** the following: ⇒ The WITHDRAW (white) light goes OUT.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ The SETTLE (white) light comes ON for ≈ 6 seconds, then goes out. ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position. ⇒ At position 48 the applicable Full Core Display FULL OUT (red) light comes on. • Perform a control rod coupling integrity check IAW HC.OP-ST.BF-0001. • Perform the following while giving the selected Control Rod a continuous withdraw signal: ⇒ Observe the following as indication of the Control Rod being coupled: 1. ROD OVERTRAVEL alarm does NOT annunciate. 2. Red Full Out light illuminates on the Full Core Display. 3. RPIS indicates the Control Rod is full out (48). 4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod. • Indicates the completion of the movement on the Pull Listing.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Stuck Control Rod 38-43: Preinserted.	• RO determines that Control Rod 38-43 is stuck by observing no change in Rod motion on the 4 Rod Display or the RWM and informs the CRS. • CRS directs actions in accordance with HC.OP-AB.IC-0001: ⇒ Condition I.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO performs actions in accordance with CRS directions: ⇒ Verifies no Rod Blocks are present.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
NOTE: Crew may request RE guidance. Respond that a withdraw signal then an insert signal may be attempted.	⇒ Attempts to operate the drive in both directions to determine the exact condition of the Control Rod. ⇒ Verifies drive water flow fluctuates normally. ⇒ Verifies proper operation of the SETTLE, INSERT, AND WITHDRAW lights.	
ENSURE ET-1 triggers when drive water pressure dp >300 psid. This deletes stuck rod malfunction.	• Performs the following: ⇒ Raises the drive water pressure in approximately 50 psid increments, not to exceed 500 psid. ⇒ Attempts to notch in OR notch out the Control Rod at the new pressure increment. • RO observes Rod Movement as indicated on the 4 Rod Display or RWM, and notifies the CRS. • RO returns the drive water pressure to the normal operating range (260-270 psid on A3015).	
Inerting the Containment: After the Crew assumes the watch.	• CRS directs the PO to inert the containment in accordance with HC.OP-SO.GS-0001 starting at 5.1.8.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO commences inerting the containment in accordance with CRS directions by: • Opening the following valves: ⇒ HV-4978 ⇒ HV-5035 ⇒ P-KH-V9973, Liquid N2 To Vaporizer (local) ⇒ GU-HD-9372A ⇒ HV-4958 ⇒ HV-4952 ⇒ HV-4950 ⇒ Establishes communications between the Main Control Room AND an operator stationed at TI-3955. ⇒ Log start time on Gaseous Effluent Release Permit ⇒ Presses the FV-4971 ON push-button. ⇒ Presses the FIC-4971, N2 FLOW, AUTO push-button. • Intermittently presses FIC-4971 N_2 RAISE SETPOINT PB to attain the desired nitrogen flow rate as indicated on FR-4971-1, N_2 FLOW (up to 150,000 scfh). • Intermittently OPEN one of the PSV-4946A (B,C,D,E,F,G,H), Torus to Drywell Vacuum Breakers, using the TEST OPEN push-button approximately every 15 minutes.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐ OP BARRIERS ☐
Main Steam Line RMS "A" Fails Upscale: **TRIGGER ET-2** when Control Rods have been withdrawn, containment inerting is in progress, or at the Lead Examiner's discretion.	• Crew recognizes MSL RMS Channel failure by: ⇒ OHA C6-A3 "MN STM LINE RADIATION HI" ⇒ RM11 9RX511 High alarm ⇒ Other channels reading normally. • CRIDS Page 37 MSL Radiation readings.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS reviews AB.RPV-0008: ⇒ Condition A ⇒ Condition B ⇒ Condition C and finds them not applicable. • CRS recognize Tech Specs action ⇒ 3.3.2 action b.1) c) applies. • CRS contacts Maintenance to troubleshoot and repair the MSL RMS channel.	
Loss of 1AD482 Inverter: **TRIGGER ET-3** when Control Rods have been withdrawn, containment inerting is in progress, or at the Lead Examiner's discretion. **NOTE:** HC.OP-AB.ZZ-0001 may be referenced also for the transfer of TACS. **WHEN** operator starts D SACS Pump, **THEN DELETE Overrides 5A31C** and **5A31 D**.	• Crew identifies and communicates the loss of TACS to the CRS. • RO/PO informs CRS that RPV power, level and pressure are stable. • CRS orders TACS placed on the B SACS loop IAW HC.OP-AB.COOL-0002: ⇒ Condition B. • PO performs HC.OP-AB-COOL-0002 as directed by the CRS • PO ensures the standby SACS pump starts. • Ensures BOTH pairs of TACS supply and return valves on the Standby loop open to supply TACS. (HV-2522/2496) • Ensures ALL TACS supply AND return valves on the loop that WAS supplying TACS are CLOSED. (HV-2522/2496)	***HPI USED:*** STAR ☐ OP BARRIERS ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Determines that the HV-2522E and HV-2522F are closed THEN re-opens them as follows: ⇒ Verifies no large break has occurred in TACS by observing SACS expansion tank levels. ⇒ Determines that no large break in TACS has occurred, *then simultaneously presses* and holds the HV-2522E and/or HV-2522F OPEN PB's until the valves indicate open.	
WHEN dispatched to the 1A-D-482 as an operator, **THEN REPORT** the inverter output breaker CB10 is open, the AC Reg Output breaker CB302 is open and the Static Switch cabinet is de-energized.	• Crew identifies the loss of the 1AD482 inverter ⇒ OHA D3-E3 120VAC UPS TROUBLE ⇒ CRIDS	
WHEN dispatched to the 1A-D-482 as maintenance, **THEN REPORT** there appears to be a fault in the Static Switch cabinet and you will need the inverter tagged.	• CRS implements HC.OP-AB.ZZ-0136, Attachment 5.	
NOTE: If dispatched to investigate H2 Seal Oil System, respond that alarm was due to low pressure. Using Remote Function acknowledge alarm.	• Crew recognizes loss of RWCU *via OHA and trip of both* RWCU pumps due to a loss of HV-F001 indication.	
NOTE: If dispatched to the Isophase System, alarm was due to high temperature. Using Remote Function acknowledge alarm.	• RO/PO refers CRS to HC.OP-AB.RPV-0007 in accordance with HC.OP-AR.ZZ-0008.	
	• CRS directs actions to be taken in accordance with HC.OP-AB.RPV-0007, Condition B. [**DIRECT** Chemistry to sample and analyze reactor coolant.]	

Event / Instructor Activity	Expected Plant/Student Response	Comments
WHEN dispatched to SACS or SSW, **THEN REPORT** the equipment is ready for starting or post start checks are SAT. **Steam leak in the steam tunnel:** **TRIGGER ET-4** (Steam leak in the Steam Tunnel) when the crew completes actions for the loss of 1AD482, or at the Lead Examiner's discretion.	• CRS may direct Containment Inerting lineup to be secured. • CRS recognize Tech Specs action ⇒ 3.8.3.1.a.1.e and action A applies. (8 hr Action time) • Crew recognizes Steam Tunnel temp rising: ⇒ A2541 Stm Tunnel Clr Inlet temp in alarm. • CRS directs PO to implement HC.OP-AB.BOP-0005, Condition A: • PO implements HC.OP-AB.BOP-0005, Condition A: ⇒ Isolate the source of the leak if known. ⇒ Monitor the following to determine the source of leak: • Main Steam Flow indication • Feedwater Flow indication • RWCU System ⇒ Ensures TB Chilled Water Supply Temp is <55F. ⇒ HV-9532-1 and HV-9532-2 are open.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
WHEN dispatched to perform BOP-0005 actions, **REPORT**: Action A.3: Steam Tunnel supply and return back draft dampers – both sets are open. Action A.5: Place Both Steam Tunnel cooling fans in service by placing **REMOTE FUNCTION HV11** and **HV12** in RUN. Action A.6: GU-HD9395A and 9395B are closed.	⇒ Ensure proper positioning of Steam Tunnel Supply AND Return Backdraft dampers ⇒ Ensure both Steam Tunnel cooling Fans in-service at panel 1EC281. ⇒ Ensure GU-HD9395A AND GU-HD9395B are closed.	
WHEN dispatched to perform BOP-0005 actions, **REPORT**: Action A.3: Steam Tunnel supply and return back draft dampers – both sets are open.	• CRS assigns a crewmember to monitor Steam Tunnel temperature.	
	• CRS implements HC.OP-AB.CONT-0004, Condition A. ⇒ Direct Radiation Protection to enter RP-AR.SP-0001 ⇒ Monitor for indications of fuel damage ⇒ Monitor activity at the exhaust ducts to localize the source of the activity ⇒ Determine the Total Release Rates • CRS implements HC.OP-AB.CONT-0004, Condition C. ⇒ Monitor for indications of a steam leak	
NOTE: This alarm may not be received. High alarm is 2.5 mR/hr.	• Crew responds to RM-11 "High Alarm" for 9RX620 for the Tech Support Center ARM.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS briefs the crew on plant conditions and contingencies for a rising Main Steam Tunnel temperature. • Crew monitors HC.OP-AB.BOP-0005 Retainment Override.	
The CRS may take conservative action and scram before 145 degrees.	• CRS directs a manual Scram when Steam Tunnel temperature ≥145 degrees IAW the Retainment Override.	
	• RO takes actions to manually scram the reactor IAW HC.OP-AB.ZZ-0001.	**HPI USED:** STAR ☐
	• PO takes action to control, restore and maintain RPV level with Feedwater.	**HPI USED:** STAR ☐ HARDCARD ☐
	• CRS implements HC.OP-EO.ZZ-0101 based on entry condition of ≤12.5" RPV Level and directs actions to stabilize the plant. ⇒ *RO performs scram actions IAW HC.OP-AB.ZZ-0001*	**HPI USED:** STAR ☐ HARDCARD ☐
	• CRS may transfer level and pressure control to RCIC and SRVs in anticipation of MSIV closure. • RO/PO coordinate transfer of Reactor Pressure and RPV level control.	
	• Crew places 'B' RHR in Suppression Pool cooling to support RCIC/SRV operation IAW HC.OP-AB.ZZ-0001 Attachment 3	**HPI USED:** STAR ☐ HARDCARD ☐
NOTE: The MSIVs may automatically close on an isolation signal.	• CRS directs closing MSIVs and drains to isolate steam leak.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO closes the MSIVs and drains.	**HPI USED:** STAR ☐
	• The CRS directs the PO to restore and maintain RPV level / pressure with HPCI and/or RCIC and SRVs. • CRS implements HC.OP-AB.BOP-0002, Condition A: ⇒ Verify the Main Turbine valves are CLOSED ⇒ Ensure the Motor Suction Pump and Turning Gear Oil Pump are running ⇒ When Main Turbine Speed <900 rpm, ensure all Main Turbine Lift Pumps running.	**HPI USED:** STAR ☐
LOCA: **VERIFY ET-5** triggers a LOCA (w/ 5 minute ramp) 5 minutes after MSIV closure, or at the discretion of the Lead Examiner.	• Crew recognizes LOCA condition: ⇒ RM-11 DLD monitors. ⇒ Rising Drywell Pressure. ⇒ OHA A4-F5, A7-E4, C6-C2.	
	• CRS directs actions for the high Drywell pressure IAW HC.OP-AB.CONT-0001. ⇒ Maximize Drywell Cooling by ensuring: • All Drywell Fan Cooling Coils are Open • All Drywell Fans are running in Fast Speed • Turbine Bldg. Chill Water system is operating properly ⇒ Perform the following: • Check Reactor Recirc. Pump Seals • Check SRV Tailpipe Temperatures	
	• PO maximizes Drywell cooling and checks proper operation of TB Chillers.	**HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes HI-HI Drywell pressure of 1.68 psig • CRS reenters HC.OP-EO.ZZ-0101, enters HC.OP-EO.ZZ-0102, and directs actions to mitigate the leak. • CRS determines that drywell sprays are required based upon DRWL temperatures / pressure.	
RHR Room Flood (Failure to isolate): **VERIFY ET-6** active when RHR Pump D starts.	• CREW may recognize Suppression Pool leak via decreasing Suppression Pool level indications on SPDS and annunciator A6-A5 and informs the CRS.	
NOTE: At the discretion of the Lead Examiner, raise the severity of PC06.	• CREW determines leak to be in RHR pump D room via SPDS and/or CRIDS alarms D2971 and D2939.	
As RBEO, two minutes after being dispatched, **REPORT** a large leak at D pump suction with approximately two inches of water on floor. You have exited the room and closed the watertight door.	• RO/PO notifies RBEO to investigate cause of RHR pump room flooded alarm.	
	• CRS enters and directs actions of HC.OP-EO.ZZ-0103/4, Reactor Building and Rad Release to isolate the leak. • CRS directs actions to isolate RHR Pump D suction by closing HV-F004D.	
WHEN operator places F004D keyswitch in CLOSE, **THEN ENSURE ET-7** Triggers.	• PO attempts to close HV-F004D, observes that the OVLD/PWR FAIL illuminates, and informs the CRS.	**HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
NOTE: Role-play as the building EO to support implementation of EOP 300 level procedures. **Do NOT** implement EO-315, use Remote Functions CS02 or CS04. Although, **REPORT** completion of lineup to the MCR.	• When Suppression Pool Level drops below 74.5 inches, CRS reenters HC.OP-EO.ZZ-0102, Primary Containment Control, and directs actions to restore suppression pool level using RCIC, Core Spray, or Service Water.	
NOTE: Once Crew determines a major failure of the Torus has occurred and level cannot be maintained, they may stop makeup efforts.	• CREW closely monitors Torus level decrease and determines that a major failure of the Torus has occurred. * ***Crew determines that Suppression Pool water level cannot be maintained above 38.5" and opens five SRVs before Suppression Pool level reaches 30".*** • CRS implements HC.OP-EO.ZZ-0202, Emergency RPV Depressurization, when torus level cannot be maintained above 38.5". • PO opens 5 ADS valves IAW CRS direction.	**HPI USED:** STAR ☐ HARDCARD ☐
SRV Failure: SRV E Failure to Open is Pre-inserted	• PO recognizes failure of SRV F013E to open via closed indication on 10C650C and informs CRS. • CRS directs PO to open other SRV(s) until 5 SRVs are open. • PO opens additional SRV per CRS instructions	

Event / Instructor Activity	Expected Plant/Student Response	Comments
NOTE: This task is completed satisfactorily if Emergency Depressurization occurs before 38.5" of SPL is reached.	* ***Crew recognizes via acoustic and temperature indications that F013E, ADS SRV, has failed to open and opens an additional SRV*** • PO maintains/restores RPV level >-185 inches in accordance with CRS instructions. • PO initiates Suppression Pool cooling IAW CRS direction.	**HPI USED:** STAR ☐

Termination Requirements

The Scenario may be terminated when RPV level is under control, the RPV is depressurized, or at the discretion of the Lead Examiner.

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. OP-AA-101-111-1003 Use of Procedures
K. HU-AA-1081 Fundamentals Toolkit
L. HU-AA-1211 Briefing
M. OP-AA-101-111-1004 Operations Standards
N. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
O. OP-AA-106-101-1001 Event Response Guidelines
P. OP-AA-108-114 Post Transient Review
Q. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
R. OP-HC-108-106-1001 Equipment Operational Control
S. OP-AA-101-112-1002 On-Line Risk Assessment
T. HC.OP-AB.BOP-0002 Main Turbine
U. HC.OP-AB.BOP-0005 Main Steam Tunnel Temperature
V. HC.OP-AB.CONT-0001 Drywell Pressure
W. HC.OP-AB.CONT-0004 Radioactive Gaseous Release
X. HC.OP-AB.COOL-0002 Safety Auxiliaries Cooling System
Y. HC.OP-AB.IC-0001 Control Rod
Z. HC.OP-AB.RPV-0007 Reactor Coolant Conductivity
AA. HC.OP-AB.RPV-0008 Reactor Coolant Activity
BB. HC.OP-AB.ZZ-0001 Transient Plant Conditions
CC. HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter
DD. HC.OP-EO.ZZ-0101 RPV Control
EE. HC.OP-EO.ZZ-0102 Primary Containment Control
FF. HC.OP-EO.ZZ-0103/4 Reactor Building and Rad Release
GG. HC.OP-EO.ZZ-0202 Emergency RPV Depressurization
HH. HC.OP-IO.ZZ-0003 Startup From Cold Shutdown to Rated Power
II. HC.OP-SO.AE-0001 Feedwater System Operation
JJ. HC.OP-SO.SF-0001 Reactor Manual Control
KK. HC.OP-ST.BF-0001 Control Rod Drive Exercise - Weekly

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S1 / 02

1.

* ***Crew determines that Suppression Pool water level cannot be maintained above 38.5" and opens five SRVs before Suppression Pool level reaches 30".***

K/A 295030 Low Suppression Pool Water Level
EA2 Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL
EA2.01 Suppression Pool level RO 4.1 SRO 4.2
K/A 218000 Automatic Depressurization System
A.4 Ability to manually operate and/or monitor in the control room:
A4.01 ADS Valves RO 4.4 SRO 4.4
If Suppression Pool Level drops below 38.5", the downcomer pipes are uncovered and the Pressure Suppression function of the Primary Containment is lost. EOPs direct Emergency Depressurizing if Suppression Pool level cannot be maintained above 38.5". Requiring the Emergency Depressurization to be initiated before Supp Pool Level reaches 30" allows the Crew three minutes to implement this action in this scenario.

2.

* ***Crew recognizes via acoustic and temperature indications that F013E, ADS SRV, has failed to open and opens an additional SRV.***

(**K/A 239002 Relief/Safety Valves**
A4 Ability to manually operate and/or monitor in the control room:
A4.01 SRV's RO 4.4 SRO 4.4
The Minimum Number of SRVs required for Emergency Depressurization (MNSRED) is five. The MNSRED is utilized to assure the RPV will depressurize and remain depressurized when Emergency Depressurization is required. When the PSV-F013E fails to open, the Crew needs to open an additional SRV to achieve MNSRED. This is directed by both HC.OP-EO.ZZ-0202 and AB.ZZ-0001. SRV's are designed to open with a minimum differential pressure of 50 psid between the reactor vessel and the suppression chamber. Below this d/p, they may not open. If the Crew does not attempt to open the fifth SRV before this minimum d/p is lost, they cannot validate it's operation. This would prevent them from detecting the failure and pursuing the use of the Alternate Depressurization Systems in HC.OP-EO.ZZ-0202.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
_____	Loss Of Offsite Power/SBO
_____	LOCA

Y/N	EVENT
Y	Internal Flooding

TRANSIENTS:

Y/N	
_____	Turbine Trip
_____	Loss of Condenser Vacuum
_____	Loss of Feedwater
_____	Inadvertent MSIV Closure
_____	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

Y/N	
_____	Loss of SSW
_____	Loss of SACS
_____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
_____	Hard Torus Vent
_____	HPCI
_____	1E 4.16KV Bus
_____	SACS Hx/Pump
_____	EDG
_____	120VAC 481/482 Inverter
_____	A/B RHR
_____	RCIC
_____	SSW Pump

Y/N	KEY EQUIPMENT
_____	SLC
_____	CRD
_____	1E 125VDC

KEY SYSTEMS

Y/N	
_____	500KV AC Power
_____	SRVs
_____	Condensate/Feedwater
_____	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
_____	Aligning RHR for Suppression Pool Cooling
_____	Emergency Venting of Primary Containment
_____	Emergency Depressurize RPV W/O High Pressure Injection
_____	Initiating LP ECCS with No High Pressure Injection Available
_____	Restoration of AC Power after a LOP (EDG / Offsite)
_____	Monitoring and Control of SACS heat loads
_____	Preventing LVL 8 trip of Feedwater during a transient
_____	Align Core Spray Suction to CST when at NPSH limits
_____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
_____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

FORM 1

Page 1 of 1

CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT LOG

DATE	HOURS PREV. YEAR (NOTE 1)	HOURS AUTH. THIS PERMIT	NAME OF SM/CRS AUTHORIZING THIS PERMIT	NCO INITIAL	HOURS USED THIS PERMIT	TOTAL HOURS PREVIOUS YEAR (NOTE 1)	NAME OF SM/CRS CLOSING THIS PERMIT	NCO INITIAL
Today	6	24	Tom MacEwan	DL				

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

FORM 2
CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT

SECTION A

Date: Today

NOTE: This permit is valid only until 2400 of this date

Gaseous Effluent Permit #: 2009-01

SECTION B
HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open During Previous Year **(NOTE 1)**

DATE	NUMBER OF HOURS
06/01/2008	6

(1) Max. allowed for 365 days (Admin Limit)	**452 hrs**
(2) Total previous year (**NOTE 1**)	(-) 6
Hours available this date (line 1 minus line 2)	(=) 446
Hours authorized this date (24 hours or the hours available this date whichever is less)	24 Hrs

NCO performing calculation	Date/Time
Dan Laughman	Today/0100

SM/CRS verification and authorization	Date/Time
Tom MacEwan	Today/0130

SECTION C
VALVE/LINE OPEN TIME (Note 2)

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle **(NOTE 3)**

Total number of hours valves/line open this permit: _____

NCO performing calculations _____ Date/Time _____

SM/CRS Closing permit _____ Date/Time _____

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

NOTE 2: Completed Form 2 should be filed in the AP-104 binder in the Control Room.

NOTE 3: When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)

VIII. TURNOVER SHEET:

Rx Power: 4%
MWe (May vary slightly): 0
Work Week: B

Activities Completed Last Shift:

- Reactor Startup in progress to step 5.3.40 of IO-3
- Containment inerting lineup in progress through step 5.1.8 of SO-GS-0001.

Major Activities Next 12 Hours:

- Continue with Startup by withdrawing Control Rods @ <15%/hour.
- Commence inerting the containment IAW HC.OP-SO.GS-0001 step 5.1.9.

Protected Equipment:

None

Heightened Awareness:

None

Tagged Equipment:

None

Reactivity:

- Rod pull step 234.
- Continuous rod withdraw is allowed.
- RE-Some LPRM downscale and SRM Short Period alarms may occur during withdraw of rods. Contact RE for guidance.

IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

Note: This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-CHECK ESG- NRC-S1 REVIEWER: [illegible]

[illegible] 1. The scenario has clearly stated objectives in the scenario.

[illegible] 2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.

[illegible] 3. Each event description consists of:

- The point in the scenario when it is to be initiated
- The malfunction(s) that are entered to initiate the event
- The symptoms/cues that will be visible to the crew
- The expected operator actions (by shift position)
- The event termination point

[illegible] 4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.

[illegible] 5. The events are valid with regard to physics and thermodynamics.

[illegible] 6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).

[illegible] 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.

[illegible] 8. If time compression techniques are used, scenario summary clearly so indicates.

[illegible] 9. The simulator modeling is not altered.

[illegible] 10. All crew competencies can be evaluated.

[illegible] 11. Appropriate reference materials are available (SOERs, LERs, etc.)

[illegible] 12. Proper critical task methodology used IAW NRC procedures.

Note: The following criteria list scenario traits that are numerical in nature. A second set of numbers indicates a range to be met for a set of two scenarios. Therefore, to complete this part of the review, the set of scenarios must be available. The section below should be completed once per scenario set.

ESG: **NRC-S1**

SELF-CHECK

QSF 1. Total malfunctions inserted: 5-8

QSF 2. Malfunctions that occur after EOP entry: 1-2

QSF 3. Abnormal Events: 2-4

QSF 4. Major Transients: 1-2

QSF 5. EOPs entered requiring substantive actions: 1-2

QSF 6. EOP Contingency Procedures requiring substantive actions: 0-2

QSF 7. *Approximate scenario run time: 60-90 minutes*

QSF 8. Critical Tasks: 2-3

QSF 9. Technical Specifications are exercised during the test: ≥2

Comments:

EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

Crew Validation **Rev:** 01 **Date Validated:** 11/20/2008

Validation Comments	Disposition
Need Containment purge Permit updated.	Provided updated purge permit from OP-HC-103-105
Short Period alarm occurred but not mentioned in turnover sheet.	Updated TO sheet to reflect Short Period alarms may occur.
Stuck rod trigger malfunctioned. Need to resnap. Validation stopped.	Resnapped ESG. Need to re-validate ESG.

Crew Validation **Rev:** 02 **Date Validated:** 12/5/2006

Validation Comments	Disposition
Validated by 3 operator crew from C Shift. Need to add 120V UPS Trouble alarm when 1AD482 inverter fails.	Added MALF AN-D3E3 CRYWOLF ANN D3E3 120VAC UPS TROUBLE on ET-3
Suppression Pool Leak too slow. Plant depressurizing faster than approaching ED on SPL.	Modified PC06 to ramp leak from 25 to 50% over 6 minutes. This is consistent with ESG-005 rates.
Validation time 80 minutes.	Revised cover sheet.

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

Reactor Power: 4%

MWe (May vary slightly): 0

Activities Completed Last Shift:

- Reactor Startup in progress to step 5.3.40 of IO-3
- Containment inerting lineup in progress through step 5.1.8 of SO-GS-0001.

Major Activities Next 12 Hours:

- Continue with Startup by withdrawing Control Rods @ <15%/hour.
- Commence inerting the containment IAW HC.OP-SO.GS-0001 step 5.1.9.

Heightened Awareness:

None

Protected Equipment:

None

Tagged Equipment:

None

Reactivity:

- Reactor Startup in progress. Continue Startup at <15% power / hr
- Rod Pull Sheet Step 234
- Continuous rod withdraw is allowed
- Per R.E. Some LPRM Downscale and SRM Short Period alarms may occur during withdraw of rods.

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: Loss of RBVS, Loss of EHC, ATWS

SCENARIO NUMBER: ESG-NRC-S2

EFFECTIVE DATE: Effective when signed.

EXPECTED DURATION: 82 minutes

REVISION NUMBER: 01

PROGRAM:

[ ] L.O. REQUAL

[X] INITIAL LICENSE

[ ] OTHER _____

REVISION SUMMARY:

1. Added IO-0006 step to turnover sheet based on validation comments.
2. Changed accumulator pressures to clear alarms earlier based on validation comments.
3. Added validation time to cover sheet.

PREPARED BY: Archie E. Faulkner — **Instructor** — 12/2/2008 — **DATE**

APPROVED BY: Mark W Parish — **Operations Training Manager or Designee** — 12/11/08 — **DATE**

APPROVED BY: _____ — **Operations Director or Designee** — 12/4/08 — **DATE**

I. OBJECTIVE(S):

Enabling Objectives

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Place 'D' Circ Water Pump in service
B. Power Ascension
C. 'A' CRD Pump trips
D. Loss of RBVS
E. Trip of EHC Pump
F. Loss of EHC
G. ATWS w/Trip of 'B' SLC Pump

III. SCENARIO SUMMARY:

The scenario begins with the plant at ~51% power, 547 MWe, with 'D' Circ Water Pump out of service. Following turnover, the crew starts 'D' Circ Water Pump and raises reactor power with control rods. 'A' CRD Pump will trip requiring 'B' CRD Pump to be placed in-service to restore charging flow within 20 minute Tech Spec LCO time. The RBVS Return Damper 9414B fails closed, requiring manual placement of FRVS in service. The 'A' EHC pump will trip. When the 'B' EHC pump starts, foreign material in the sump near the 'B' EHC pump suction will cause the 'B' EHC pump discharge filter to clog. EHC pressure will drop until the turbine trips. When the plant is scrammed, a half core ATWS will occur. Post scram power level is about 20%. Initially, bypass valves will control pressure. ADS is inhibited to prevent actuation during ATWS **(Critical Task)**. Ultimately, the 'B' EHC pump will trip and bypass valves will be lost, requiring SRVs for pressure control. Torus temperature will approach 110 degF. The 'B' SLC pump will trip and cannot be recovered. The 'A' SLC pump will not auto-start, but can be started by the Crew **(Critical Task)**. Crew intentionally lowers RPV water level to reduce reactor power **(Critical Task)**. If the Crew efficiently manages the power control leg of EOP-101A and takes advantage of available steam line drains and RFPTs to reject heat to the condenser, intentional lowering of RPV water level to –129" can be avoided. Crew inserts all control rods via CRD or EOP-320 **(Critical Task)**. The scenario is terminated when level is being maintained above -185 inches and all control rods have been inserted.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 97% power.
	REDUCE reactor power to 73% using reactor Recirc.
	INSERT control rods in sequence to 51% power.
	REMOVE Crossflow from service.
	REMOVE 'C' RFPT from feeding and place on recirc IAW SO.AE-0001 section 5.10.
	REMOVE 'D' Circulating Water pump from service IAW SO.DA-0001 section 5.2.2.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	INITIAL *IO.ZZ-0006 Section 5.1 up to and including step 5.1.5.B.*
	INITIAL SO.AE-0001 Section 5.10 up to and including step 5.10.6.A.
	INITIAL SO.DA-0001 Section 5.2.2 up to and including step 5.2.2.H.
	ENSURE Data Collection is trending the following parameters:
	• *Reactor power*
	• W/R Reactor Water Level
	• W/R Reactor Pressure
	• Fuel Zone RPV Level
	COMPLETE the Simulator Ready for Training/Examination Checklist.
	PRE-BRIEF the crew for the power change and Circ Water Pump start (optional)

EVENT TRIGGERS:

Initial	ET #	Description	
	5	EVENT ACTION: COMMAND: PURPOSE:	**et_array(5)** **imf tc16 100** Swaps 'B' EHC filter and inserts filter plugging at 100%
	11	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 40** // Reactor Power <40% **imf tc16 100** Ensures Turbine Bypass valves fail shut.
	12	EVENT ACTION: COMMAND: PURPOSE:	**slnpmpb >= 0.50** // SLC Pump 'B' Start Triggers Failure of BP208 SLC pump
	13	EVENT ACTION: COMMAND: PURPOSE:	**lc:pbrun** // 'B' CRD pump in service. **dmf cd051855** Deletes accumulator trouble alarm malfunction.
	14	EVENT ACTION: COMMAND: PURPOSE:	**lc:pbrun** // 'B' CRD pump in service. **dmf cd054223** Deletes accumulator trouble alarm malfunction.
	15	EVENT ACTION: COMMAND: PURPOSE:	**lcpdb >= 900** // 'B' CRD pump discharge pressure **set lcpaccx(171) = 950** Restores HCU accumulator pressure on rod 18-55.
	16	EVENT ACTION: COMMAND: PURPOSE:	**lcpdb >= 900** // 'B' CRD pump discharge pressure **set lcpaccx(66) = 950** Restores HCU accumulator pressure on rod 42-23.
		EVENT ACTION: COMMAND: PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	RP07 Half Core ATWS Right Side	---	---	NONE	---	---
	SL04A AP208 SLC Pump Failure to Auto Start	---	---	NONE	---	---
	CD10A 'A' CRD Pump Trips	---	---	ET-1	---	---
	CD051855 Accumulator Trouble HCU 18-55	2:45	---	ET-1	---	---
	CD054223 Accumulator Trouble HCU 42-23	3:10	---	ET-1	---	---
	TC07A Trip of AP116 EHC Pump	---	---	ET-4	---	---
	TC16 EHC Discharge Filter Plugging	1:00	---	ET-4	---	75%
	TC07B Trip of BP116 EHC pump	4:00	---	ET-11	---	---
	TC01-10 Turbine Bypass Valves Fail Shut	5:30	---	ET-11	---	---
	SL01B BP208 SLC Pump Failure	00:30	---	ET-12	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	HV06 CVH300 RBVS Fan	---	---	ET-3	---	STOP
	HV05 BVH300 RBVS Fan	---	---	ET-3	---	STOP
	HV04 AVH300 RBVS Fan	---	---	ET-3	---	STOP
	HV03 CV301 RBVE Fan	---	---	ET-3	---	STOP
	HV02 BV301 RBVE Fan	---	---	ET-3	---	STOP
	HV01 AV301 RBVE Fan	---	---	ET-3	---	STOP
	AN24 10C382 Acknowledge	00:05		ET-3	---	NORM
	TC06 'B' EHC Pump Filter Replacement	---	---	ET-5	---	REPLACE
	EP01 EOP-301 MSIV LVL 1 Isolation	6:00	---	ET-6	---	BYPASS
	EP02 EOP-311 Restoring PCIG to MSIVs	8:00	---	ET-7	---	BYPASS
	EP38 EOP-319 Restoring Inst Air	3:00	---	ET-8	---	EMERG
	EP09 EOP 320 ARI Fuses	4:00	---	ET-9	---	REMOVE
	EP10 EOP 320 ARI Fuses	4:00	---	ET-9	---	REMOVE
	EP11 EOP 320 RPS Div 1	6:00	---	ET-9	---	INSTALL
	EP13 EOP 320 RPS Div 3	6:00	---	ET-9	---	INSTALL
	EP12 EOP 320 RPS Div 2	8:00	---	ET-9	---	INSTALL
	EP14 EOP 320 RPS Div 4	8:00	---	ET-9	---	INSTALL
	EP35 EOP-322 HPCI Core Spray Valve	3:00	---	ET-10	---	FAIL CLOSE

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	1A175 E LO HD-9414B OPEN light	---	---	ET-2	---	ON
	1A175 E DI HD-9414B OPEN PB	---	---	ET-2	---	OFF
	1A175 F DI HD-9414B CLOSE PB	---	---	ET-2	---	ON

Event / Instructor Activity	Expected Plant/Student Response	Comments
Start 'D' Circ Water Pump: Crew starts 'D' Circ water Pump and opens all circ water discharge valves full after assuming the watch.	• CRS directs 'D' Circ Water Pump to be placed in service.	
	• PO starts D Circ Water Pump as follows: • OBSERVE CIRCULATING WATER PUMP DP501 STR ENBL is illuminated. • PRESS PUMP DP501 START push-button.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
	• OBSERVE AI-6325D CIRC WTR PUMP MOT AMP indicates 500 - 610 amps (running). • OBSERVE DISCH VALVE HV-2152D OPEN/CLOSE MID illuminates.	
IF dispatched to respond to CW Panel 10C502 panel alarm, **THEN REPORT** the alarm was caused by momentary high discharge pressure on D pump and the alarm has cleared. TOGGLE Remote Function **AN06** to NORM.		
	• OBSERVE CIRCULATING WATER PUMP DP501 START is illuminated. • PRESS DISCH VALVE HV-2152D OPEN FULL push-button. • OBSERVE HV-2152D OPEN FULL illuminates. • PO opens remaining CW Pump discharge valves OPEN FULL as follows: • PRESS DISCH VALVE HV-2152A(B,C) OPEN FULL push-button.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• OBSERVE HV-2152A(B,C) OPEN FULL illuminates.	
Power Ascension: Crew commences reactor power ascension after assuming the watch.	• CRS directs raising power to 80% using RE guidance.	
As RE **PROVIDE** the following guidance: • SPRI and Enhanced Stability Guidance are valid for the remainder of the maneuver. • Power has been steady for the last hour. • Raise power to 60% with control rods using 9E rods to position 48.	• RO raises power with control rods using provided Move Sheets as follows:	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Select a control rod	• RO selects the desired Control Rod Select PB on the ROD SELECT MODULE. • RO observes the following: ⇒ Selected rod PB comes ON (bright white). ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C). ⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C). ⇒ Approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on CRIDs point B2117.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Continuous Withdraw	• Simultaneously PRESS AND HOLD both the WITHDRAW PB AND the CONTINUOUS WITHDRAW PB while observing the following: ⇒ INSERT (white) light comes ON momentarily. ⇒ The WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement. ⇒ Full Core Display FULL IN (green) light goes OUT, as applicable. • Prior to reaching the desired control rod position, simultaneously RELEASE both the WITHDRAW PB and the CONTINUOUS WITHDRAW PB and OBSERVE the following: ⇒ The WITHDRAW (white) light goes OUT. ⇒ The SETTLE (white) light comes ON for ≈ 6 seconds and THEN goes OUT. ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position. ⇒ For control rods withdrawn to position 48 (full out), the applicable Full Core Display FULL OUT (red) light comes ON. • After the continuous withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Coupling check for rods at 48	• WHEN a control rod is withdrawn to position 48 (full out), THEN PERFORM a control rod coupling integrity check IAW HC.OP-ST.BF-0001(Q); Control Rod Drive Exercise as follows: • WITHDRAW the control rod to position 48 AND PERFORM the following while giving the selected Control Rod a continuous withdraw signal: • OBSERVE the following as indication of the Control Rod being coupled: ⇒ ROD OVERTRAVEL alarm does NOT annunciate. ⇒ Red Full Out light illuminates on the Full Core Display. ⇒ RPIS indicates the Control Rod is full out (48). ⇒ Proper response of the Nuclear Instrumentation while withdrawing the Control Rod. • INDICATE on Pull Sheet the condition of Coupling Check.	
Trip of 'A' CRD Pump: After the Crew completes needed reactivity changes and placing D Circ Pump in service, at the discretion of the Lead Examiner, **TRIGGER ET-1** Trip of 'A' CRD Pump.	• RO recognizes trip of BP207 CRD pump by: ⇒ OHA C6-F2 "CRD SYSTEM TROUBLE" ⇒ CRIDS D2244 CRD WATER PUMP A MOTOR TRBL" ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS D2926 "RECIRC PUMP A SEAL STAGE FLOW HILO" ⇒ CRIDS D2927 "RECIRC PUMP B SEAL STAGE FLOW HILO" ⇒ Flashing STOP light for AP207 ⇒ Flashing OVLD/PWR FAIL for AP207	**ENTER** time of CRD Pump trip for beginning of 20 minute LCO time: Time: _____

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to AP207, THEN **REPORT** the pump inboard bearing oil bubbler is broken and the motor is hot to the touch.	• RO dispatches NEO to inspect AP207 CRD pump.	
IF dispatched to AP207 breaker, THEN **REPORT** the breaker tripped on overcurrent.	• Crew dispatches NEO to inspect breaker for AP207 CRD pump.	
	• Crew recognizes potentially inoperable accumulators on withdrawn control rods by: ⇒ OHA C6-D4 "CRD ACCUM TROUBLE" ⇒ CRIDS D5268 "CRD ACCUMULATOR TRBL" ⇒ Flashing amber ACCUM lights on Full Core Display for 18-55 and 42-23	
WHEN dispatched to investigate HCU accumulator trouble alarms, THEN **REPORT** the following: • IF the alarms are still in, pressures are 920 psig • IF the alarms are clear, pressures are 1040 psig IF Crew does NOT recognize second accumulator trouble alarm AND alarm is still in, THEN when dispatched to first alarm, **REPORT** finding second HCU at 920 psig.	• Crew dispatches NEO to check HCUs 18-55 and 42-23.	
	• CRS enters AB.IC-0001 ⇒ Condition A	
CRDM temperatures can be checked with Monitor Item **lctcrd**.	• CRS directs placing BP207 CRD pump in service IAW either: ⇒ AR.ZZ-0011 OR ⇒ SO.BF-0001	

Event / Instructor Activity	Expected Plant/Student Response	Comments
SUPPORT any directed manipulations of the BP207 discharge valve (v008) using Remote Function **CD02**.	• RO place BP207 CRD pump in service as directed by CRS.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐ OP BARRIERS ☐ Record Time B CRD Pump started TIME _____
	• CRS recognize the following Tech Specs apply: ⇒ Control Rod Accumulators 3.1.3.5.a.2	Restore charging water pressure within 20 minutes or place the mode switch in SHUTDOWN
Loss of RBVS: After the Crew assumes the watch and at the discretion of the Lead Examiner, **TRIGGER ET-2** (RBVS Exhaust Damper HD-9414B Fails).	• Crew recognizes Loss of RBVS by: ⇒ RB D/P indication on 10C650E ⇒ SPDS RB PARAMETERS D/P indication. ⇒ OHA E1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS B7164 "REACTOR BLDG DIFF PRESS" ⇒ OHA E6-C5 "RBVS & WING AREA HVAC PNL 10C382" ⇒ CRIDS D3960 "RBVS EXH RMT PNL C382 TRBL" ⇒ CRIDS D3961 "RBVS SUPPLY RMT PNL C382 TRBL"	
	• CRS implements AB.CONT-003: ⇒ Condition A ⇒ Condition D	
IF dispatched to 10C382, THEN **REPORT** Low Flow Trip alarms on all Reactor Bldg Supply and exhaust fans.	• Crew dispatches RBEO to 10C382 to investigate.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO recognize HD-9414B failed in mid position by 10C651E indication and inform CRS.	
IF directed to secure RBVS, THEN **TRIGGER ET-3**.	• RO/PO place FRVS in service IAW SO.GU-0001.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐ OP BARRIERS ☐
IF dispatched to HD-9414B, THEN **REPORT** there is no obvious reason for the failure. (GU-HD-9414B is located in Room 4624, on the Rx Bldg roof.)	• Crew dispatches NEO and Maintenance to investigate closure of HD-9414B.	
	• CRS recognize the following Tech Specs apply: ⇒ Secondary Containment Integrity 3.6.5.1 ⇒ Secondary Containment Automatic Isolation Dampers 3.6.5.2 action a or b or c	Restore Secondary Containment within 4 hours. 8 Hour LCO Action time for damper.
Trip of 'A' EHC Pump: After the Crew places FRVS in service and determines the required Tech Spec actions for the HD-9414B failure, OR, at the discretion of the Lead Examiner, **TRIGGER ET-4** (Loss of EHC).	• Crew recognizes trip of AP116 EHC pump by: ⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE" ⇒ OHA D3-E5 "TURB HYDR RESERVOIR TROUBLE" ⇒ CRIDS D5542 "HYDRAULIC FLUID PUMP A TRBL" ⇒ CRIDS D5575 "TURBINE HYDRAULIC FLUID PRESS LO" ⇒ HYDR FLUID PUMP A flashing LOW DISCH PRESS light	If left in AUTO, the BP116 EHC pump will auto-start in about 10 seconds.

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to AP116, THEN **REPORT** the pump outboard motor bearing is hot to the touch. IF dispatched to AP116 breaker, THEN **REPORT** the breaker tripped on overcurrent.	• RO/PO ensures start of the BP116 EHC pump.	**HPI USED:** STAR ☐ PEER CHECK ☐ Immediate Operator action IAW AB.BOP-0003.
Monitor Item: • EHC Header Pressure **tupehchd** • EHC Pump Disch Pressure **tupehc(2) – 15** • EHC Pump Filter D/P **tupehcdp(2)**	• CRS implements AB.BOP-0003.	There are no subsequent actions in AB.BOP-0003 for a trip of a pump.
'B' EHC Pump Filter Clogging: The BP116 discharge filter will begin clogging one minute after the pump starts.	• Crew recognizes BP116 discharge filter clogging by: ⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE" ⇒ CRIDS D3629 "MAIN TURB EHC PUMP B FILTER DP HI" ⇒ HYDR FLUID PUMP B flashing HI FILTER D/P light ⇒ Lowering EHC header pressure	With NO discharge filter swap, EHC pressure will reach 1100# in about 6 minutes after the pump trip. IF the discharge filters are swapped, THEN EHC pressure will reach 1100# about 4 minutes after the swap.
	• CRS implements AB.BOP-0003: ⇒ Condition A	
IF directed to swap BP116 discharge filters, **REFER** to SO.CH-0001 Section 5.20, THEN **TRIGGER ET-5**.	• Crew directs TBEO to swap BP116 pump discharge filters.	EHC header pressure will recover, then continue to decay.
	• WHEN EHC pressure lowers to 1200 psig, THEN CRS directs locking the Mode Switch in SHUTDOWN.	May direct earlier, based on rate of pressure drop and absence of any remaining compensatory actions

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO locks the Mode switch in SHUTDOWN.	
ATWS >4%: The half core ATWS is already inserted on the right side of the core.	• Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition: ⇒ APRM indications ⇒ Absence of rod FULL IN lights on the right side of Full Core Display ⇒ Rod position indications	
	• RO performs scram actions IAW AB.ZZ-0001 Attachment 1.	**HPI USED:** HARD CARD ☐
	• CRS implements EOP-101A.	
	• PO stabilizes and maintains RPV level as directed by CRS.	
	• CRS directs: ⇒ Initiating SLC ⇒ Verifying RWCU Isolates	
	• RO initiate SLC and verify RWCU isolates.	**HPI USED:** STAR ☐
	* ***Crew starts AP208 SLC pump before Suppression Pool temperature reaches 110 degrees.***	**ENTER** Supp Pool temp when AP208 SLC pump is started: Temp: _____
Trip of SLC Pump: The BP208 SLC pump will trip 30 seconds after starting.	• Crew recognizes trip of BP208 SLC pump by: ⇒ OHA C1-B1 "SLC PUMP/VALVE O/PF" ⇒ OHA C1-F1 "SLC/RRCS INITIATION FAILURE" ⇒ CRIDS D3023 "SLC INJ PMP BP208 TROUBLE TRBL" ⇒ Flashing STOP light for BP208	
IF dispatched to investigate trip of BP208, THEN **REPORT** the breaker is tripped and will not reset. (52-222101)	• Crew dispatches NEO and Maintenance to investigate trip of BP208 SLC pump.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs: ⇒ Verifying Recirc runback to minimum ⇒ Tripping reactor recirc pumps	
	• RO: ⇒ Verify Recirc runback to minimum ⇒ Trip reactor recirc pumps	**HPI USED:** STAR ☐ May already be tripped on EOC-RPT.
	• CRS directs inhibiting ADS.	
	• RO/PO inhibit ADS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐
	* ***Crew prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.***	This Critical Task is not applicable if RPV level never reaches –129". See justification for failure criteria.
REFER to the appropriate EOP and **SUPPORT** Crew requests for EOPs IAW with the following. Validated execution time delays are built-in: EOP-301: **ET-6** EOP-311: **ET-7** EOP-319: **ET-8** EOP-320: **ET-9** EOP-322: **ET-10**	• CRS directs performance of the following EOPs: ⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks" ⇒ EO.ZZ-0301 "Bypassing MSIV Isolation Interlocks" ⇒ EO.ZZ-0311 "Bypassing Primary Containment Instrument Gas Isolation Interlocks" ⇒ EO.ZZ-0319 "Restoring Instrument Air in an Emergency" ⇒ EO.ZZ-0322 "Core Spray Injection Valve Override"	The timing, order, and priority of the EOP performance may vary.
	• CRS directs terminating and preventing injection to the RPV with the exception of: ⇒ SLC ⇒ CRD ⇒ RCIC	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO terminate and prevent injection IAW AB.ZZ-0001: ⇒ Attachment 16 (10C651) ⇒ Attachment 17 (10C650)	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs maintaining RPV water level between –50" and -185".	Typically, the lower end of the level band is set above –129".
	• PO control level as directed by CRS with: ⇒ Feedwater IAW AB.ZZ-0001 Att. 14 ⇒ RCIC IAW AB.ZZ-0001 Att. 6 ⇒ HPCI IAW EOP-322	**HPI USED:** STAR ☐ HARD CARD ☐ If the turbine trips before the reactor is scrammed, an RRCS feedwater runback may occur.
	* ***Crew lowers RPV level to –50", and ensures adequate core cooling by maintaining or restoring RPV level above –185" without Emergency Depressurizing.***	
	• CRS directs bypassing the RWM and commencing manual rod insertion.	
	• RO align CRD for ATWS operation IAW AB.ZZ-0001 Attachment 18.	
	• RO bypass RWM and insert control rods IAW RE-AB.ZZ-0001 Attachment. 1.	
Total Loss of EHC: The 'B' EHC pump will trip four minutes after the plant is scrammed. The bypass valves will fail shut about three minutes later.	• Crew recognizes trip of the 'B' EHC pump by: ⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE"	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes turbine bypass valves failing shut by: ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ DEHC Bypass Valve Positioning Error alarms ⇒ Reactor pressure rising above Pressure Setpoint	
	• CRS directs stabilizing pressure below 1037 psig with: ⇒ Main Steam Line Drains ⇒ SRVs	When pressure control swaps to SRVs, maintaining RPV water level between –50" and –129" will be very challenging due to shrink and swell and changing reactor pressure with the RFPTs in MAN.
	• RO/PO control pressure as directed by CRS with: ⇒ Main Steam Line Drains IAW AB.ZZ-0001 Att. 15 ⇒ SRVs IAW AB.ZZ-0001 Att. 13	**HPI USED:** STAR ☐ HARD CARD ☐ OP BARRIERS ☐
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	
	• CRS implements EOP-102.	
	• CRS directs placing RHR in Suppression Pool Cooling.	
	• RO/PO place RHR in Supp Pool Cooling IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐ FLAGGING ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF Suppression Pool temperature is >110 degrees, AND Reactor power is >4%, AND SRVs are open or cycling, THEN Crew terminates and prevents injection to the RPV with the exception of SLC, CRD, and RCIC, UNTIL Reactor power is <4%, OR RPV level reaches –129", OR SRVs remain closed.	
	• IF RPV level reaches –129", THEN RO/PO terminates and prevents injection from Core Spray IAW AB.ZZ-0001 Attachment 16.	**HPI USED:** STAR ☐ HARD CARD ☐
WHEN the Crew has reset RPS, THEN **DELETE** Malfunction **RP07** to allow full rod insertion on the next scram.	• WHEN EOP-320 Section 5.1 and 5.2 are complete, THEN the Crew implements EOP-320 Section 5.3 and resets RPS.	**HPI USED:** STAR ☐
At the Lead Examiners discretion, **MODIFY** Monitor Item **lclsdv** to accelerate draining of the SDV.	• WHEN OHA C6-E4 clears, THEN the Crew initiates a manual scram IAW EOP-320 Section 5.3.	**HPI USED:** STAR ☐
	* ***CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.***	
	• Crew recognizes the reactor is shutdown by: ⇒ SPDS ALL RODS IN ⇒ RWM Confirm Shutdown ⇒ CRIDS Rod positions	
	• CRS directs terminating SLC injection.	
	• RO/PO terminate SLC injection.	**HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: • RPV Level is being maintained above –185" AND • All rods are fully inserted	• CRS exits EOP-101A, enters EOP-101.	

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. OP-AA-101-111-1003 Use of Procedures
K. HU-AA-1081 Fundamentals Toolkit
L. HU-AA-1211 Briefing
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-106-101-1001 Event Response Guidelines
O. OP-AA-108-114 Post Transient Review
P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
Q. OP-HC-108-106-1001 Equipment Operational Control
R. OP-AA-101-112-1002 On-Line Risk Assessment
S. HC.OP-IO.ZZ-0006 Power Changes During Operation
T. HC.OP-SO.AE-0001 Feedwater System Operation
U. HC.OP-SO.DA-0001 Circulating Water System Operation
V. HC.OP-SO.SF-0001 Reactor Manual Control
W. HC.OP-SO.SF-0003 Rod Worth Minimizer Operation
X. HC.OP-AB.IC-0001 Control Rod
Y. HC.OP-AB.ZZ-0001 Transient Plant Conditions
Z. HC.OP-AB.CONT-0004 Reactor Building
AA. HC.OP-AB.BOP-0006 Turbine Hydraulic Pressure
BB. HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS
CC. HC.OP-AB.ZZ-000 Reactor Scram
DD. HC.OP-EO.ZZ-0101 RPV Control
EE. HC.OP-EO.ZZ-0101A ATWS-RPV Control
FF. HC.OP-EO.ZZ-0102 Primary Containment Control
GG. HC.OP-EO.ZZ-0301 Bypassing MSIV Isolation Interlocks
HH. HC.OP-EO.ZZ-0311 Bypassing Primary Containment Instrument Gas Isolation Interlocks
II. HC.OP-EO.ZZ-0319 Restoring Instrument Air in an Emergency
JJ. HC.OP-EO.ZZ-0320 Defeating ARI and RPS Interlocks
KK. HC.OP-EO.ZZ-0322 Core Spray Injection Valve Override

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S2 / 01

1.

* ***Crew starts AP208 SLC pump before Suppression Pool temperature reaches 110 degrees.***

K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown
EA1. Ability to operate and/or monitor the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:
EA1.04 SBLC RO 4.5 SRO 4.5
EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:
EA2.04 Suppression Pool Temperature RO 4.0 SRO 4.1

The Boron Initiation Injection Temperature above about 9% power is 110°F. The post scram power level in this scenario is greater than 9%. 110°F is also one of the conditions that may require intentional lowering of RPV water level to as low as -129" to control power. Lowering RPV water level to –129" jeopardizes main condenser and RFPT availability, which could significantly complicate mitigation of the ATWS. Initiating SLC before 110°F will help reduce power and may prevent the need to lower level to -129".

2.

* ***Crew prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.***

K/A 218000 Automatic Depressurization System
A4 Ability to manually operate and/or monitor in the control room:
A4.04 ADS inhibit RO 4.1 SRO 4.1
K/A 295031 Reactor Low Water Level
EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:
EA.06 Automatic depressurization RO 4.4 SRO 4.4

Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor. EOPs direct this action under the current conditions. This critical task is only applicable if RPV water level goes below –129". Failure to satisfactorily complete the task is demonstrated by an automatic ACTUATION of ADS such that the ADS SRVs open and reduce reactor pressure to less than 700 psig.

3.

* ***Crew lowers RPV level to –50", and ensures adequate core cooling by maintaining or restoring RPV level above –185" without Emergency Depressurizing.***

K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown
EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:
EA2.02 Reactor water level RO 4.1 SRO 4.2

Lowering level RPV level during an ATWS with reactor power >4% is a key strategy for controlling reactor power.
Maintaining adequate Core cooling under ATWS conditions is accomplished by maintaining/restoring level above -185". HPCI and RCIC are capable of maintaining level under the current conditions. An Emergency Depressurization is not warranted and would result in a large injection of cold water and the potential displacement of boron from the core.

4.

* ***Crew fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.***

K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown

EA1. Ability to operate and/or monitor the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA1.01 Reactor Protection System RO 4.6 SRO 4.6

EA1.07 RMCS RO 3.9 SRO 4.0

Manually inserting all control rods, OR, implementing HC.OP-EO.ZZ-0320, provides the only methods for control rod insertion and substantial negative reactivity addition. It is critical for the crew to implement one of these methods to insert control rods and shut the reactor down. Failure to initiate these actions may result in requiring RPV level to be lowered to or below TAF to reduce power to <4%. This represents a significant challenge to maintaining adequate core cooling.

VIII. TURNOVER SHEET:

Rx Power: ~51% returning from power reduction for condenser water box cleaning.
MWe (May vary slightly): 547
Work Week: C

Activities Completed Last Shift:

Completed all condenser waterbox work and returned to service.
Removed 'D' Circ Water Pump from service.
Completed OP-IO.ZZ-0006 up to step 5.1.5.B

Major Activities Next 12 Hours:

Place 'D' Circ Water Pump back in service.
Raise reactor power per RE guidance and IO-0006:

- Withdraw 9E Rods to position 48 IAW Move Sheets
- Continuous Rod Withdraw is permitted.
- Hold at 60% power for Thermal Limit check.

Protected Equipment:

None

Tagged Equipment:

None

IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

Note: This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-CHECK ESG- NRC-S2 REVIEWER: [illegible]

[ ] 1. The scenario has clearly stated objectives in the scenario.

[ ] 2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.

[ ] 3. Each event description consists of:

- The point in the scenario when it is to be initiated
- The malfunction(s) that are entered to initiate the event
- The symptoms/cues that will be visible to the crew
- The expected operator actions (by shift position)
- The event termination point

[ ] 4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.

[ ] 5. The events are valid with regard to physics and thermodynamics.

[ ] 6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).

[ ] 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.

[ ] 8. If time compression techniques are used, scenario summary clearly so indicates.

[ ] 9. The simulator modeling is not altered.

[ ] 10. All crew competencies can be evaluated.

[ ] 11. Appropriate reference materials are available (SOERs, LERs, etc.)

[ ] 12. Proper critical task methodology used IAW NRC procedures.

Note: The following criteria list scenario traits that are numerical in nature

ESG: **NRC-S2**

SELF-CHECK

(AS) 1. Total malfunctions inserted: 5-8

(AS) 2. Malfunctions that occur after EOP entry: 1-2

(AS) 3. Abnormal Events: 2-4

(AS) 4. Major Transients: 1-2

(AS) 5. EOPs entered requiring substantive actions: 1-2

(AS) 6. EOP Contingency Procedures requiring substantive actions: 0-2

(AS) 7. Approximate scenario run time: 60-90 minutes

(AS) 8. Critical Tasks: 2-3

(AS) 9. Technical Specifications are exercised during the test: ≥2

Comments:

Crew Validation **Rev:** 00 **Date Validated:** 11/20/2008

Validation Comments	Disposition
Accumulator trouble alarms cleared late.	Changed Event Triggers to set accumulator pressures to 950 vs 900 after pump start.
Add Yard operator report for CW panel alarm.	Added.
Simplfy Turnover sheet.	Minimized wording on TO sheet.
Validation time 82 minutes. Add validation time to cover sheet.	Added.

Crew Validation **Rev:** _____ **Date Validated:** _____

Validation Comments	Disposition

Crew Validation **Rev:** _____ **Date Validated:** _____

Validation Comments	Disposition

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

Reactor Power: ~51% Returning from power reduction for condenser water box cleaning.

MWe (May vary slightly): 547

Activities Completed Last Shift:

- Completed all condenser waterbox work and returned to service.
- Removed 'D' Circ Water Pump from service.
- Completed OP-IO.ZZ-0006 up to step 5.1.5.B

Major Activities Next 12 Hours:

- Place 'D' Circ Water Pump back in service.
- Raise reactor power per RE guidance and IO-0006

Heightened Awareness:

None

Protected Equipment:

None

Tagged Equipment:

None

Reactivity:

- Raise reactor power per RE guidance and IO-0006:
  - Withdraw 9E Rods to position 48 IAW Move Sheets
  - Continuous Rod Withdraw is permitted.
  - Hold at 60% power for Thermal Limit check.

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: **RRCS Inst Fails, RWCU Leak, High Rx Pressure, LOCA w/PSP**

SCENARIO NUMBER: **ESG-NRC-S3**

EFFECTIVE DATE: Effective when approved

EXPECTED DURATION: 63 minutes

REVISION NUMBER: **01**

PROGRAM:

[ ] **L.O. REQUAL**

[X] **INITIAL LICENSE**

[ ] **OTHER** _____

REVISION SUMMARY:

1. Changed ramp time from 10 minutes to 15 minutes based on validation comments. Overall time to respond is now about 2 minutes from 1st alarm until scram setpoint with no action taken.
2. Failed F001 to close manually and automatically based on validation comments.
3. Swapped to B TSC Chilled Water System in service for preps for TACS swap.

PREPARED BY:	Archie E. Faulkner **Instructor**	12/5/08 **DATE**
APPROVED BY:	Mark W Faust **Operations Training Manager or Designee**	12/11/08 **DATE**
APPROVED BY:	_____ **Operations Director or Designee**	12/11/8 **DATE**

I. OBJECTIVE(S):

Enabling Objectives

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Power reduction to 84.5%
A. Swap TACS to B SACS Loop
B. RRCS Pressure Transmitter Failure
C. RWCU Leak w/Failure to Automatically Isolate
D. High Reactor Pressure
E. LOCA w/Downcomer Failure
F. A/C DW Pressure Channel Initiation Failures

III. SCENARIO SUMMARY:

The scenario begins with the plant at 90% power. After turnover, the power reduction from 90 to 84.5% will be accomplished using control rods per RE instructions. TACS will be swapped to the 'B' SACS Loop for preplanned maintenance on A SACS Pump. The PT-N403A RRCS Pressure Transmitter will fail downscale. After Tech Specs for the failure are identified, RWCU will develop a leak that will require manual isolation of the system **(Critical Task)**. The automatic isolation is failed. After RWCU is isolated, an EHC logic failure will cause reactor pressure to slowly rise. Bypass valves will not respond. Both the RPS and RRCS high pressure scrams will fail and a manual scram will be required to restore reactor pressure to within normal limits **(Critical Task)**. The pressure transient will cause a LOCA and a downcomer will fail. This will require spraying the drywell to avoid exceeding PSP **(Critical Task)**. The Mode switch will fail such that the Low Main Steam Line Pressure MSIV isolation will NOT be bypassed by taking the Mode Switch out of RUN. The PT-N094E/G will fail to respond to High Drywell Pressure due to inadvertently being left isolated following maintenance. This will result in the failure of A/C Core Spray and RHR logics to initiate, and the failure of HPCI to initiate. All logics can be manually initiated and all logics will respond to lowering RPV water level. The scenario ends when RPV level is being maintained and Drywell Sprays are in service.

IV. INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to 97% power, MOL.

_____ **REDUCE** power to 90% using Reactor Recirc.

_____ **REMOVE** Cross-flow from service and acknowledge annunciator.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description

_____ **INITIAL** SO.EG-0001 Section 5.7 up to and including stroke timing the valves (Step 5.7.4 of Rev 40).

_____ **ENSURE** TACS is supplied by the 'A' SACS loop

_____ **ENSURE** the 'B' SACS pump is in service and the 'D' SACS pump is in Standby.

_____ **ENSURE** the 'B' TSC Chilled Water System is in service and the 'A' TSC Chilled Water Circ pump is in Standby in Auto.

_____ **ENSURE** HC.OP-DL.ZZ-0026 log available.

_____ **ENSURE** Remote Functions PC03ER and PC03GR are changed to RESET.

_____ **ENSURE** Data Collection is trending the following parameters:

- _____ Suppression Chamber Pressure
- _____ W/R Reactor Water Level
- _____ W/R Reactor Pressure
- _____ TCV 1 Position
- _____ TCV 2 Position
- _____ TCV 3 Position
- _____ TCV 4 Position

_____ **COMPLETE** the Simulator Ready for Training/Examination Checklist.

_____ **PRE-BRIEF** the crew for the power change and TACS swap

EVENT TRIGGERS:

Initial	ET #	Description	
	8	EVENT ACTION: COMMAND: PURPOSE:	**cufdelta >= 60** // RWCU Diff Flow in gpm **imf cu03 100 120** Raises severity of RWCU leak after isolation setpoint is exceeded.
	9	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 10** // Reactor power < 10% **dmf tc01-10** Deletes stuck closed bypass valves, fails Mode Switch and triggers LOCA.
	10	EVENT ACTION: COMMAND: PURPOSE:	**mspeh <= 900** // Main Steam Line Header Pressure < 900 psig **imf TC02-4 0** Closes TCV#4 to prevent depressurization and MSIV isolation.
	11	EVENT ACTION: COMMAND: PURPOSE:	**mspeh <= 890** // Main Steam Line Header Pressure < 890 psig **imf TC02-3 0** Closes TCV#3 to prevent depressurization and MSIV isolation.
	12	EVENT ACTION: COMMAND: PURPOSE:	**mspeh <= 880** // Main Steam Line Header Pressure < 870 psig **imf TC02-2 0** Closes TCV#2 to prevent depressurization and MSIV isolation.
	13	EVENT ACTION: COMMAND: PURPOSE:	**mspeh <= 870** // Main Steam Line Header Pressure < 860 psig **imf TC02-1 0** Closes TCV#1 to prevent depressurization and MSIV isolation.
	14	EVENT ACTION: COMMAND: PURPOSE:	**pcpdw >= 16.4** // Drywell Pressure > 1.7 psig Trips RFPTs to force use of HPCI.

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	AD06 Failure of Lo-Lo Set Valves to Arm	---	---	NONE	---	---
	CU11A RWCU HV-F001 Failure to Auto Isolate	---	---	NONE	---	---
	CU11B RWCU HV-F004 Failure to Auto Isolate	---	---	NONE	---	---
	RZ03A RRCS Logic A Channel A Auto Init Failure	---	---	NONE	---	---
	RZ03C RRCS Logic B Channel A Auto Init Failure	---	---	NONE	---	---
	TC01-10 Turbine Bypass Valves Fail to Open	---	---	NONE	---	---
	RZ02A RRCS Pressure Transmitter PT-N403A Fails	---	---	ET-4	---	0
	AN-D1E1 Cry Wolf OHA D1-D1 RRCS Trouble	---	---	ET-4	---	---
	CU03 RWCU System Leak	---	6:00	ET-5	10%	35%
	TC02-1 Turbine Control Valve #1 Failure	---	15:00	ET-7	44%	20%
	TC02-2 Turbine Control Valve #2 Failure	---	15:00	ET-7	47%	20%
	TC02-3 Turbine Control Valve #3 Failure	---	15:00	ET-7	44%	20%
	TC02-4 Turbine Control Valve #4 Failure	---	15:00	ET-7	0%	0%
	PC04 Downcomer Failure	7:00	---	ET-9	---	---
	RR31B1 'B' Recirc Loop small break	5:00	2:00	ET-9	0%	100%
	RR31B2 'B' Recirc Loop large break	7:00	20:00	ET-9	0%	6%
	PC03E Drywell Pressure PT-N094E Failure	60 sec.	---	ET-9	0.1%	0.1%
	PC03G Drywell Pressure PT-N094G Failure	60 sec.	---	ET-9	0.1%	0.1%
	FW26A Trip of the 'A' RFPT	---	---	ET-14	---	---
	FW26B Trip of the 'B' RFPT	---	---	ET-14	---	---
	FW26C Trip of the 'C' RFPT	---	---	ET-14	---	---

REMOTE/FIELD FUNCTION SUMMARY:

ıitial	Description	Delay	Ramp	Trigger	Init Val	Final Va
	EP12 EOP-320 RPS B1 Jumper	---	---	NONE	---	INSTALL
	EP14 EOP-320 RPS B2 Jumper	---	---	NONE	---	INSTALL
	PC03ER Reset Gross Fail PC03E	---	---	NONE	RESET	RESET
	PC03GR Reset Gross Fail PC03G	---	---	NONE	RESET	RESET
	PP04 OD-3 Crossflow Applied	---	---	NONE	---	NOT APPLIED
	ET019 GROUP 7A HV-F001 RWCU Supply Isol	---	---	NONE	---	FAIL OPEN
	HV06 CVH300 RBVS Fan	---	---	ET-6	---	STOP
	HV05 BVH300 RBVS Fan	00:01	---	ET-6	---	STOP
	HV04 AVH300 RBVS Fan	00:01	---	ET-6	---	STOP
	HV03 CV301 RBVE Fan	00:02	---	ET-6	---	STOP
	HV02 BV301 RBVE Fan	00:03	---	ET-6	---	STOP
	HV01 AV301 RBVE Fan	00:03	---	ET-6	---	STOP

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	2A4 E LO RRCS Channel A Logic A Trouble	---	---	ET-4	---	ON
	3S22 A DI Mode Switch in SHUTDOWN	---	---	ET-9	---	OFF
	3S22 B DI Mode Switch in REFUEL	---	---	ET-9	---	OFF
	3S22 D DI Mode Switch in RUN	---	---	ET-9	---	ON
	3A33 C OVDI LV1785/1784 ON	---	---	ET-14	---	OFF
	3A33 D OVDI LV1785/1784 CLOSED	---	---	ET-14	---	ON

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Reduction: Crew continues reactor power reduction after assuming the watch.	• CRS directs continuing the power reduction to 84.5% using RE guidance.	
As RE **PROVIDE** the following guidance: • SPRI and Enhanced Stability Guidance are valid for the remainder of the maneuver • Power has been steady for the last hour • Lower power to 84.5% with control rods using 9D and 9E rods.	• RO reduces power with control rods using provided Move Sheets.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Control rod selection	• RO selects the desired control rod, PRESS the desired Control Rod Select PB on the ROD SELECT MODULE AND OBSERVE the following: ⇒ Selected rod PB comes ON (bright white). ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C). ⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C). ⇒ Approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on CRID's point B2117.	
Continuous rod insertion (Non-emergency)	• At the ROD SELECT MODULE, PRESS AND HOLD the INSERT PB AND OBSERVE the following: ⇒ The INSERT (white) light comes ON.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ CONTROL ROD POSITION *FOUR ROD DISPLAY* indicates control rod movement. ⇒ Full Core Display FULL OUT (red) light goes OUT, as applicable. • Prior to reaching the desired control rod position, RELEASE the *INSERT PB AND OBSERVE* the following: ⇒ The INSERT (white) light goes OUT. ⇒ The SETTLE (white) light comes ON for ≈ 6 seconds, THEN goes out. ⇒ CONTROL ROD POSITION *FOUR ROD DISPLAY* indicates the control rod has settled to the desired position. • After the continuous insertion is completed, ENSURE that the rod position indicates that the rod is in the correct position. • RO repeats steps as necessary to position rods IAW Move Sheets.	
TACS SWAP TO B LOOP: PO swaps TACS after *assuming* the watch.	• CRS direct PO to swap TACS to Loop B IAW OP-SO.EG-0001. • PO performs the following: ⇒ OBSERVE Loop B Pump D, REMOTE push-button is OFF. ⇒ PLACE Loop B Pump D in MAN control.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ PRESS the DP210 START pushbutton AND PERFORM the following: ○ OBSERVE the LOOP B PUMP D, LOW DIFF PRESS light extinguishes. ○ THROTTLE OPEN EG-HV-2512B to ensure minimum flow requirements of ≈9000 gpm. • PO opens either B or D TACS isolation valves in the standby loop which required the most amount of time to stroke fully open. • PO opens TACS isolation valves in the standby loop NOT opened in previous step and OBSERVE positive indication that both valves are opening. • WHEN positive indication is noted that the remaining TACS Isolation Valves in the standby loop have started to open, THEN: CLOSE the following valves on the SACS Loop being removed from service: ⇒ HV-2522/2496A, TACS INBD SPLY/RTN VLVS • ADJUST OPEN HV-2512A, RHR HX OUTLET VALVE, to obtain ≈4500 gpm SACS flow through the 'A' RHR HX.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PRESS AND HOLD CLOSE PB until EG-HV-2512B, RHR HX OUTLET VALVE, indicates closed. • CLOSE the following valves on the SACS Loop being removed from service: ⇒ HV-2522/2496C, TACS OUTBD SPLY/RTN VLVS • PERFORM the following to place the SACS Loop A in standby: ⇒ PRESS the AP210 STOP pushbutton. ⇒ PLACE SACS Loop A Pump A in AUTO. ⇒ THROTTLE EG-HV-2512A to ensure minimum flow requirements of ≈4500 gpm.	
RRCS Transmitter Failure: After the 'B' RPS bus is transferred to Alternate, OR, at the discretion of the Lead Examiner, **TRIGGER ET-4.**	• Crew recognizes RRCS Failure by: ⇒ OHA D1-E1 "RRCS TROUBLE" ⇒ RRCS Channel A Logic A "RRCS LOGIC A TROUBLE" light • Crew dispatches ABEO and/or Maintenance to RRCS cabinets 10C601/602.	PT-N403A output can be seen on the SPDS Reactor Pressure Point Status display.
IF dispatched to RRCS, THEN **REPORT** there is an "ATM CALI GROSS FAILURE" light lit on 10C601 and PT-N403A is reading 0 psig. IF dispatched to RRCS to perform DL-26 Attach 1b Form 1, THEN **PROVIDE** DL-26 Attach 1b Form 1, filled out as provided on attached sheet. IF dispatched to transmitter at instrument rack C004, THEN **REPORT** no visible problem at instrument rack.		

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognize the following Tech Spec action applies: ⇒ ATWS Recirculation Pump Trip System Instrumentation 3.3.4.1 action b	Place the inoperable channel in a tripped condition within one hour.
RWCU Leak: After Tech Spec actions for the PT-N403A have been identified, OR, at the discretion of the Lead Examiner, **TRIGGER ET-5** (RWCU leak with Auto Isolation failure) AND two minutes after the RWCU leak has been input, **VERIFY** South Plant Vent Effluent monitor (9RX580) Rate of Rise is in alarm on RM11, THEN **CALL** as Rad Pro Tech and report the alarm.	• Crew recognizes rising offsite release rate by: ⇒ SPDS indication ⇒ RM11 SPV Effluent 9RX580	9RX580 Rate of Rise will alarm 1-2 minutes after the leak starts. This alarm is NOT programmed to be audible in the Control Room
	• CRS implements AB.CONT-004: ⇒ Condition C ⇒ Condition A	
Monitor Items: • RWCU Diff Flow **cufdelta**	• Crew recognizes leak from RWCU by: ⇒ Rising differential flows on NUMAC and CRIDS page 61 ⇒ OHA D3-B3 "RWCU STM LK ISLN TIMER INITIATED" ⇒ CRIDS D5871 "RWCU ISLN TIMER INITIATED CH D" ⇒ CRIDS D5873 "RWCU ISLN TIMER INITIATED CH A"	Room temperatures will not provide conclusive evidence of leak. RWCU differential flow will reach the alarm setpoint about 7.5 minutes after leak starts. If RWCU is isolated before differential flow setpoint is reached, alarms will not be received.

Event / Instructor Activity	Expected Plant/Student Response	Comments
Monitor Items: • 'A' Channel Isolation **cu:k6a09** • 'D' Channel Isolation **cu:k6d11**	• Crew recognizes failure of RWCU to isolate by: ⇒ OHA C1-A2 "RWCU DIFF FLOW HI" ⇒ CRIDS D5870 "RWCU DIFF FLOW CH D" ⇒ CRIDS D5872 "RWCU DIFF FLOW CH A"	If RWCU is isolated before differential flow setpoint is reached, isolation will not be received.
Examiner Note: HV-F001 will not close manually or automatically.	• RO close RWCU HV-F001 and HV-F004. (May also close HV-F039)	Immediate Operator action IAW AB.CONT-0002. **HPI USED:** STAR ☐
Monitor Items: • HV-F004 **cuvf004**	* ***Crew initiates closure of RWCU HV-F004 within two minutes of receiving OHA C1-A2 "RWCU DIFF FLOW HI". (Closing HV-F004 prior to the isolation timer completion satisfies this requirement.)***	**RECORD** time between C1-A2 and initiating closure. TIME: _____ Closing the RWCU HV-F004 prior to receiving OHA C1-A2 satisfies this Critical Task.
	• RO reports the HV-F001 would not close manually or automatically.	
	• CRS implements AB.CONT-002: ⇒ Condition B ⇒ Condition A	If crew isolated RWCU prior to isolation signal, Condition A will not be performed.
	• CRS directs placing FRVS in service.	
IF directed to remove RBVS from service, THEN **REFER** to SO.GU-0001 AND **TRIGGER ET-6**.	• PO place FRVS in service IAW SO.GU-0001 Section 5.3.	**HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF contacted as Shift Chem Tech, THEN **REPORT** RWR is the alternate monitoring point and **REQUEST** status of the RWR sample line.		
	• CRS recognizes the following Tech Spec action applies: ⇒ Primary Containment Isolation Valves 3.6.3 action a ⇒ Primary Containment Integrity 3.6.1.1	Need to restore valves to OPERABLE or deactivate the HV-F001 or HV-F004 in the next four hours. May also refer to T/S 3.3.2, although both trip systems would already be tripped, and the valves already shut.
MODIFY the initial severity of TCV Malfunctions to MATCH current TCV positions before proceeding. Monitor Items: • TCV1 Position: **tcvcv1** • TCV2 Position: **tcvcv2** • TCV3 Position: **tcvcv3** • TCV4 Position: **tcvcv4** **Reactor High Pressure:** After RWCU has been isolated and FRVS is in service, OR, at the discretion of the Lead Examiner, **TRIGGER ET-7** (High Reactor Pressure with auto scram failure).	• Crew recognizes rising reactor pressure by: ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ OHA B3-E5 "RPV PRESSURE HI" ⇒ OHA C5-A5 "RPV PRESSURE HI" ⇒ DEHC Bypass Valve Positioning Error alarms ⇒ CRIDS D3372 MN TURB LOAD LIMIT LIMITING ⇒ Various Reactor Pressure indicators	Some alarms may not be received if the pressure excursion is terminated before their setpoint.
	• RO reduces reactor power to maintain the RPV PRESSURE HI overhead alarm clear.	Immediate Operator Action IAW AB.RPV-0005. **HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements AB.RPV-0005: ⇒ Condition A ⇒ Condition D	
	• WHEN reactor pressure cannot be maintained <1030 psig, THEN Crew locks the Mode Switch in SHUTDOWN.	**HPI USED:** STAR ☐
	* ***Crew scrams the reactor within one minute of reactor pressure exceeding 1037 psig. (Scramming prior to reaching 1037 psig satisfies this requirement.)***	**RECORD** time when Reactor Pressure goes above 1037 psig. TIME: _____
NOTE: If the crew is in the process of a manual scram when 1037 psig is reached, failure of RPS may not be recognized. However, if it is recognized that RPS did not automatically scram the reactor at 1037 psig, EOP-101A should be entered and exited.	• IF Reactor Pressure was above 1037 psig when the reactor was manually scrammed, THEN Crew recognizes Scram Condition and Reactor Power Above 4% or Undetermined EOP Entry Condition by: ⇒ OHA C5-A5 "RPV PRESSURE HI" ⇒ Various indications of reactor power	
	• IF Reactor Pressure was above 1037 psig when the reactor was manually scrammed, THEN CRS implements EOP-101A until all rods are verified fully inserted, then exits EOP-101A and enters EOP-101.	
	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	May also have High Reactor Pressure entry condition.
	• CRS implements EOP-101.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO maintains reactor water level as directed by CRS IAW AB.ZZ-0001 Att. 14.	**HPI USED:** STAR ☐ HARD CARD ☐
	• Crew may recognize partial loss of Mode Switch functions by loss/absence of: ⇒ OHA C5-A3 "MANUAL SCRAM" ⇒ OHA C5-C1 "MODE SWITCH SHUTDOWN SCRAM BYP" ⇒ OHA C5-C3 "MSIV CLOSURE TRIP BYP" ⇒ Absence of SRM/IRM status lights and alarms	**HPI USED:** STAR ☐
LOCA w/Downcomer Break: The LOCA is automatically inserted five minutes after the reactor is scrammed.	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO" ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO" ⇒ Rising Drywell Pressure	
	• CRS implements AB.CONT-001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	**HPI USED:** STAR ☐
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV temperatures	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations.	
	• CRS enters EOP-102, re-enters EOP-101.	
	• RO/PO verify automatic actions.	
A/C Logic Failures: The failure of Drywell Pressure transmitters N094E/G is already inserted.	• Crew recognizes failure of the A/C Core Spray logics to initiate by: ⇒ A/C INIT AND SEALED IN lights extinguished ⇒ Pump STOPPED indication ⇒ A/C channel breaker status on 10C650E NON CLASS 1E LOAD ISLN CIRCUIT BREAKER STATUS AND CONTROL ⇒ A/C EDGs not running ⇒ Various valve failures to isolate	Core Spray WILL auto initiate if RPV water level reaches –129". PCIS isolations will occur due to the availability of NSSSS and the PT-N094A/C. Only the Core Spray logic fanout (EDG, sequencer, etc) will be affected. Also, no drywell pressure indicators are affected by the failures.
	• RO/PO initiate A/C Core Spray logic IAW AB.ZZ-0001 Att 5.	**HPI USED:** STAR ☐ HARD CARD ☐
	• Crew recognizes failure of the A/C RHR logics to initiate by: ⇒ A/C INIT AND SEALED IN lights extinguished ⇒ Pump STOPPED indication	RHR WILL auto initiate if RPV water level reaches –129".
	• RO/PO initiate A/C RHR logic IAW AB.ZZ-0001 Att 4.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes failure of HPCI to initiate by: ⇒ HPCI INIT AND SEALED IN light extinguished ⇒ HV-F001 CLSD indication ⇒ FV-4880 CLOSED indication ⇒ FV-4879 CLOSED indication ⇒ SI-4919 Turbine Speed indicates zero rpm ⇒ FIC-R600 Pump Flow indicates zero gpm	HPCI WILL auto initiate if RPV water level reaches –38" and is capable of maintaining RPV water level by itself.
	• RO/PO manually initiate HPCI IAW AB.ZZ-0001 Att. 6.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs maintaining RPV level 12.5" to 54" with any combination of: ⇒ HPCI ⇒ RCIC ⇒ Feedwater/Condensate	RFPTs will trip and SULCV will fail closed when drywell pressure reaches 1.7 psig and cannot be restored.
	• RO/PO maintain RPV level as directed by CRS with: ⇒ HPCI IAW AB.ZZ-0001 Att. 6 ⇒ RCIC IAW AB.ZZ-0001 Att. 6	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS implements AB.COOL-003: ⇒ Condition B	
	• RO/PO trips recirc pumps.	**HPI USED:** STAR ☐ RRCS RPT trips are failed. Pumps must be tripped manually. May also be tripped IAW EOP-102 guidance for spraying the drywell.
	• WHEN Suppression Chamber pressure exceeds 9.5 psig, THEN CRS directs initiating drywell spray.	Recirc pumps should be tripped prior to initiating drywell spray.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO place one loop of RHR in drywell spray IAW AB.ZZ-0001 Att. 2.	**HPI USED:** STAR ☐ HARD CARD ☐ IF 'A' RHR logic was NOT manually initiated, THEN 'A' RHR cannot spray the drywell.
	* ***Crew maintains Suppression Chamber Pressure below the Action Required region of the PSP curve without Emergency Depressurizing.***	PSP will by reached approximately eleven minutes after the LOCA starts with no mitigating action.
	• CRS directs placing RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.	
	• RO/PO place RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs restoring PCIG to SRVs.	
	• RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	**HPI USED:** STAR ☐ HARD CARD ☐
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: 1. RPV level is being maintained above –129" 2. Suppression Chamber pressure is being maintained below the Action Required region of the PSP curve.	• If necessary, Crew prevents injection from Low Pressure ECCS not required for adequate core cooling.	**HPI USED:** STAR ☐ HARD CARD ☐

ATTACHMENT 1b
FORM 1
ATWS-RPT Channel Check (For Surveillance Log Item 6)

Operational Condition Date *Today's Date*

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT	DAY	EVE	MID
RPV LEVEL	1	-38	---	---	B21-LT-N402A			
		-38	---	---	B21-LT-N402B			
		-38	---	---	B21-LT-N402E			
		-38	---	---	B21-LT-N402F			
		---	NO	---	INST TRIPPED 10C601			
			NO		INST TRIPPED 10C602			
		---	---	10	INST DEVIATION			
RPV PRESSURE	1	---	---	1071	B21-PT-N403A	0		
		---	---	1071	B21-PT-N403B	1005		
		---	---	1071	B21-PT-N403E	1005		
		---	---	1071	B21-PT-N403F	1005		
		---	NO	---	INST TRIPPED 10C601	NO		
			NO		INST TRIPPED 10C602	NO		
		---	---	53	INST DEVIATION	1005		

COMMENTS:

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Alarm Response Procedures (Various)
G. HU-AA-101 Performance Tools and Verification Practices
H. HU-AA-104-101 Procedure Use and Adherence
I. HU-AA-1081 Fundamentals Toolkit
J. HU-AA-1211 Briefing
K. OP-AA-101-111-1003 Use of Procedures
L. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
M. OP-AA-101-111-1004 Operations Standards
N. OP-AA-101-112-1002 On-Line Risk Assessment
O. OP-AA-106-101-1001 Event Response Guidelines
P. OP-HC-108-106-1001 Equipment Operational Control
Q. OP-AA-108-114 Post Transient Review
R. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
S. HC.OP-DL.ZZ-0026 Surveillance Log
T. HC.OP-SO.BB-0002 Reactor Recirculation System Operation
U. HC.OP-SO.BC-0001 Residual Heat Removal System Operation
V. HC.OP-SO.BE-0001 Core Spray System Operation
W. HC.OP-SO.GU-0001 Filtration, Recirculation, and Ventilation System Operation
X. HC.OP-SO.SB-0001 Reactor Protection System Operation
Y. HC.OP-SO.SF-0001 Reactor Manual Control System Operation
Z. HC.OP-AB.ZZ-0001 Transient Plant Conditions
AA. HC.OP-AB.RPV-0005 Reactor Pressure
BB. HC.OP-AB.CONT-0001 Drywell Pressure
CC. HC.OP-AB.CONT-0002 Primary Containment
DD. HC.OP-AB.CONT-0004 Radioactive Gaseous Release
EE. HC.OP-AB.ZZ-000 Reactor Scram
FF. HC.OP-EO.ZZ-0101 RPV Control
GG. HC.OP-EO.ZZ-0102 Primary Containment Control
HH. HC.CH-TI.ZZ-0012 Chemistry Sampling Frequencies, Specifications, and Surveillances
Industry Events
II. LER 397-07001 RHR Pressure Switch Found Isolated (3/21/2007)
JJ. LER 354-02001 RHR Min Flow Line Found Isolated (3/20/2002)
KK. Event #249-000324-1 RHR Pressure Switch Found Isolated (6/13/2000)

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S3 / 01

1.

* ***Crew initiates closure of RWCU HV-F004 within two minutes of receiving OHA C1-A2 "RWCU DIFF FLOW HI".***

K/A 223002 Primary Containment Isolation System / Nuclear Steam Supply Shut-Off
A4 Ability to operate and/or monitor in the Control Room
A4.01 Valve Closures RO 3.6 SRO 3.5
A4.06 Confirm initiation to completion RO 3.6 SRO 3.7

The RWCU System has failed to isolate automatically. HV-F001 fails to isolate manually. Failure of the Crew to manually isolate the system will result in a bypass of the Reactor Coolant and Primary Containment boundaries and release of radioactive materials to the Reactor Building. Two minutes is deemed adequate time to affect isolation from the time confirmation of failure of the automatic isolation function is received.

2.

* ***Crew scrams the reactor within one minute of reactor pressure exceeding 1037 psig. (Scramming prior to reaching 1037 psig satisfies this requirement.)***

K/A 241000 Reactor/Turbine Pressure Regulating System
A2. Ability to (a) predict the impacts of the following on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations:
A2.04 Failed open/closed control/governor valves RO 3.7 SRO 3.8
A4 Ability to manually operate and/or monitor in the control room:
A4.02 Reactor Pressure RO 4.1 SRO 4.1

The Pressure Regulating System is failed and reactor pressure will continue to rise. Neither RPS nor RRCS will automatically scram the reactor. Lo-Lo set is also failed. Without operator action, reactor pressure will rise until the 1108 psig safety relief valve setpoint is reached. The only way to reduce pressure is to shutdown the reactor to lower steam generation. Manual operator action is required to accomplish this. Based on the worst case rate of pressure rise in this scenario (assuming the Immediate Operator Action to reduce power and maintain the RPV PRESSURE HI overhead alarm clear), it will take reactor pressure over a 1.5 minutes to reach the scram setpoint of 1037 psig. An additional minute past this point is adequate time to recognize both the rising reactor pressure and failure to scram and insert a manual scram.

3.

* ***Crew maintains Suppression Chamber Pressure below the Action Required region of the PSP curve without Emergency Depressurizing.***

K/A 295024 High Drywell Pressure
EA1 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE:
EA1.11 Drywell Spray RO 4.2 SRO 4.2
EA2 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE:
EA2.04 Suppression chamber pressure RO 3.9 SRO 3.9
K/A 223001 Primary Containment Systems and Auxiliaries
A2. Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:
A2.02 Steam bypass of the suppressions pool RO 3.9 SRO 4.1

If suppression chamber pressure cannot be maintained below the pressure suppression pressure, EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure curve, could cause design containment limits to be exceeded. Based upon the rate of pressure increase in this scenario, the Crew has over ten minutes to initiate Drywell Sprays and prevent entry into the Action Required region of the PSP curve. This will prevent an unnecessary Emergency Depressurization, which is a significant challenge to the Suppression Pool and would cause the Cooldown Limit for the Reactor Coolant system to be unnecessarily exceeded. Reducing reactor pressure within the cooldown limit may also delay/prevent entry into the action required region.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
____	Loss Of Offsite Power/SBO
Y	LOCA

Y/N	EVENT
____	Internal Flooding

TRANSIENTS:

____	Turbine Trip
____	Loss of Condenser Vacuum
____	Loss of Feedwater
____	Inadvertent MSIV Closure
____	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

____	Loss of SSW
____	Loss of SACS
____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
____	Hard Torus Vent
____	HPCI
____	1E 4.16KV Bus
____	SACS Hx/Pump
____	EDG
____	120VAC 481/482 Inverter
____	A/B RHR
____	RCIC
____	SSW Pump

Y/N	KEY EQUIPMENT
____	SLC
____	CRD
____	1E 125VDC

KEY SYSTEMS

____	500KV AC Power
____	SRVs
____	Condensate/Feedwater
____	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Aligning RHR for Suppression Pool Cooling
____	Emergency Venting of Primary Containment
____	Emergency Depressurize RPV W/O High Pressure Injection
____	Initiating LP ECCS with No High Pressure Injection Available
____	Restoration of AC Power after a LOP (EDG / Offsite)
____	Monitoring and Control of SACS heat loads
____	Preventing LVL 8 trip of Feedwater during a transient
____	Align Core Spray Suction to CST when at NPSH limits
____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: 90%
MWe (May vary slightly): 1100
Work Week: A
Risk Color: Green

Activities Completed Last Shift:

- Power reduction to 90% power.
- Making preparations to swap TACS to 'B' SACS Loop IAW HC.OP-SO.EG-0001 for work week planned maintenance on 'A' SACS Pump. The RB EO has been briefed and is standing by at the SACS pumps. SSW D Traveling screen has been run in preparation for the swap. The Yard EO has been briefed and is standing by at the SSW Intake Structure.

Major Activities Next 12 Hours:

- Continue power reduction to 84.5% for removal of A RFPT for maintenance troubleshooting.
    - RE Guidance: Insert rods to 84.5% power using 9D and 9E rods.

Swap TACS to 'B' SACS Loop IAW HC.OP-SO.EG-0001. The RB EO has been briefed and is standing by at the SACS pumps.

Protected Equipment:

None

Tagged Equipment:

None

IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

Note: This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-CHECK ESG- NRC-S3 REVIEWER:

1. The scenario has clearly stated objectives in the scenario.
2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.
3. Each event description consists of:
   - The point in the scenario when it is to be initiated
   - The malfunction(s) that are entered to initiate the event
   - The symptoms/cues that will be visible to the crew
   - The expected operator actions (by shift position)
   - The event termination point
4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.
5. The events are valid with regard to physics and thermodynamics.
6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).
7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
8. If time compression techniques are used, scenario summary clearly so indicates.
9. The simulator modeling is not altered.
10. All crew competencies can be evaluated.
11. Appropriate reference materials are available (SOERs, LERs, etc.)
12. Proper critical task methodology used IAW NRC procedures.

Note: The following criteria list scenario traits that are numerical in nature. The section below should be completed for each scenario.

ESG: NRC-S3

SELF-CHECK

GS 1. Total malfunctions inserted: 5-8

GS 2. Malfunctions that occur after EOP entry: 1-2

GS 3. Abnormal Events: 2-4

GS 4. Major Transients: 1-2

GS 5. EOPs entered requiring substantive actions: 1-2

GS 6. EOP Contingency Procedures requiring substantive actions: 0-2

GS 7. Approximate scenario run time: 60-90 minutes

GS 8. Critical Tasks: 2-3

GS 9. Technical Specifications are exercised during the test ≥2

Comments:

EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

A Crew Validation **Rev:** 00 **Date Validated:** _____

Validation Comments	Disposition
This will be less time consuming than A.	
Need to add a failure to either F001 or F004 because if they close it early, then the CRS will not get TS call.	Failed F001 to close manually and automatically.
Slow down rate of rise of TCV failure. No real time to do anything about it.	Changed ramp time from 10 minutes to 15 minutes. Overall time to respond is now about 2 minutes from 1st alarm until scram setpoint with no action taken.

EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

Crew Validation **Rev:** _____ **Date Validated:** _____

Validation Comments	Disposition

ONLINE RISK: GREEN	WORK WEEK CHANNEL: A

Reactor Power: 90%

MWe (May vary slightly): 1100

Activities Completed Last Shift:

- Power reduction to 90% power.
- Making preparations to swap TACS to 'B' SACS Loop IAW HC.OP-SO.EG-0001 for work week planned maintenance on 'A' SACS Pump. SSW D Traveling screen has been run in preparation for the swap.

Major Activities Next 12 Hours:

- Continue power reduction to 84.5% for removal of A RFPT for maintenance troubleshooting.
- Swap TACS to 'B' SACS Loop IAW HC.OP-SO.EG-0001. The RB EO has been briefed and is standing by at the SACS pumps. The Yard EO has been briefed and is standing by at the SSW Intake Structure.

Heightened Awareness:

None

Protected Equipment:

None

Tagged Equipment:

None

Reactivity:

- Continue power reduction to 84.5% for removal of A RFPT for maintenance troubleshooting.
    - RE Guidance: Insert rods to 84.5% power using 9D and 9E rods.

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: NRC SCENARIO 4

SCENARIO NUMBER: ESG-NRC-S4

EFFECTIVE DATE: Effective when signed

EXPECTED DURATION: 66 minutes

REVISION NUMBER: 02

PROGRAM:

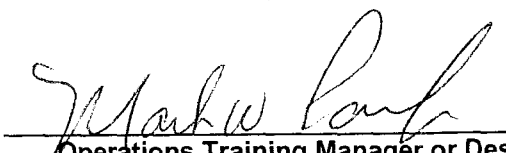
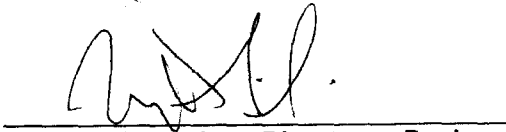
[ ] L.O. REQUAL

[X] INITIAL LICENSE

[ ] OTHER _____

REVISION SUMMARY:

1. Validated time 66 minutes.
2. Added to TO sheet, "Return 'B' RFPT to service IAW HC.OP-SO-AE-0001 Section 5.7".
3. Added driver guidance for I&C action for Flow Unit
4. Added that the light is extinguished for Seismic panel.

PREPARED BY:	Archie E. Faulkner **Instructor**	12/6/2008 **DATE**
APPROVED BY:	 **Operations Training Manager or Designee**	12/11/08 **DATE**
APPROVED BY:	 **Operations Director or Designee**	12/11/8 **DATE**

I. OBJECTIVE(S):

Enabling Objectives

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Place 'B' RFPT in service
B. Power ascension
C. SRV 'H' Tailpipe temp sensor fails upscale
D. 'C' Recirc Flow Unit Summer fails downscale
E. Seismic Event
F. RCIC Steam Leak
G. Trip of Service Air Compressor
H. Air Leak w/Multiple Rod Drift
I. LOP w/ EDG failures
J. LOCA w/Steam Cooling

II. SCENARIO SUMMARY:

The scenario begins with the plant at ~84.5% power, 1000 MWe, with 'B' RPFT running at 1000 rpm. The PO will place 'B' RFPT in service. Power will be raised to 90% with Reactor Recirc flow. SRV 'H' Tailpipe Temperature fails upscale for SRO Tech Spec determination. 'C' Recirc Flow Unit Summer will fail downscale causing a half scram on the A1/A2 RPS channels. A seismic event greater than the SSE will occur. Following the seismic event, a steam leak will develop in the RCIC room. RCIC will fail to automatically isolate, but can be isolated from the Control Room **(Critical Task)**. After the RCIC steam leak is isolated, the 10K107 Service Air Compressor will trip. When the 00K107 is placed in service, the pressure transient will cause an air leak to develop on the scram air header. The air leak will cause multiple control rods to drift in, requiring a manual reactor scram **(Critical Task)**. After the scram, an aftershock will occur. The aftershock will cause a loss of offsite power and LOCA. Only the 'A' EDG will start. The HPCI F001 will fail to open, rendering HPCI inoperable. When the 'A' RHR pump starts, the 'A' EDG will trip. This will result in no available injection sources. When RPV water level reaches -200", the Crew must emergency depressurize **(Critical Task)**. After the Crew opens five SRVs, the 'C' EDG will be restored to service. The 'C' RHR pump will fail to automatically start and inject, and must be started and aligned for injection by the Crew **(Critical Task)**. After RPV water level is restored to above -185", the 'A' EDG will be restored to service. This will allow containment control to be exercised. The scenario is terminated when the RPV has been depressurized and RPV water level restored.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to full power, MOL.
	REDUCE power to 84.5% using recirc.
	ENSURE 10K107 Service Air Compressor is in service.
	REMOVE B RFPT from service as follows:
	1. PRESS RFPT A(B,C) SPEED CONTROLLER "INS" pushbuttonto select "SPD DEMAND."
	2. PLACE the Reactor Feed Pump in manual by pressing the M pushbutton on RFPT SPEED CONTROLLER AND OBSERVE "M" (manual) illuminates.
	3. PRESS DECREASE ↓ pushbutton on RFPT A(B,C) SPEED CTRLR to reduce speed/flow of the Reactor Feed Pump to be removed from service AND ALLOW the other Reactor Feed Pumps to assume the flow of the Reactor Feed Pump being removed from service.
	4. WHEN the Reactor Feed Pump being removed reaches 0 gpm flow to RPV, PRESS DECREASE ↓ pushbutton on RFPT A(B,C) SPEED CTRLR UNTIL SPD is < 1000 RPM.
	5. CLOSE AE-HV-1769A(B,C), Reactor Feed Pump Discharge Stop Check Valve Motor Operator.
	INITIAL IO-0006 up to and including step 5.1.11 with the exception of step 5.1.9

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	*Description*
	PREPARE a Fire Alarm for FA016.
	COMPLETE the Simulator Ready for Training/Examination Checklist.
	ENSURE Data Collection is trending the following datapool variables:
	• RCIC Room Temp hvtr4110
	• W/R Reactor Water Level: **rrln091a** or equivalent
	• Fuel Zone Reactor Water Level: **rrlfzcha** or equivalent
	• Instrument Air Header Pressure: **iapiarca/iapiarcb** or equivalent

EVENT TRIGGERS:

Initial	ET #	Description	
	6	EVENT ACTION: COMMAND: PURPOSE:	et_array(6) **imf PC07B** Initiates aftershock with LOP/LOCA
	7	EVENT ACTION: COMMAND: PURPOSE:	
	8	EVENT ACTION: COMMAND: PURPOSE:	et_array(8) **dmf dg02a** Restores 'A' EDG to service.
	9	EVENT ACTION: COMMAND: PURPOSE:	**ia:0prun >= 1.0** // 00K107 running Inserts air leak when 00K107 is started.
	10	EVENT ACTION: COMMAND: PURPOSE:	**iapiarca <= 75** // Instrument Air header pressure <= 75 psig **imf cd011427** Inserts drifting rods if pressure drops near 70 psig before delay times out.
	11	EVENT ACTION: COMMAND: PURPOSE:	**iapiarca <= 75** // Instrument Air header pressure <= 75 psig **imf cd011827** Inserts drifting rods if pressure drops near 70 psig before delay times out.
	12	EVENT ACTION: COMMAND: PURPOSE:	**iapiarca <= 75** // Instrument Air header pressure <= 75 psig **imf cd012227** Inserts drifting rods if pressure drops near 70 psig before delay times out.
	13	EVENT ACTION: COMMAND: PURPOSE:	**iapiarca <= 75** // Instrument Air header pressure <= 75 psig **imf cd062627** Inserts drifting rods if pressure drops near 70 psig before delay times out.
	14	EVENT ACTION: COMMAND: PURPOSE:	**rh:bkr(1) >= 1.0** // 'A' RHR pump running *Trips the 'A' EDG*

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	RC10 RCIC Steam Failure to Auto-Isolate	---	---	NONE	---	---
	HP04 HPCI system fails to start	---	---	NONE	---	---
	DG01C 'C' EDG Failure to Start (Auto or Man)	---	---	NONE	---	---
	DG02B Failure of 'B' EDG	---	---	NONE	---	---
	DG02D Failure of 'D' EDG	---	---	NONE	---	---
	RH08C 'C' RHR Failure to Auto-Start/Inject	---	---	NONE	---	---
	AD01 Failure of ADS to Actuate	---	---	NONE	---	---
	AD04H SRV H Tailpipe Temp fails upscale	---	---	ET-1	---	100%
	NM12C Recirc Flow Summer failure	---	---	ET-2	---	0%
	PC07B Seismic Event II	---	---	ET-3	---	---
	RC09 Steam Line Break in the RCIC Room	1:00	5:00	ET-3	25%	80%
	AN-A2A5 Cry Wolf Fire Protection Panel Alarm	3:00	---	ET-3	---	---
	IA01A Trip of 10K107 Service Air Compressor	---	---	ET-5	---	---
	IA02 Gradual Loss of Instrument Air	---	---	ET-9	---	60
	CD011427 Control Rod Drift In 14-27	2:00	---	ET-9	---	---
	CD011827 Control Rod Drift In 18-27	2:00	---	ET-9	---	---
	CD012227 Control Rod Drift In 22-27	2:00	---	ET-9	---	---
	CD062627 Control Rod Scram 26-27	2:00	---	ET-9	---	---
	EG12 Loss of Offsite Power	---	---	ET-6	---	---
	RR31A2 Large Break LOCA	3:00	5:00	ET-6	0%	3%
	DG02A Failure of 'A' EDG	00:03	---	ET-14	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	HV06 CVH300 RBVS Fan	---	---	ET-4	---	STOP
	HV05 BVH300 RBVS Fan	1 sec	---	ET-4	---	STOP
	HV04 AVH300 RBVS Fan	1 sec	---	ET-4	---	STOP
	HV03 CV301 RBVE Fan	2 sec	---	ET-4	---	STOP
	HV02 BV301 RBVE Fan	3 sec	---	ET-4	---	STOP
	HV01 AV301 RBVE Fan	3 sec	---	ET-4	---	STOP
	HP08 HPCI Aux Oil Pump Breaker	---	---	ET-7	---	TAGGED
	DG05 'A' EDG Shutdown Relay	00:05	---	ET-8	---	RESET
	DG01 'A' EDG Lockout Relay	00:20	---	ET-8	---	RESET

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final V

Event / Instructor Activity	Expected Plant/Student Response	Comments
Place 'B' RFPT in-service: Crew places 'B' RFPT in service after assuming the watch.	• CRS directs PO to place 'B' RFPT in service IAW OP-SO.AE-0001.	
	• PO opens HV-1769B, REACTOR FEED PUMP B DISCH STOP CHK VLV MOT OPER.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
	• PO presses the "INS" pushbutton as required to select "DEMAND" on the in-service RFPT(S), whose demand will be matched	
	• PO presses the "INS" pushbutton as necessary, for the RFPT to be placed in-service, to select RFPT B "SPEED CTRLR DEMAND".	
	• PO presses the INCREASE ↑ or DECREASE ↓ push button on the Pump being placed in-service as necessary, to equalize the "DEMAND" signals, WHILE MONITORING the following: ⇒ RFPT Discharge Pressure ⇒ RFPT "DEMAND" ⇒ RFPT "FLOW"	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
	• When flow and speed are approximately equal, PO transfers RFPT B SPEED CTRLR to automatic by pressing the A pushbutton AND observing "A" illuminates.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Power Ascension: Crew commences reactor power ascension after assuming the watch.	• CRS directs raising power to 90% using RE guidance.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
As RE **PROVIDE** the following guidance: • SPRI and Enhanced Stability Guidance are valid for the remainder of the maneuver • Power has been steady for the last hour. • Target rod line has been reached. • Raise power to 90% with reactor recirculation and hold for thermal limit checks.	• RO monitors the following when changing Recirc Pump speed: ⇒ XR-R603A,B,C,D - C51 (NEUTRON MONITORING) APRM ⇒ B31-FR-R614 RECIRC LOOP A(B) FLOW ⇒ FR-R611A(B) RECIRC LOOP A(B) JET PUMP FLOW ⇒ PDR-R613/FR- FR-R613 CORE PLATE DIFF PRESS/JET PUMP FLOW	
	• RO raises Reactor Recirc Pump speed by intermittently pressing INCREASE pushbutton on SIC-R621A(B) PUMP A(B) SPD CONT.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
SRV Tailpipe Temperature Fails High: After the Crew completes needed reactivity changes and placing B RFPT in service, at the discretion of the Lead Examiner, **TRIGGER ET-1** (PSV-F013H Tailpipe Temperature Fails High)	• Crew recognizes SRV F013H high tailpipe temp by: ⇒ OHA C1-A3 "ADS/SAFETY RELIEF VLV NOT CLOSED" ⇒ Flashing red alarm light on TRR-614	
	• Crew validates no SRV open by: ⇒ Absence of acoustic monitor indication ⇒ No change in Main Generator MWe ⇒ No steam flow feed flow mismatch	
	• Crew recognizes probable SRV tailpipe temperature failure due to reading unrealistically high.	
	• Crew contacts Maintenance.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognize the following Tech Spec action applies: ⇒ Accident Monitoring Instrumentation Table 3.3.7.5-1 *Action 80a*	Must restore within 30 days or initiate actions IAW T/S 6.9.2
RECIRC LOOP FLOW SUMMER 'C' FAILURE: At the discretion of the lead *Examiner*, **TRIGGER ET-2** (RECIRC LOOP FLOW SUMMER FAILURE to 0 percent).	• Crew monitors Reactor power, pressure, and level and ensure plant conditions are stable. Ensures no scram setpoints have been exceeded.	
	• Crew recognizes RPS ½ scram by: ⇒ OHA C3-A3 "REACTOR SCRAM TRIP LOGIC A2" ⇒ OHA C5-A1 "NEUTRON MONITORING SYSTEM" ⇒ RPS Trip Logic A2 NORMAL/RESET status lights extinguished ⇒ Pilot Scram Valve Solenoid LOGIC A NORMAL status lights for all four groups extinguished. ⇒ CRIDS D2127 "NEUTRON MONITORING SYSTEM SCRAM Y TRIP" ⇒ CRIDS D2132 "REACTOR SCRAM Y TRIP"	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes 'A', 'C', and 'E' APRMs Upscale by: ⇒ OHA C3-C4 "APRM SYS A UPSCALE TRIP/INOP" ⇒ C3-D4 "APRM UPSCALE" ⇒ APRMs A,C, and E "UPSC TR OR INOP" status lights ⇒ APRM A,C, and E "UPSC ALARM" status lights ⇒ CRIDS D2143 "APRM CHANNEL C UPSCALE TRIP YES" ⇒ CRIDS D4306 "APRM CH C UPSCALE THERMAL TRIP ALARM" • Crew recognizes 'C' RECIRC LOOP FLOW SUMMER FAILURE Downscale by: ⇒ FLOW UNIT C and A "COMPAR" status lights ⇒ APRM A, C, and E "UPSC ALARM" status lights	
	• CRS implements AB.IC-0004: ⇒ Condition F • RO bypasses 'C' Flow Unit. • CRS refers to DD.ZZ-0020 for a failed PPC Sensor. • CRS directs Reactor Engineering to Evaluate the flow unit failure on the PPC.	
IF directed to place the Flow Unit C MODE Switch in the unlabeled position, **THEN CHANGE** Malfunction NM12C Final value to 100%.	• RO directs I&C to place the MODE Switch, on the applicable flow unit, to the "UNLABELED" position between STANDBY and ZERO. • RO verifies RPS trip clear.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO resets RPS trip as follows: ⇒ TURN the affected RPS Trip Logic key to RESET, AND RETURN to the NORMAL position. ⇒ VERIFY that RPS is reset. • CRS determine no Tech Spec actions required. Enter Tracking Action statement for: ⇒ Table 3.3.6-1 Function 6	
Earthquake/Steam Leak: At the discretion of the Lead Examiner: • **PLAY** the Earthquake Sound Effect (if available) at medium volume for about 20 seconds OR **ANNOUNCE** "You feel motion then it stops" • **TRIGGER ET-3** (Seismic Event/Steam Leak in RCIC Room)	• Crew recognizes Seismic Event by: ⇒ OHA C6-C4 "SEISMIC MON PNL C673" ⇒ CRIDS D3977 "SEISMIC TROUBLE ALARM TRBL" ⇒ Response Spectrum Analyzer indications on 10C650C ⇒ Loud rumbling noise (if available)	
	• Crew monitors critical parameters to determine if plant is stable.	
IF Crew calls National Earthquake Center, THEN **REPORT** a seismic event of 6.0 on Richter scale centered 12 miles east of Wilmington, DE. IF Crew calls Security, THEN **REPORT** the Security system is intact.	• CRS implements AB.MISC-0001: ⇒ Condition E ⇒ Condition F	AB.MISC-0001 actions provided for reference only. Due to the pace of the scenario, it is unlikely they will be implemented.
	• RO/PO implement AR.ZZ-0011 Attachment C4.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to 10C673, THEN **REPORT**: • The Event Indicator is WHITE • The tape machines have advanced but are not running • The Amber Alarm light on the Seismic Switch Power Supply drawer is lit. • The Amber SMA-3 Event Alarm Light is extinguished.	• Crew dispatches ABEO to 10C673. • Crew recognizes a seismic event >0.1g has occurred	
IF directed to reset 10C673, THEN **DELETE** Malfunction **PC07B** and re-insert Malf PC07B with trigger **ET-6**.	• RO/PO direct ABEO to reset 10C673 IAW SO.SG-0001.	
	• RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1. • RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001. • Crew determines a shutdown IAW IO.ZZ-0004 is required.	
RCIC Steam Leak: The RCIC steam leak will be automatically inserted one minute after the seismic event. WHEN A2-A5 alarms, THEN **PROVIDE** Fire Computer indication of point **FA016** (Fire Computer point may be provided by Examiner or by Fire Computer Simulation).	• Crew recognizes a steam line break in the RCIC room by: ⇒ OHA B1-A2 "RCIC STEAM LINE DIFF PRESSURE HI" ⇒ OHA A2-A5 "FIRE PROT PANEL 10C671" ⇒ Fire Comp Pt FA016 "ROOM 4110 RCIC PUMP AND TURBINE ROOM" ⇒ RCIC room temperature trending up (Rm 4110) ⇒ Lowering Main Gen MWe ⇒ Offsite release rate trending up ⇒ RCIC Turbine Inlet Pressure on PI-R602 ⇒ ISLN INIT status lights	B1-A2 and ISLN INIT status lights will be received if the leak severity reaches 80% before being isolated. (about 5 minutes) A2-A5 Fire Alarm will be received two minutes after the leak starts.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew announces steam leak in RCIC room on plant page.	
IF dispatched to RCIC Room, THEN **REPORT** the room is filled with steam.	• Crew recognizes failure of RCIC to isolate by: ⇒ HV-F007 valve position ⇒ HV-F008 valve position ⇒ RCIC room temperature trending up (Rm 4110)	Only applicable if isolation signal received.
	• PO closes HV-F007 AND HV-F008 using Control Room keylock switches.	**HPI USED:** STAR ☐ PEER CHECK ☐ Immediate Operator Action IAW AB.CONT-0002
	* ***Crew closes the RCIC HV-F007 OR HV-F008 before RCIC Room temperature reaches 250 degF.***	**RECORD** RCIC Room 4110 temperature when HV-F007 OR F008 are closed. Temperature: _____
	• IF RCIC Room temperature reaches 115 degrees, THEN CRS implements EOP-103.	
	• Crew recognizes abnormal gaseous radioactive release by: ⇒ OHA C6-C1 RADIATION MONITORING ALARM/TRBL" ⇒ RM11 9RX580 SPV Effluent alarm ⇒ SPDS indication	
	• CRS implements AB.CONT-004: ⇒ Condition A ⇒ Condition C	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to secure Rx Bldg Ventilation, THEN: • **REFER** to SO.GU-0001 Section 5.3 • **TRIGGER ET-4** to secure fans	• PO places FRVS in service IAW SO.GU-0001 Section 5.3.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐ OP BARRIERS ☐
	• CRS recognize the following Tech Specs actions apply: ⇒ Reactor Core Isolation Clg 3.7.4 ⇒ Primary Containment Isolation Valves 3.6.3 (Only if failure to isolate is observed)	With RCIC inoperable operation may continue provided HPCI is operable. Must restore RCIC in 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor pressure to ≤ 150 psig in the following 24 hours. (Note that a shutdown is already required due to the seismic event)
Trip of 10K107: 10 minutes after the RCIC steam leak is isolated, OR, at the Lead Examiners discretion, **TRIGGER ET-5** (Trip of 10K107, Air leak with multiple rod drifts).	• Crew recognizes loss of 10K107 by: ⇒ OHA A2-B2 "COMPRESSED AIR PANEL 00C188" ⇒ OHA A2-A1/A2 "INST AIR HEADER A/B PRESS LO" ⇒ CRIDS D4601 "INSTR AIR SPLY HDR A PRESS LO" ⇒ CRIDS D4602 "INSTR AIR SPLY HDR B PRESS" LO ⇒ OVLD/PWR FAIL light ⇒ Lowering Service and Instrument Air pressures	The primary purpose of the air malfunctions is to exercise the immediate operator actions for trip of the inservice service air compressor and multiple rods drifting in. The pace may not allow full implementation of the abnormal.
	• PO places 00K107 in service IAW AB.ZZ-0001 Attachment 7.	Immediate Operator Action IAW AB.COMP-0001. **HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐
	• CRS implements AB.COMP-001: ⇒ Condition A	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to check status of RACS demins, AND the EIAC is running, THEN **REPORT** the RACS demins are **isolated**. IF dispatched to check status of HV-11416, AND Remote Function **IA01** status is **ONLINE**, THEN **REPORT** the HV-11416 is **open**.	• IF Instrument Air Header Pressure reaches 85 psig, THEN CRS implements AB.COMP-0001: ⇒ Condition C	
IF dispatched to investigate the trip of 10K107, THEN **REPORT** VIBRATION ALARM and VIBRATION SHUTDOWN alarms were in.	• Crew dispatches TBEO and Maintenance to investigate trip of 10K107.	
Air Leak: The air leak is automatically inserted when the 00K107 is started. **ENSURE ET-9** triggers when 00K107 is manually started.	• Crew recognizes air leak by: ⇒ OHA A2-A1/A2 "INST AIR HEADER A/B PRESS LO" ⇒ OHA A2-B2 "COMPRESSED AIR PANEL 00C188" ⇒ CRIDS D4601 "INSTR AIR SPLY HDR A PRESS LO" ⇒ CRIDS D4602 "INSTR AIR SPLY HDR B PRESS" LO ⇒ Lowering Service and Instrument Air pressures • CRS implements AB.COMP-001: ⇒ Condition A	
IF dispatched to check status of RACS demins, AND the EIAC is running, THEN **REPORT** the RACS demins are **isolated**. IF dispatched to check status of HV-11416, AND Remote Function **IA01** status is **online**, THEN **REPORT** the HV-11416 is **open**.	• IF Instrument Air Header Pressure reaches 85 psig, THEN CRS implements AB.COMP-0001: ⇒ Condition C	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Multiple Rod Drifts: The multiple rod drift is automatically inserted 2 minutes after the air leak starts, OR if instrument air pressure drops to 75 psig.	• Crew recognizes multiple rods drifting into the core by: ⇒ OHA C6-E3 "ROD DRIFT" ⇒ Multiple "DRIFT", lights on Full Core display ⇒ RWM drifting rods indication ⇒ CRIDS C078 "ROD DRIFT ALARM ALM" ⇒ Lowering reactor power and Main Generator output • RO locks the Mode Switch in SHUTDOWN. * ***Crew scrams the reactor within two minutes of rod drifts.***	**RECORD** the time between OHA C6-E3 and reactor scrammed. TIME: _____
	• RO performs scram actions IAW AB.ZZ-0001 Att 1. • Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators • CRS implements EOP-101. • PO controls RPV water level as directed by CRS IAW AB.ZZ-0001 Att 14.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
Aftershock/LOP/LOCA: 5 minutes after the scram, OR, at the Lead Examiners discretion, • **PLAY** the Earthquake Sound Effect (if available) at medium volume for about 20 seconds OR **ANNOUNCE** "You feel motion then it stops" • **TRIGGER ET-6** (LOP/LOCA)	• Crew recognizes Loss of Offsite Power by: ⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers ⇒ TRIP indication for all 500 KV breakers ⇒ Flashing TRIP lights for all previously closed bus infeeds. ⇒ Numerous OVLD/PWR FAIL lights.	
	• Crew recognizes failure of the B/C/D EDGs to start and load by: ⇒ Engine STOP lights ⇒ Output breaker TRIP lights ⇒ OVLD/PWR lights on associated Channel components	Only 'A' EDG will start. 'A' EDG will trip when the 'A' RHR pump is started.
	• RO/PO attempt to start the B/C/D EDGs.	**HPI USED:** STAR ☐ PEER CHECK ☐ Immediate Operator Action IAW AB.ZZ-0135
	• CRS implements AB.ZZ-0135.	
IF dispatched to investigate the failure of B/D EDGs to start, THEN **REPORT** both EDGs have Lube Oil Low Pressure Shutdown alarms. There is oil on EDG room floors.	• Crew dispatches NEO and/or Maintenance to investigate failure of B/D EDGs to start.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to investigate the failure of the 'C' EDG to start, THEN **REPORT** there is a blown fuse on DC Circuit 3 on the CC421 panel. IF directed to start the EDG using either local control switch, THEN **REPORT** it did not work. (AR.KJ-0005 Att. 37A) IF dispatched to check 86, SFR, and SDR relays for 'C' EDG, THEN **REPORT**: • 86 lockout relays are reset (CC422, elev 137') • Blue buttons on SFR and SDR are out (de-energized) (CC421 elev 102')	• Crew dispatches NEO and/or Maintenance to investigate failure of 'C' EDG to start.	
IF dispatched to determine status of HPCI, THEN **REPORT** • HPCI is idle • HPCI Aux oil pump is running. • HV-F001 is closed IF directed to open the breaker for the HPCI Aux Oil pump, (72-251042) THEN **TRIGGER ET-7**. IF directed to open HV-F001 by hand, REPORT HV-F001 will not move	• Crew recognizes HPCI oil problem by: ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ OHA B1-E5 "HPCI PUMP DISCH FLOW LO" ⇒ HPCI Trip Throttle and Governor valves closed w/Aux Oil pump running and "TURB TRIP SOLENOID ENERGZ" light not lit ⇒ CRIDS D5435 "HPCI BRG OIL LO PR/HVF001 OPN"	
	• CRS directs injecting with 'A' SLC pump. • RO/PO start the 'A' SLC pump.	Only available injection source. **HPI USED:** STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF called as the ESOC, THEN **REPORT** both the Hope Creek AND Salem switchyards are de-energized. It will take a minimum of 6-10 hours to restore power once the transient has been investigated.		
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	Given the lowering RPV water level, and 'A' RHR being the only available RHR pump, the Crew may not place 'A' RHR in Suppression Pool cooling at this time.
	• Crew recognizes Supp Pool Level Above 78.5 In EOP entry condition by: ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO" ⇒ Various Suppression Pool level indicators	Given the LOP and the unavailability of HPCI and RCIC, there is nothing the Crew can do to lower Suppression Pool water level at this time.
Steam Cooling: The 'A' EDG will trip 3 seconds after the 'A' RHR pump starts. This will automatically occur at 1.68#, if the Crew doesn't start it sooner.	• Crew recognizes trip of the 'A' EDG by: ⇒ Diesel engine STOP light ⇒ Flashing generator breaker TRIP light ⇒ OVLD/PWR FAIL lights on associated channel loads	
IF dispatched to investigate the trip of the 'A' EDG, THEN **REPORT** you heard the EDG slow down, then speed up and trip. Alarm on local panel is ENGINE OVERSPEED.	• Crew dispatches NEO and/or Maintenance to investigate trips of the 'A' EDG.	
	• CRS recognize **no** pumps are lined up available for injection and Steam Cooling is required.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN RPV water level reaches –129", THEN CRS directs inhibiting ADS.	
	• RO/PO inhibit ADS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐ FLAGGING ☐
	• WHEN RPV water level reaches –200", THEN CRS directs opening five ADS SRVs.	
	• RO/PO open five ADS SRVs IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐
WHEN at least five SRVs are open, THEN **DELETE** Malfunction **DG01C** to restore the 'C' EDG to service AND **REPORT** the 'C' EDG has been successfully started.	* ***Crew opens at least five SRVs before reactor water level has been below –200" for two minutes.***	
SUPPORT any requests to place ECCS pumps in PTL using Remote Functions: • **CS05C** for 'C' Core Spray • **RH23C** for 'C' RHR	• Crew recognizes start of the 'C' EDG by: ⇒ Diesel engine START light ⇒ Generator breaker CLOSE light ⇒ OVLD/PWR FAIL lights extinguished on associated channel loads	
	• RO/PO starts the 'C' RHR pump, opens the HV-F017C, and restores RPV water level to above –185" IAW AB.ZZ-0001 Att. 4.	The auto-start of the 'C' RHR pump and auto-opening of the F017C are failed.

Event / Instructor Activity	Expected Plant/Student Response	Comments
AFTER the Crew restores RPV water level to above –185", THEN **REPORT** you are ready to restore the 'A' EDG to service. The governor oil level was low and has been restored to normal.	* ***WHEN the 'C' EDG is restored, THEN the Crew injects with the 'C' RHR pump and restores and maintains RPV water level above -185".***	
SUPPORT any requests to place ECCS pumps in PTL using Remote Functions: • **CS05A** for 'A' Core Spray • **RH23A** for 'A' RHR		
IF directed to restore the 'A' EDG to service, AND after level has been restored with 'C' EDG, THEN **TRIGGER ET-8** AND **REPORT** the 'A' EDG has been successfully restarted.	• Crew recognizes start of the 'A' EDG by: ⇒ Diesel engine START light ⇒ Generator breaker CLOSE light ⇒ OVLD/PWR FAIL lights extinguished on associated channel loads	The restoration of the 'A' EDG makes the 'A' Core Spray Loop available for RPV water level control.
	• CRS directs restoring PCIG to the SRVs.	The AK202 PCIG compressor became available when the 'C' EDG was restored.
	• RO/PO restores PCIG to the SRVs IAW AB.ZZ-0001 Att. 9.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐ FLAGGING ☐
	• CRS directs placing the 'A' RHR pump in Drywell Spray.	
Termination Requirement: The scenario should be terminated at the discretion of the Lead Examiner when: • The reactor has been depressurized • RPV water level is being maintained above –129"	• RO/PO places 'A' RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐ FLAGGING ☐

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Performance Tools and Verification Practices
I. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
J. OP-AA-101-111-1004 Operations Standards
K. OP-AA-101-112-1002 On-Line Risk Assessment
L. OP-AA-106-101-1001 Event Response Guidelines
M. OP-HC-108-106-1001 Equipment Operational Control
N. OP-AA-108-114 Post Transient Review
O. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
P. HC.OP-AB.ZZ-0001 Transient Plant Conditions
Q. HC.OP-AB.CONT-0002 Primary Containment
R. HC.OP-AB.CONT-0004 Radioactive Gaseous Release
S. HC.OP-AB.COMP-0001 Instrument and/or Service Air
T. HC.OP-AB.MISC-0001 Acts of Nature
U. HC.OP-AB.RPV-0006 Safety/Relief Valve
V. HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction
W. HC.OP-AB.ZZ-000 Reactor Scram
X. HC.OP-EO.ZZ-0101 RPV Control
Y. HC.OP-EO.ZZ-0102 Primary Containment Control
Z. HC.OP-EO.ZZ-0103 Reactor Building Control
AA. HC.OP-EO.ZZ-0202 Emergency RPV Depressurization
BB. HC.OP-EO.ZZ-0206 RPV Flooding
CC. HC.OP-SO.AE-0001 FEEDWATER SYSTEM OPERATION
DD. HC.OP-SO.BB-0002 Recirculation System operation

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S4 / 02

1.

* ***Crew closes the RCIC HV-F007 OR HV-F008 before RCIC Room temperature reaches 250 degF.***

K/A 217000 Reactor Core Isolation Cooling System

A2 Ability to (a) predict the impacts of the following on the REACTOR CORE ISOLATION COOLING SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.15 Steam Line Break RO 3.8 SRO 3.8

A3 Ability to monitor automatic operations of the REACTOR CORE ISOLATION COOLING SYSTEM including

A3.01 Valve Operation RO 3.5 SRO 3.5

A4 Ability to manually operate and/or monitor in the control room:

A4.03 System valves RO 3.4 SRO 3.3

RCIC has failed to automatically isolate and can only be isolated by the Crew. This represents a bypass of both the RCS and Containment barriers. With indications of high steam flow, high room temperature, rising offsite releases, and an isolation signal to RCIC, the Crew should perform their Immediate Operator Actions IAW AB.CONT-0002 for a failure of a containment isolation valve to close. 250°F is the Max Safe Op temperature for the RCIC Room (4110).

2.

* ***Crew scrams the reactor within two minutes of rod drifts.***

K/A 201003 Control Rod and Drive Mechanism

A2 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.03 Drifting rod RO: 3.4 SRO 3.7

Having multiple rods inserting into the core out of sequence places the core in an unanalyzed condition. Thermal Limits may be violated resulting in fuel damage and a potential for radiological release. The Neutron Monitoring System is not designed to protect the core under these conditions and operator action is required. Two minutes is adequate time to confirm the drifting of multiple rods and take the immediate operator action IAW AB.COMP-0001.

3.

* ***Crew opens at least five SRVs before reactor water level has been below –200" for two minutes.***

K/A 295031 Reactor Low Water Level

EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

EA.06 Automatic depressurization RO 4.4 SRO 4.4

When Reactor water level cannot be maintained above -200" without injection to the RPV, adequate core cooling cannot be assured (Minimum Zero Injection Reactor Water Level). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there are no injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restore level with low pressure ECCS. The two minute time limit provides the Crew adequate time to implement EOP-202 IAW existing standards.

4.

* ***WHEN the 'C' EDG is restored,***
THEN the Crew injects with the 'C' RHR pump and restores and maintains RPV water level above -185".

K/A 295031 Reactor Low Water Level
EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:
EA1.01 Low pressure coolant injection (RHR) RO 4.4 SRO 4.4

The automatic start of the 'C' RHR pump and the automatic opening of the HV-F017C are failed. 'C' RHR is the only ECCS pump available for injection (although the 'C' Core Spray pump is running, there is no power to the injection valve due to the loss of the 'A' EDG). Operator action will be required to initiate injection and restore/maintain adequate core cooling. The absence of a time limit is due to the potential variance in reactor pressure when the 'C' RHR pump becomes available. The pump may become available before or after the permissible injection pressure for the RHR pump (IAW AB.ZZ-0001) is reached. This action must therefore be complete before the end of the scenario. Inherent to this critical task is the Crew dispatching personnel to investigate the failure of the 'C' EDG to start. If no one is sent to investigate, the EDG will NOT be restored to service.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
X	Loss Of Offsite Power/SBO
X	LOCA

Y/N	EVENT
	Internal Flooding

TRANSIENTS:

Y/N	
	Turbine Trip
	Loss of Condenser Vacuum
	Loss of Feedwater
	Inadvertent MSIV Closure
	Inadvertent SRV Opening
X	Manual Scram

LOSS OF SUPPORT SYSTEMS:

Y/N	
	Loss of SSW
	Loss of SACS
	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
	Hard Torus Vent
X	HPCI
X	1E 4.16KV Bus
	SACS Hx/Pump
X	EDG
	120VAC 481/482 Inverter
	A/B RHR
X	RCIC
	SSW Pump

Y/N	KEY EQUIPMENT
	SLC
	CRD
	1E 125VDC

KEY SYSTEMS

Y/N	
X	500KV AC Power
	SRVs
	Condensate/Feedwater
	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
X	Aligning RHR for Suppression Pool Cooling
	Emergency Venting of Primary Containment
X	Emergency Depressurize RPV W/O High Pressure Injection
X	Initiating LP ECCS with No High Pressure Injection Available
X	Restoration of AC Power after a LOP (EDG / Offsite)
	Monitoring and Control of SACS heat loads
	Preventing LVL 8 trip of Feedwater during a transient
	Align Core Spray Suction to CST when at NPSH limits
	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: ~84.5%
MWe (May vary slightly): 1000 MWe

Activities Completed Last Shift:
Completed troubleshooting activities on 'B' RFPT.

Major Activities Next 12 Hours:
Return 'B' RFPT to service IAW HC.OP-SO-AE-0001 Section 5.7.
Raise power to 90% IAW IO-0006.

Protected Equipment:
None

Tagged Equipment:
None

Reactivity:
Raise power to 90% using Reactor Recirc at ≤15%/ hr and hold for RE thermal limit checks.

IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

Note: This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-CHECK ESG- NRC-S4 REVIEWER: [signature]

QA 1. The scenario has clearly stated objectives in the scenario.

QA 2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.

QA 3. Each event description consists of:

- The point in the scenario when it is to be initiated
- The malfunction(s) that are entered to initiate the event
- The symptoms/cues that will be visible to the crew
- The expected operator actions (by shift position)
- The event termination point

QA 4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.

QA 5. The events are valid with regard to physics and thermodynamics.

QA 6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).

QA 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.

QA 8. If time compression techniques are used, scenario summary clearly so indicates.

QA 9. The simulator modeling is not altered.

QA 10. All crew competencies can be evaluated.

QA 11. Appropriate reference materials are available (SOERs, LERs, etc.)

QA 12. Proper critical task methodology used IAW NRC procedures.

Note: The following criteria list scenario traits that are numerical in nature.

ESG: **NRC-S4**

SELF-CHECK

QET 1. Total malfunctions inserted: 5-8

QET 2. Malfunctions that occur after EOP entry: 1-2

QET 3. Abnormal Events: 2-4

QET 4. Major Transients: 1-2

QET 5. EOPs entered requiring substantive actions: 1-2

QET 6. EOP Contingency Procedures requiring substantive actions: 0-2

QET 7. Approximate scenario run time: 60-90 minutes

QET 8. Critical Tasks: 2-3

QET 9. Technical Specifications are exercised during the test ≥2

Comments:

EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

Crew Validation **Rev:** 01 **Date Validated:** 11/21/2009

Validation Comments	Disposition
Need RFPT Startup step on Turnover Sheet.	Added to TO sheet. Return 'B' RFPT to service IAW HC.OP-SO-AE-0001 Section 5.7.
Add guidance for placing Flow unit Mode Switch in unlabeled position.	Added driver guidance for I&C action.
Add status of SMA-3 Event Alarm Light to ABEO report.	Added that the light is extinguished.

Crew Validation **Rev:** _____ **Date Validated:** _____

Validation Comments	Disposition

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

Reactor Power: ~84.5%

MWe (May vary slightly): 1000

Activities Completed Last Shift:

- Completed troubleshooting activities on 'B' RFPT.

Major Activities Next 12 Hours:

- Return 'B' RFPT to service IAW HC.OP-SO-AE-0001 Section 5.7.
- Raise power to 90% IAW IO-0006.

Heightened Awareness:

None

Protected Equipment:

None

Tagged Equipment:

None

Reactivity:

- Raise power to 90% using Reactor Recirc at ≤15%/ hr and hold for RE thermal limit checks.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Area Ventilation System

TASK: Manually Isolate the Control Room Emergency Filter System

TASK NUMBER: 4880060101

JPM NUMBER: 305H-JPM.GK001 **REV #:** 05

SAP BET: **NOH05JPGK01E**

ALTERNATE PATH: ☐

APPLICABILITY:

EO ☐ RO ☒ STA ☐ SRO ☒

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/26/08
Instructor

REVIEWED BY: N/A **DATE:** N/A
Operations Representative

APPROVED BY: [signature] **DATE:** 9/23/08
Training Department

STATION: Hope Creek

JPM NUMBER: GK001

SYSTEM: Control Area Ventilation System

TASK NUMBER: 4880060101

TASK: Manually Isolate the Control Room Emergency Filter System

ALTERNATE PATH: [ ]

K/A NUMBER: 290003 A4.01

IMPORTANCE FACTOR: 3.2 (RO) 3.2 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.GK-0001 Rev 13
HC.OP-AB.HVAC-0002 Rev 5

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 7 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Control Area Ventilation System

TASK: Manually Isolate the Control Room Emergency Filter System

TASK NUMBER: 4880060101

INITIAL CONDITIONS:

1. A severe Marsh fire had been observed near the site. Local fire departments responded to the fire.
2. Smoke was observed to be entering the Main Control Room from the Control Room Ventilation System.
3. 'A' CREF was placed in service in accordance with HC.OP-AB.HVAC-0002, Control Room Environment.
4. The fire is out, and the smoke has dissipated.

INITIATING CUE:

You are the Plant Operator.
Restore the Control Area Ventilation System to normal operation with one Control Area Exhaust Fan in service and one Control Area Exhaust Fan in AUTO.

NAME: _____

DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.GK-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1 then 5.3.5. **Examiner Note:** The system was placed in Isolate Recirc Mode IAW HC.OP-AB.HVAC-0002. The SOP has not been marked up.			

GK001 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3	**Manual Isolation**	N/A			
NOTE	The system can be manually isolated 50 sec after a Process Inhibit Signal is generated by a LOP or LOCA. Isolation of Control Area Supply Unit should be for the running unit.	N/A			
5.3.1	**ENSURE** that all prerequisites have been satisfied IAW Section 2.3.	Operator reviews Prerequisites.			
CUE	***If excessive time is taken reviewing* prerequisites, inform operator that all are satisfied.**	N/A			
5.3.5	IF Control Room Emergency Filter Unit operation is no longer required, **RE-ESTABLISH** normal Control Room Ventilation by performing the following steps: A. **DISPATCH** an operator to Local Panel 1EC485.	**Examiner Note:** Section 5.2.3 may be used in error. The Steps are identical to 5.3.5. Operator dispatches NEO to local panel 1EC485.			
CUE	**Role-play as NEO sent to 1E-C485.**	N/A			

GK001 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	B. **PRESS** HD-9598A NORMAL AND HD-9598B NORMAL PB.	Operator presses CONTROL AREA SPLY/EXH HD9598A NORMAL pushbutton.	*		
		Operator presses CONTROL AREA SPLY/EXH HD9598B NORMAL pushbutton.			
	C. **STOP** A(B) Control Room Emergency Filter Unit A(B)V400 by pressing the STOP PB.	Operator presses the 'A' CREF Fan STOP pushbutton.	*		
		Operator observes the STOP light illuminates and the AV400 START light extinguishes.			

GK001

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: **Control Area Ventilation System**
TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	D. IF in RECIRC MODE, **PLACE** CONTROL ROOM EMER FILTER UNIT A AND B OP MODE Switch in OA MODE AND **INITIAL** Attachment 1.	Operator determines that the system is in RECIRC MODE.			
		Operator depresses the CONTROL ROOM EMER FILTER UNIT A OP MODE switch O.A. MODE push button. **Examiner Note:** Dampers will not reposition since the CREF fan is already out of service.	*		
		CONTROL ROOM EMER FILTER UNIT B OP MODE switch O.A. MODE push button and initials Attachment 1.			

GK001 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	E. **INSTRUCT** the operator to place HS-9599A OR HS-9599B for A(B)V402 Control Area Exhaust Fan to STOP THEN to the RUN position AND **INITIAL** Attachment 1. (1EC485)	Operator directs placing one CAE fan in RUN and initials Attachment 1.			
CUE	**Role-play as NEO sent to 1E-C485, and support request for CAE fan manipulations using Remote Functions HV09 AND HV10.**	N/A			
	F. **INSTRUCT** the operator to place the other A(B)V402 Control Area Exhaust Fan HS-9599A OR HS-9599B to STOP THEN to the AUTO position AND **INITIAL** Attachment 1. (1EC485)	Operator directs placing remaining CAE fan in AUTO and initials Attachment 1.			
CUE	**Role-play as NEO sent to 1E-C485, and support request for CAE fan manipulations using Remote Functions HV09 AND HV10.**	N/A			

GK001 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Manually Isolate the Control Room Emergency Filter System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	G. Following each run, **INSPECT** drain openings via port holes in doors. **REPORT** any water accumulation or signs of flow to SM/CRS. **[CD-010E]**	Operator directs inspecting drain openings via port holes in doors for signs of water accumulation or flow.			
CUE	**Role-play as NEO sent to inspect drain openings via port holes in doors, and to report any water accumulation OR signs of flow to SM/CRS.**	N/A			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: GK001

TASK: Manually Isolate the Control Room Emergency Filter System

TASK NUMBER: 4880060101

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A severe Marsh fire had been observed near the site. Local fire departments responded to the fire.
2. Smoke was observed to be entering the Main Control Room from the Control Room Ventilation System.
3. 'A' CREF was placed in service in accordance with HC.OP-AB.HVAC-0002, Control Room Environment.
4. The fire is out, and the smoke has dissipated.

INITIATING CUE:

You are the Plant Operator.
Restore the Control Area Ventilation System to normal operation with one Control Area Exhaust Fan in service and one Control Area Exhaust Fan in AUTO.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	ENSURE the 'A' Control Room Ventilation train is in service and the 'B' Train is in Stby..
	PRESS the HD-9598A ISOLATE pushbutton.
	PRESS the CONTROL RM EMER FILTER UNIT A RECIRC MODE pushbutton.
	ALLOW conditions to stabilize for 3 minutes (CAE fans trip)

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	ENSURE simulator is reset.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	HV09 CAE Fan AV402					AS DIRECTED
	HV10 CAE Fan BV402					AS DIRECTED

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: GK001

Rev #	Date	Description	Validation Required?
04	8/15/07	Revision 11 of HC.OP-SO.GK-0001 direction to initial Attachment 1 (IV of manipulations) in steps 5.3.5.D/E/F with NO change in action steps. JPM GK001 updated to reflect this. No change in actions, validation not required. Converted JPM GK001 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial, validation not required. Removed references to checking off/initialing steps in procedure. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial, validation not required. Added Caution text to Element section. This is for examiner reference only and has no associated student actions. This change is editorial, validation not required. Updated Estimated Completion Time based on actual performance data.	N
05	8/26/08	Updated reference procedure revisions only. No changes to operator actions. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Core Spray

TASK: Manually Start the Core Spray System

TASK NUMBER: 2090030101

JPM NUMBER: 305H-JPM.BE005 **REV #:** 06

SAP BET: NOH05JPBE05E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 9/4/08
Instructor

REVIEWED BY: [signature] **DATE:** 9-12-08
Operations Representative

APPROVED BY: [signature] **DATE:** 9/16/08
Training Department

STATION: Hope Creek

JPM NUMBER: BE005 **REV:** 06

SYSTEM: Core Spray

TASK NUMBER: 2090030101

TASK: Manually Start the Core Spray System

ALTERNATE PATH: [X] **K/A NUMBER:** 209001 A4.01

IMPORTANCE FACTOR: 3.8 (RO) 3.7 (SRO)

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001 Attachment 5 Rev. 16

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 13 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Core Spray

TASK: Manually Start the Core Spray System

TASK NUMBER: 2090030101

INITIAL CONDITIONS:

1. The plant has experienced a loss of all offsite power coincident with a small break LOCA.
2. A and C Emergency Diesel Generators have failed to start.
3. HPCI has just tripped
4. Reactor pressure is approximately 500 psig and lowering.
5. Reactor level is approximately -70 inches and lowering.

INITIATING CUE:

Restore reactor level to RPV Level 2 to Level 8 band with B Core Spray Loop. The simulator is in FREEZE until you are ready to begin.

JPM: BE005 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 06 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Manually Start the Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains/locates procedure HC.OP-AB.ZZ-0001, Attachment 5.	Operator obtains the correct procedure.			
1.0	IF required, **ARM** THEN **PRESS** B MAN INIT PBs.	Operator determines that operation of the MAN INIT PBs is not necessary based on overhead annunciators B3-A1/A2/A3/A4, CORE SPRAY PUMP AUTO START are in alarm.			
2.0	**ENSURE** B Core Spray Pump is RUNNING.	Operator observes the B Core Spray Pump is not running.			
		Operator depresses the BP206 START push button.	*		
		Operator observes that B Core Spray Pump is running.			
3.0	IF Required, **ARM** THEN **PRESS** D MAN INIT PBs.	Operator determines that operation of the MAN INIT PBs is not necessary based on overhead annunciators B3-A1/A2/A3/A4, CORE SPRAY PUMP AUTO START are in alarm.			

JPM: BE005 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 06 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Manually Start the Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	**ENSURE** D Core Spray Pump is RUNNING.	Operator observes the D Core Spray Pump is not running.			
		Operator depresses the DP206 START push button.	*		
		Operator observes that D Core Spray Pump is running.			
5.0	**ENSURE** HV-F015B is CLOSED.	Operator observes that HV-F015B is CLOSED.			
6.0	WHEN REACTOR PRESSURE is < 461 psig, **ENSURE** HV-F005B is OPEN.	Operator observes Reactor Pressure.			
		Operator observes that HV-F005B did not open with Reactor pressure below 461 psig.			
		Operator depresses the HV-F005B OPEN pb.	* #		
		Operator observes that HV-F005B opens.			
7.0	WHEN flow is > 775 gpm, **ENSURE** HV-F031B is CLOSED.	Operator observes Core Spray System B flow on FI-R601B to be >775 gpm.			
		Operator observes HV-F031B is closed.			

JPM: BE005 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 06 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Manually Start the Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BE005

TASK: Manually Start the Core Spray System

TASK NUMBER: 2090030101

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant has experienced a loss of all offsite power coincident with a small break LOCA.
2. A and C Emergency Diesel Generators have failed to start.
3. HPCI has just tripped.
4. Reactor pressure is approximately 500 psig and lowering.
5. Reactor level is approximately -70 inches and lowering.

INITIATING CUE:

Restore reactor level to RPV Level 2 to Level 8 band with B Core Spray Loop. The simulator is in FREEZE until you are ready to begin.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	Insert below listed malfunctions.
	Take simulator out of freeze.
	Let vessel water level drop to approximately -70 inches.
	Reduce reactor pressure to approximately 500 psig.
	Freeze the simulator.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	COMPLETE Simulator Ready-for-Training/Examination Checklist.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	EG12 Loss of all Offsite Power	---	---	None	---	---
	DG02A A Diesel Generator Failure To Start	---	---	None	---	---
	DG02C C Diesel Generator Failure To Start	---	---	None	---	---
	RR31A1 Recirc Loop small leak	---	---	None	---	10
	RR31A2 Recirc Loop large break	---	---	None	---	0
	MS01 Steam line break in the drywell	---	---	None	---	3
	CS03B Core Spray HV-F005B fails to auto open	---	---	None	---	---
	CS04B Core Spray pump fails to auto start	---	---	None	---	---
	CS04D Core Spray Pump Fails To Auto Start	---	---	None	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BE005

Rev #	Date	Description	Validation Required?
06	9/4/2008	This revision converts to HC LOR format, documents validation, and generates estimated completion time. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Revised Initiating Cue. Adds to cue "HPCI has just tripped". Adds HP03 malf to trip HPCI. Adds Malf RR31A2 Recirc Large break to assist setup. Adds Malf MS01 Steam line break in drywell to assist setup.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Main Steam

TASK: Open The MSIVs With The Reactor Pressurized (>200 psig)

TASK NUMBER: 2390020101

JPM NUMBER: 305H-JPM.AB006 **REV #:** 00

SAP BET: **NOH05JPAB06E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 12/6/08
Instructor

REVIEWED BY: _____ **DATE:** 12/11/8
Operations Representative

APPROVED BY: Mark W Lamish **DATE:** 12/11/08
Training Department

STATION: Hope Creek

JPM NUMBER: AB006 **REV:** 00

SYSTEM: Main Steam

TASK NUMBER: 2390020101

TASK: Open The MSIVs With The Reactor Pressurized (>200 psig)

ALTERNATE PATH: [ ] **K/A NUMBER:** 239001 A4.01

IMPORTANCE FACTOR: RO 4.2 SRO 4.0

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-EO.ZZ-0301, Rev. 6

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 18 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Main Steam

TASK: Open The MSIVs With The Reactor Pressurized (>200 psig)

TASK NUMBER: **2390020101**

INITIAL CONDITIONS:

1. The Reactor is at 5% power following a full core ATWS.
2. The Main Turbine is tripped.
3. The Main Condenser is available.
4. HC.OP-EO.ZZ-0101A, ATWS - RPV Control, is being executed.
5. HC.OP-EO.ZZ-0311, Bypassing Primary Containment Instrument Gas Interlocks, and HC.OP-EO.ZZ-0319, Restoring Instrument Air in an Emergency, have been completed.
6. There is no indication of fuel cladding failure or main steam line break.
7. HC.OP-EO.ZZ-0301 is being implemented.

INITIATING CUE:

Re-open the inboard MSIVs IAW HC.OP-EO.ZZ-0301, Bypassing MSIV Interlocks with MSIVs Closed. HC.OP-EO.ZZ-0301 has been completed up to and including step 5.1.9.D.

JPM: AB006
Rev: 00
SYSTEM: **Main Steam**
TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**				
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be 5.1.10.			
5.1.10	ENSURE the following valves are CLOSED:				
5.1.10. A	HV-F021 STARTUP DRAIN VLV	Operator observes HV-F021 green close light illuminated and red open light extinguished.			
5.1.10. B	HV-F071 DRN HDR ISLN	Operator presses HV-F071 CLOSE PB.	*		

JPM: AB006 OPERATOR TRAINING PROGRAM NAME: _____
Rev: 00 JOB PERFORMANCE MEASURE DATE: _____
SYSTEM: **Main Steam**
TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes HV-F071 green close light illuminates and red open light extinguishes.			
5.1.10. C	HV-F033 DRN HDR OPR DRN VLV	Operator presses HV-F033 CLOSE PB.	*		
		Operator observes HV-F033 green close light illuminates and red open light extinguishes.			
5.1.11.	RAISE the turbine pressure setpoint above reactor pressure as follows at MCP 10C651:				
5.1.11. A	**SELECT** Control, Pressure Control	Operator uses the DEHC HMI touchscreen display to select **Control**, then **Pressure Control**	*		
5.1.11. B	**SELECT** Throttle Pressure Set - Setpoint AND **ENTER** a pressure setpoint above reactor pressure.	Operator selects **Throttle Pressure Set - Setpoint**	*		
		Operator enters a value higher than current RPV pressure and presses OK. **Examiner Note: Any value above the current RPV pressure is acceptable. The upper limit DEHC will accept is 1050 psig.**	*		

JPM: AB006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Main Steam**

TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.12	OPEN HV-F019 //CNTMT INBD STM LINE DRAIN HDR ISLN OUTBOARD VALVE//.	Operator presses HV-F019 OPEN PB.	*		
		Operator observes HV-F019 red open light illuminates and green close light extinguishes.			
5.1.13	OPEN HV-F016 //CNTMT INBD STM LINE DRAIN HDR ISLN INBOARD VALVE//.	Operator presses HV-F016 OPEN PB.	*		
		Operator observes HV-F016 red open light illuminates and green close light extinguishes.			
5.1.14	THROTTLE OPEN HV-F020 MAIN STM LINE EQUALIZER HEADER DRAIN SHUTOFF to begin pressurizing the main steam piping downstream of the inboard MSIV's.	Operator presses HV-F020 UP ARROW PB.	*		
		Operator observes HV-F020 red open light illuminates and green close remains lit.			

JPM: AB006 | OPERATOR TRAINING PROGRAM | NAME: ____________
Rev: 00 | JOB PERFORMANCE MEASURE | DATE: ____________

SYSTEM: **Main Steam**
TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.15.	WHEN WIDE RANGE PR-1002A (Panel 10C650C) MAIN STEAM PRESSURE, wide range, is within 200 psig of PI-R605 REACTOR PRESSURE, OPEN the following MSIV's by PLACING their respective control switches to OPEN:				
		Operator observes pressure on PR-1002A is within 200 psig of PI-R605.			
5.1.15. A	HV-F022A INBD MSIV A	Operator turns handswitch for HV-F022A INBD MSIV A to OPEN position.	*		
		Operator observes HV-F022A INBD MSIV A red open light illuminates and green closed light extinguishes.			
5.1.15. B	HV-F022B INBD MSIV B	Operator turns handswitch for HV-F022B INBD MSIV B to OPEN position.	*		
		Operator observes HV-F022B INBD MSIV B red open light illuminates and green closed light extinguishes.			
5.1.15. C	HV-F022C INBD MSIV C	Operator turns handswitch for HV-F022C INBD MSIV B to OPEN position.	*		
		Operator observes HV-F022C INBD MSIV C red open light illuminates and green closed light extinguishes.			

JPM: AB006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Main Steam**

TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.15. D	HV-F022D INBD MSIV D	Operator turns handswitch for HV-F022D INBD MSIV D to OPEN position.	*		
CUE	**WHEN** F022D Handswitch is placed to open, **THEN DELETE** Overrides: **3S38 A** **3DS31 B** **3DS31 A**				
		Operator observes HV-F022D INBD MSIV D red open light illuminates and green closed light extinguishes.			
5.1.16	WHEN the inboard MSIV's are OPEN, CLOSE the following valves:				
5.1.16. A	HV-F020 MAIN STM LINE EQUALIZER HEADER DRAIN SHUTOFF.	Operator presses HV-F020 CLOSE PB.			
		Operator observes HV-F020 green close light illuminates and red open light extinguishes.			
5.1.16. B	HV-F019 //CNTMT INBD STM LINE DRAIN HDR ISLN OUTBOARD VALVE//.	Operator presses HV-F019 CLOSE PB.			

JPM: AB006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Main Steam**

TASK: **Open The MSIVs With The Reactor Pressurized (>200 psig)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes HV-F019 green close light illuminates and red open light extinguishes.			
5.1.16. C	HV-F016 //CNTMT INBD STM LINE DRAIN HDR ISLN INBOARD VALVE//.	Operator presses HV-F016 CLOSE PB.			
		Operator observes HV-F016 green close light illuminates and red open light extinguishes.			
5.1.17	CONTROL reactor pressure IAW HC.OP-EO.ZZ-0101A(Q).				
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: AB006

TASK: Open The MSIVs With The Reactor Pressurized (>200 psig)

TASK NUMBER: 2390020101

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONDITIONS:

1. The Reactor is at 5% power following a full core ATWS.
2. The Main Turbine is tripped.
3. The Main Condenser is available.
4. HC.OP-EO.ZZ-0101A, ATWS - RPV Control, is being executed.
5. HC.OP-EO.ZZ-0311, Bypassing Primary Containment Instrument Gas Interlocks, and HC.OP-EO.ZZ-0319, Restoring Instrument Air in an Emergency, have been completed.
6. There is no indication of fuel cladding failure or main steam line break.
7. HC.OP-EO.ZZ-0301 is being implemented.

INITIATING CUE:

Re-open the inboard MSIVs IAW HC.OP-EO.ZZ-0301, Bypassing MSIV Interlocks with MSIVs Closed. HC.OP-EO.ZZ-0301 has been completed up to and including step 5.1.9.D.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 97 power, MOL.
	MS04 AB HV-F020 change status to UNTAGGED and remove bezel cover.
	MS05 AB HV-F021 change status to UNTAGGED and remove bezel cover.
	LOCK the reactor Mode Switch in Shutdown
	TAKE actions of *HC.OP-AB.ZZ-0001* Attachment 1
	INITIATE SLC.
	TRIP the Main Turbine.
	CONTROL RPV level with HPCI and RCIC above -129 inches.
	INSERT MALF MS-15 SPURIOUS GROUP I ISOLATION (MSIV CLOSURE)
	DELETE MALF MS-15
	REMOVE bezel covers from AB-HV-F020 and F021.
	PERFORM HC.OP-EO.ZZ-0301 up to step 5.1.9.D.
	PLACE the simulator into Freeze.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".
	ENSURE copies of HC.OP-EO.ZZ-0301 are available and marked up to and including step 5.1.9.D. for pre-briefing JPM.
	ENSURE an extra instructor is available to control RPV level using HPCI and acknowlege unrelated alarms. Approx 90 seconds after coming out of freeze, reduce HPCI AUTO flow setpoint to 1200 gpm.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	RP06 Half Core ATWS – Left Side	1 sec.	---	None	---	---
	EG11 Main Generator Trip	---	---	ET-1	---	---
	TC01-10 All TBV failed closed.	---	---	None	---	---
	SL01A SBLC Injection pump AP208 failure	28 sec.	---	None	---	---
	SL01B SBLC Injection Pump BP208 failure	28 sec.	---	None	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	EP02 EOP-311 Bypass PCIG (-129") isolation	---	---	None	---	BYPASS
	EP05 EOP-319 LOCA Level 2 interlock	---	---	None	---	EMERG
	EP35 EOP-322 HV-F006 HPCI to CS	---	---	None	---	FAIL CLOSE
	EP01 EOP-301 Bypass MSIV (-129") isolation	---	---	None	---	BYPASS
	MS04 AB HV-F020	---	---	None	---	UNTAGGED
	MS05 AB HV-F021	---	---	None	---	UNTAGGED

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	3S38 A HV-F022D CLOSE SWITCH	---	---	None	---	OFF
	3DS31 B HV-F022D CLOSED-INBD MSIV D	---	---	None	---	ON
	3DS31 A HV-F022D OPEN-INBD MSIV D	---	---	None	---	OFF

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: AB006

Rev #	Date	Description	Validation Required?
00	11/10/2008	New JPM.	Y
01	12/5/2008	Completed validation with C shift crew members. Validation average time 18 minutes. Added SBLC pump trips to stabilize RPV pressure for JPM per validation comments.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Residual Heat Removal

TASK: Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)

TASK NUMBER: 5000110501

JPM NUMBER: 305H-JPM.BC009 **REV #:** 09

SAP BET: **NOH05JPBC09E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/25/08
Instructor

REVIEWED BY: _____ **DATE:** 8-25-08
Operations Representative

APPROVED BY: _____ **DATE:** 9/17/08
Training Department

STATION: Hope Creek

JPM NUMBER: BC009 REV: 09

SYSTEM: Residual Heat Removal

TASK NUMBER: 5000110501

TASK: Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)

ALTERNATE PATH: [ ]

K/A NUMBER: 295016 AA2.04

IMPORTANCE FACTOR: RO 3.9 SRO 4.1

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.HVAC-0002 Rev 5
HC.OP-IO.ZZ-0008 Rev 28

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 10 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ GRADE: [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

NAME: _____

DATE: _____

SYSTEM: Residual Heat Removal

TASK: Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)

TASK NUMBER: 5000110501

INITIAL CONDITIONS:

1. The control room has been abandoned due to dense smoke.
2. HC.OP-AB.HVAC-0002, Control Room Environment, has been implemented.
3. The Reactor has been scrammed, all rods are full in.
4. The Turbine is tripped.
5. The MSIVs are closed.
6. Control of the plant has been established at the RSP IAW HC.OP-AB.HVAC-0002 AND Section 5.1 of HC.OP-IO.ZZ-0008, Shutdown from Outside Control room.
7. RCIC has been initiated IAW HC.OP-AB.HVAC-0002 AND Section 5.2 of HC.OP-IO.ZZ-0008.

INITIATING CUE:

You are an Extra NCO.
Place 'B' RHR in Suppression Pool Cooling from the RSP.
You are responsible ONLY for 'B' RHR.

JPM: BC009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 09 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Residual Heat Removal**

TASK: **Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-IO.ZZ-0008.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.8.1.			

JPM: BC009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 09 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Residual Heat Removal**

TASK: **Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	If at any time a situation develops whereby HV-F024A(B) an/or HV-F027A(B) are open and the associated RHR pump is not in operation, a potential system drain down will occur. A subsequent start of the RHR pump will cause water hammer. To preclude this occurrence, ensure both valves are closed and perform a system fill and vent prior to starting the RHR pump.	N/A			
5.8.1	IF necessary, THEN **PLACE** the B RHR loop in the Suppression Pool Cooling mode as follows: **[CD-987X, CD-370X]** A. **ENSURE** EG-HV-2512B RHR HX SACS RTN ISLN MOV is OPEN. PB must be held depressed to open.	Operator presses AND holds the HV2512B INCR OPEN pushbutton until the green CLOSE DECR light extinguishes.	*		
	B. **ENSURE** HV-F004B RHR PMP B SUPP POOL SUCT MOV is OPEN.	Operator observes the red HVF004B OPEN indicator is illuminated and green CLSD indicator is extinguished.			
	C. **ENSURE** HV-F007B RHR PMP B MIN FLOW MOV is OPEN.	Operator observes the red HVF007B OPEN indicator is illuminated and green CLSD indicator is extinguished.			

JPM: BC009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 09 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Residual Heat Removal**

TASK: **Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	D. **START** BP202 RHR PUMP.	Operator presses the BP202 START pushbutton.	* #		
		Operator observes the red RUNNING indicator illuminates and the green STOPPED indicator extinguishes.			
NOTE	The following two steps should be performed concurrently.	N/A			
	E. **THROTTLE** OPEN HV-F024B RHR LOOP B TEST RET MOV UNTIL FI-4435 RHR HEAT EXCHANGER FLOW indicates ≈ 10,000 gpm.	Operator presses HVF024B INCR pushbutton while observing FI-4435. When FI-4435 indicates ≈ 10,000 gpm, the operator releases the INCR Pb.	* #		
		Operator observes the red HVF024B OPEN indicator illuminates.			
	F. WHEN FI-4435 RHR HEAT EXCHANGER FLOW indicates > 1400 gpm, THEN **CLOSE** HV-F007B RHR PMP B MIN FLOW MOV.	When FI-4435 indicates > 1400 gpm, the Operator presses the HVF007B CLOSE pushbutton and observes the green CLSD indicator illuminates and the red OPEN indicator extinguishes.			

JPM: BC009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 09 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Residual Heat Removal**

TASK: **Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	G. **ENSURE** HV-F047B RHR HX INLET VALVE AND HV-F003B B RHR HX OUTLET MOV are OPEN AND **CLOSE** HV-F048B RHR HX B SHELL SIDE BYPASS VLV.	Operator observes the HVF047B and HVF003B red OPEN indicators are illuminated and green CLSD indicators are extinguished.			
		Operator presses and holds the HVF048B DECR Pb until the green CLSD indicator illuminates AND the red OPEN indicator extinguishes.	*		
	H. **THROTTLE** HV-F024B RHR LOOP B TEST RET MOV AS necessary to re-establish loop flow of approx. 10,000 gpm on FI-4435.	Operator presses HVF024B INCR and/or DECR pushbuttons as necessary until FI-4435 flow indicates 9,000 – 11,000 gpm.	*		
	I. **OBSERVE** TR-3647J(M)-SUPPRESSION CHAMBER WATER TEMP.	Operator observes Suppression Chamber Water Temperature on TR-3647J and/or M.			

JPM: BC009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 09 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Residual Heat Removal**

TASK: **Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BC009

TASK: Place B RHR Loop In Suppression Pool Cooling From The Remote Shutdown Panel (RSP)

TASK NUMBER: 5000110501

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The control room has been abandoned due to dense smoke.
2. HC.OP-AB.HVAC-0002, Control Room Environment, has been implemented.
3. The Reactor has been scrammed, all rods are full in.
4. The Turbine is tripped.
5. The MSIVs are closed.
6. Control of the plant has been established at the RSP IAW HC.OP-AB.HVAC-0002 AND Section 5.1 of HC.OP-IO.ZZ-0008, Shutdown from Outside Control room.
7. RCIC has been initiated IAW HC.OP-AB.HVAC-0002 AND Section 5.2 of HC.OP-IO.ZZ-0008.

INITIATING CUE:

You are an Extra NCO.
Place 'B' RHR in Suppression Pool Cooling from the RSP.
You are responsible ONLY for 'B' RHR.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	ENSURE the 'B' SSW pump is in service.
	ENSURE the 'B' SACS pump is in service.
	EVACUATE the Control Room IAW AB.HVAC-0002.
	ESTABLISH RPV level at between 0 and –20" inches.
	IMPLEMENT HC.OP-IO.ZZ-0008 up to the point of placing 'B' RHR in service.
	INSERT Malfunction HP01 to prevent HPCI from injecting.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	ANNOTATE a copy of HC.OP-IO.ZZ-0008 up to the point of placing 'B' RHR in service.
	TOGGLE Control Room Horns to **OFF**.
	ENSURE RSP Chart Recorders are ON.
	ENSURE simulator reset.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	HP01 HPCI Auto Initiation Failure	---	---	NONE	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
				NONE		

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BC009

Rev #	Date	Description	Validation Required?
08	7/23/07	DCP on EG-HV-2512 has valve no longer full open. Had to add an Operator action to fully open the valve in 5.8.1.A.	Y
09	8/25/08	Updated procedure revision numbers. Editorial changes only.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Primary Containment

TASK: Respond To A Containment Isolation

TASK NUMBER: 4000760401

JPM NUMBER: 305H-JPM.SM002 **REV #:** 00

SAP BET: **NOH05JPSM02E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [X] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 12/5/08
Instructor

REVIEWED BY: _____ **DATE:** 12/11/8
Operations Representative

APPROVED BY: _____ **DATE:** 12/11/08
Training Department

STATION: Hope Creek

JPM NUMBER: SM002 **REV:** 00

SYSTEM: Primary Containment

TASK NUMBER: 4000760401

TASK: Respond To A Containment Isolation

ALTERNATE PATH: [ ] **K/A NUMBER:** 223002A3.02

IMPORTANCE FACTOR: 3.5 (RO) 3.5 (SRO)

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB-CONT-0002 Rev. 7
HC.OP-SO.SM-0001 Rev. 17

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 9 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ Minutes

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JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____ Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Primary Containment

TASK: Respond To A Containment Isolation

TASK NUMBER: **4000760401**

INITIAL CONDITIONS:

1. Hope Creek is recovering from a Scram due to loss of all RFP's at 97% power.
2. RPV level dropped to –90" before recovering with HPCI and RCIC.
3. EOP-101 and EOP-102 are being implemented.

INITIATING CUE:

Ensure all required NSSSS and PCIS isolations have occurred IAW HC.OP-AB.CONT-0002 Attachments 1 and 2.

JPM: SM002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment**

TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains procedure HC.OP-AB.CONT-0002 or Attachment 1 and 2 Hardcard.	Operator obtains the correct procedure.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be Attachment 1.			
	OBSERVE the Valves listed in Attachment 1 have closed under the -38" Automatic Isolation Signal.				
	• **PCIG MINOR** KL-HV-5155, 5154, 5156A, 5156B, SE-HV-5161	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			
	• **TIPS** SE-SVJ004A1-5	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			

JPM: SM002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment**

TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• **TWCU** EE-HV-4652, 4679, 4680, 4681	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			
	• **DW SUMPS** HB-HV-F019, F020, F003, F004	Operator observes the HB-HV-F019 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV has failed to isolate and informs the CRS.			
CUE	**IF** the operator requests permission to close the valves, **THEN** re-read the initiating cue: **Ensure all required NSSSS and PCIS isolations have occurred IAW HC.OP-AB.CONT-0002 Attachments 1 and 2.**				
	Immediate Operator Action Primary Containment Isolation Valve FAILS to automatically ISOLATE. PERFORM EITHER of the following: • CLOSE a redundant isolation valve • CLOSE the valve manually.	Operator PRESSES CLOSE PB for HB-HV-F019 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV.	*		

JPM: SM002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment**

TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the HB-HV-F019 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV red OPEN light extinguishes and green CLSD light illuminates.			
	Immediate Operator Action Primary Containment Isolation Valve FAILS to automatically ISOLATE. PERFORM EITHER of the following: • CLOSE a redundant isolation valve • CLOSE the valve manually.	Operator observes the HB-HV-F020 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV has failed to isolate and informs the CRS.			
		Operator PRESSES CLOSE PB for HB-HV-F020 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV.	*		
		Operator observes the HB-HV-F020 DRYWELL EQPT DRAIN SUMP AT267 ISLN VLV red OPEN light extinguishes and green CLSD light illuminates.			
	• HB-HV-F003 DRYWELL FLOOR DRAIN SUMP BT267 ISLN VLV	Operator observes the HB-HV-F003 DRYWELL FLOOR DRAIN SUMP BT267 ISLN VLV has closed.			
	• HB-HV-F004 DRYWELL FLOOR DRAIN SUMP BT267 ISLN VLV	Operator observes the HB-HV-F004 DRYWELL FLOOR DRAIN SUMP BT267 ISLN VLV has closed.			

JPM: SM002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment**

TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• **PRIMARY CONTAINMENT MIMIC** GS-HV-4950, 4952, 4951, 4963, 4962, 4964, KL-HV-5172A, GS-HV-5057A, 5055A, 5052A, 5050A, 5053A, 5054A, 5022A GS-HV-4966A, 4965A, 4959A, 4983A, 4955A, 4984A, 5019A SK-HV-5018, 4953, 4957, 4981, GS-HV-4979, 4980, 4956, 4958, KL-HV-5172B GS-HV-4978, 5055B, 5057B, 5050B, 5052B, 5054B, 5053B GS-HV-5035, 4966B, 5022B, 4959B, 4965B, 4955B, 4983B GS-HV-5019B, 4984B, 4974	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			

JPM: SM002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment**

TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• **RBVS SUPPLY/EXH** GU-HD-9370A, 9370B GR-HD-9414A, 9414B	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			
	• **DW PURGE SUP/EXH** GT-HD-9372A, 9372C	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			
	• **RECIRC SAMPLE** BB-SV-4310, 4311	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			
	• **RWCU** BG-HV-F001, F004	Operator verifies that ALL of the listed valves/equipment in this group have responded correctly to the initiating event.			

JPM: SM002
Rev: 00

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: **Primary Containment**
TASK: **Respond To A Containment Isolation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: SM002

TASK: Respond To A Containment Isolation

TASK NUMBER: 4000760401

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Hope Creek is recovering from a Scram due to loss of all RFP's at 97% power.
2. RPV level dropped to –90" before recovering with HPCI and RCIC.
3. EOP-101 and EOP-102 are being implemented.

INITIATING CUE:

Ensure all required NSSSS and PCIS isolations have occurred IAW HC.OP-AB.CONT-0002 Attachments 1 and 2.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 97% power.
	TRIP all three RFPTs.
	CONTROL HPCI/RCIC such that RPV level recovers to the normal band.
	IMPLEMENT EOP-101/102 for the transient.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	CHECK light bulbs for -38" RPV level Isolation Valves INCLUDING all TIP drawers.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist"

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	et_array(1) irf et023 normal
	2	EVENT ACTION: COMMAND: PURPOSE:	et_array(2) irf et024 normal
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	FW26A Feedwater Pump Turbine AS105 Trip	---	---	None	---	---
	FW26B Feedwater Pump Turbine BS105 Trip	---	---	None	---	---
	FW26C Feedwater Pump Turbine CS105 Trip	---	---	None	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	ET023 GROUP 9B HV-F019 DW Eqp Sump Isol	---	---	None	---	FAIL AS IS
	ET024 GROUP 9B HV-F020 DW Eqp Sump Isol	---	---	None	---	FAIL AS IS

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: SM002

Rev #	Date	Description	Validation Required?
00	9/6/08	New JPM.	Y
00	12/5/08	Validated with 2 ROs from C Shift. Avg validation time 9 minutes added to page 2	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Emergency Diesel Generator

TASK: Perform Non-Emergency Operation of the Diesel Generators

TASK NUMBER: 2640030101

JPM NUMBER: 305H-JPM.KJ008 **REV #:** 01

SAP BET: **NOH05JPKJ08E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 12/7/08
Instructor

REVIEWED BY: _____ **DATE:** 12/11/8
Operations Representative

APPROVED BY: Mark W Parnell **DATE:** 12/11/08
Training Department

STATION: Hope Creek

JPM NUMBER: KJ008 **REV:** 01

SYSTEM: Emergency Diesel Generator

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generators

ALTERNATE PATH: [ ] **K/A NUMBER:** 264000A4.04

IMPORTANCE FACTOR: 3.7 (RO) 3.7 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.KJ-0001 Rev 46; *HC.OP-SO.PB-0001 Rev 24*

TOOLS, EQUIPMENT AND PROCEDURES: *HC.OP-SO.PB-0001 Rev 24*

ESTIMATED COMPLETION TIME: 14 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ *Minutes*

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Perform Non-Emergency Operation of the Diesel Generators

TASK NUMBER: **2640030101**

INITIAL CONDITIONS:

1. 10A401 bus had been shifted to the Alternate breaker 40101 in preparation for work on the NORMAL breaker 40108.
2. The improper tagout of the 40108 breaker caused the AG400 EDG to start and load onto the 10A401 bus.
3. All components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 5.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

Shift the breaker alignment on the 10A401 bus from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5.

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains/locates procedure HC.OP-SO.PB-0001.	Operator locates the proper procedure.			
	Operator reviews Precautions and Limitations.				
CUE	**If excessive time is taken reviewing Precautions and Limitations, inform operator that all are satisfied.**				
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.7.5, but may review 5.7.1-4.			
5.7.1	**ENSURE** that the prerequisites of Section 2.7 have been satisfied.	Operator reviews Prerequisites and initials each Prerequisite in the space provided in the procedure.			

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE:	**If excessive time is taken reviewing Prerequisites, inform operator that all are satisfied.**	The operator then initials the appropriate procedure step.			
5.7.5	**SHIFT** breaker alignment on the desired Class 1E 4160V Busses (listed in Table PB-002, Section 5.4) from the Diesel Generator Breaker to the Normal (Alternate) FEED BRKR as follows:				
5.7.5. A	**PRESS** DIESEL ENG GOV INCR push-button AND **INCREASE** Generator frequency to 61 Hz.	Operator presses the DIESEL ENG GOV INCR push-button.	*		
		Operator observes engine frequency rise to 61 Hz on FI-6393A.			
5.7.5. B	**PRESS** DIESEL ENG GOV DROOP MODE push-button AND **ENSURE** that the DROOP MODE light for EDG, is illuminated.	Operator depresses the DIESEL ENG GOV DROOP MODE push-button.	*		
		Operator observes the DROOP MODE light is illuminated.			

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.7.5. C	IF required, **ADJUST** EDG frequency to 60 Hz by pressing the DIESEL ENG GOV INCR OR DECR push-buttons as applicable.	Operator adjusts frequency to 60 Hz by pressing the DIESEL ENG GOV INCR OR DECR push-buttons			
		Operator observes frequency at approximately 60 Hz on FI-6393A.			
5.7.5. D	**PLACE** the Normal (Alternate) FEED BRKR-SYNC KEYLOCK Switch in the ON position.	Operator places the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position.	*		
		Operator observes the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position.			
		Operator observes the Sync Scope rotating.			
5.7.5. E	**ENSURE** the DROOP MODE light for the Diesel AND the SYNC indicator lights are ON.	Operator observes the DROOP MODE light for the Diesel is ON.			
		Operator observes the SYNC indicator lights are ON while the sync scope is off 12 O'clock position.			

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.7.5. F	**ENSURE** that the Normal AND Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF.	Operator presses the Normal (40108) AUTO CLOSE BLOCK PB, and ensures that the Normal and Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF.	*		
		Operator observes that the Normal and Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF.			
5.7.5. G	**PERFORM** the following to synchronize across AND **CLOSE** the Normal (Alternate) FEED BRKR:				
5.7.5. G.1.	IF necessary, **ADJUST** the Running Voltage using the GEN VR RAISE OR LOWER PBs, to match Diesel Generator Running Voltage WITH Bus Incoming Voltage.	Operator ensures the Diesel Generator Running Voltage and Bus Incoming Voltage are matched on VI-6411A and VI-6412A. (Adjustment using the GEN VR RAISE OR LOWER PBs may be required. Should be within half an increment.)			

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.7.5. G.2.	**ADJUST** DG Speed UNTIL the SYNCHROSCOPE pointer is moving slowly in the SLOW (counter clockwise) direction by pressing the DIESEL ENG INCR OR DECR PB.	Operator presses the DIESEL ENG INCR or DECR PB.			
		Operator observes the synchroscope pointer rotating in the SLOW direction.			
5.7.5. G.3.	WHEN synchroscope pointer is at 3 minutes past 12 O'clock (before pointer reaches 12 O'clock in its direction of travel), THEN **CLOSE** the Normal (Alternate) FEED BRKR.	When synchroscope pointer is approximately 3 minutes past 12 O'clock, the operator closes the Alternate FEED BRKR (40101) by pressing the 40101 CLOSE PB.	*		
		Operator observes the Alternate FEED BRKR (40101) CLOSE light illuminates and the green TRIP light extinguishes.			
5.7.5. H	**PRESS** the AUTO CLOSE BLOCK PB for the Normal(Alternate) Feed Breaker AND **VERIFY** that the AUTO CLOSE BLOCK PB is illuminated. **[CD-056H]**	Operator presses the AUTO CLOSE BLOCK PB for 40101.	*		
		Operator observes that the AUTO CLOSE BLOCK PB is illuminated.			

JPM: KJ008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generator**

TASK: **Perform Non-Emergency Operation of the Diesel Generators**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.7.5.I	**PLACE** the Normal (Alternate) FEED BRKR -SYNC KEYLOCK Switch in the OFF position.	Operator places the Alternate FEED BRKR-SYNC KEYLOCK Switch in the OFF position.	*		
		Operator observes that the synchroscope de-energizes.			
5.7.5.J	As directed by the CRS, **UNLOAD** AND **STOP** the Diesel Generator IAW HC.OP-SO.KJ-0001(Q).	Operator informs the CRS of the status of the EDG.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: KJ008

TASK: Perform Non-Emergency Operation of the Diesel Generators

TASK NUMBER: 2640030101

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONDITIONS:

1. 10A401 bus had been shifted to the Alternate breaker 40101 in preparation for work on the NORMAL breaker 40108.
2. The improper tagout of the 40108 breaker caused the AG400 EDG to start and load onto the 10A401 bus.
3. All components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 5.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

Shift the breaker alignment on the 10A401 bus from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to rated power, MOL.
	TRANSFER 10A401 to the ALTERNATE FEED BRKR.
	START, parallel, and load EDG A.
	ENSURE Isochronous light is ON.
	OPEN breaker 40108.
	ACKNOWLEDGE overhead and local alarms.
	ADJUST generator voltage for bus voltage ~4300 volts.
	ADJUST bus frequency to 60 Hertz.
	SWAP busses 10A402, 403, and 404 to Alternate infeeds.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	*Description*
	MARKUP HC.OP-SO.PB-0001 through step 5.7.4. including Attachment 1.
	ENSURE copies are available for pre-brief if desired.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: KJ008

Rev #	Date	Description	Validation Required?
01	11/10/2008	This revision converts to HC LOR format, documents validation, and generates estimated completion time. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Updated Reference procedure revision numbers.	Y
01	12/11/2008	Validated with 2 ROs from B Shift. Average completion time is 14 minutes. Incorporated recommendation to swap other bus infeed breaker to alternate to prevent 3/1 lineup complications.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

TASK NUMBER: 4000230401

JPM NUMBER: 305H-JPM.ED002 **REV #:** 01

SAP BET: NOH05JPED02E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/26/08
Instructor

REVIEWED BY: _____ **DATE:** 8-29-08
Operations Representative

APPROVED BY: _____ **DATE:** 9/17/08
Training Department

STATION: Hope Creek

JPM NUMBER: ED002 REV: 01

SYSTEM: Reactor Auxiliaries Cooling System

TASK NUMBER: 4000230401

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

ALTERNATE PATH: [X] K/A NUMBER: 295018 AA2.02

IMPORTANCE FACTOR: 3.3 (RO) 3.4 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.ED-0001 Rev 22
HC.OP-AR.ZZ-0002 Rev 17
HC.OP-AB.COOL-0003 Rev 3

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 13 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ GRADE: [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

NAME: _____

DATE: _____

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

TASK NUMBER: 4000230401

INITIAL CONDITIONS:

1. The RACS System is in service with the AP209 and CP209 RACS pumps running.
2. AP209 RACS pump is scheduled for an oil change.
3. The Reactor Building EO has been briefed and is stationed at the BP209 RACS pump.
4. The BP209 has NOT been isolated since the last time it was in service and is ready for a start.

INITIATING CUE:

You are the Plant Operator.
Place the BP209 RACS pump in service and secure the AP209 RACS pump.

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____
Rev: 01 JOB PERFORMANCE MEASURE DATE: _____
SYSTEM: **Reactor Auxiliaries Cooling System**
TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.ED-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.			
5.3.1	**ENSURE** all prerequisites have been satisfied IAW Section 2.3. Reactor Auxiliaries Cooling Water System is in service.	Operator ensures that all prerequisites have been satisfied. Operator then initials the appropriate procedure step.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**	N/A			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliaries Cooling System**

TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.2	**ENSURE** that one of the following valves are OPEN (10C651A): ED-HV-2537A(B) HX INLET VLVS.	On 10C651A operator observes the HX INLET VALVES: • HX AE217 INLET red HV2537A OPEN light is illuminated and green CLOSE light is extinguished • HX BE217 INLET red HV2537B OPEN light is illuminated and green CLOSE light is extinguished.			
5.3.3	**OBSERVE** the following lights are off for the RACS Pumps going in service: • OVLD/PWR FAIL • INOP • REMOTE	Operator observes the REACTOR AUXILIARIES COOLING PUMPS PUMP B amber OVLD/PWR FAIL, INOP, and white REMOTE lights are extinguished.			
5.3.4	For the 1AP209 and/or 1BP209, as applicable, **ENSURE** RACS PMP 1AP209 BKR 52-41011, and/or 1BP209 BKR 52-42011 CLOSED is on. (10C650E)	On 10C650E operator observes the RACS PMP BP209 BRKR 52-42011 red CLOSED light is illuminated and green TRIPPED light is extinguished.			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliaries Cooling System**

TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.5	IF returning a pump to service that has been isolated and drained, **PERFORM** the following steps as necessary to correct/prevent air binding, otherwise, **PROCEED** to Step 0 for a normal start of a standby pump:	Operator determines to proceed to Step 5.3.6, since the Initiating Cue states that the pump was not isolated.			
5.3.6	**PRESS** REACTOR AUXILIARIES COOLING PUMP A(B)(C) START PB (10C651A). START comes on.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP B BP209 START pushbutton.	* #		
	OBSERVE AI-6460 (AI-6461) REACTOR AUXILIARIES COOLING PUMP A(B)(C) MOT AMPS settles at < 180 amps AND is approximately the same as the other I/S RACS pumps' motor amps.	Operator observes: • The red BP209 START light illuminates and the green STOP light extinguishes. • AI-6461 is < 180 amps and settles at approximately the same value as the "A" and "C" RACS pumps' amps.			
5.3.7	**PRESS** REACTOR AUXILIARIES COOLING PUMP B(A)(C) STOP PB. STOP comes on.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A STOP pushbutton.	* #		
		Operator observes the green STOP light illuminates and the red AP209 START light extinguishes.			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliaries Cooling System**

TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
N/A	Operations Fundamental: Control Board Awareness	5 seconds after the 'A' RACS pump has been secured, the Operator observes the following: • OHA A2-E2, "RACS TROUBLE" • CRIDS D5762 RACS PUMP BP209 TRBL • Amber OVLD/PWR FAIL is flashing • Red BP209 START light is extinguished. • Green STOP light is flashing. • AI-6461 reads 0 amps.			
N/A	**HC.OP-AR.ZZ-0002**	N/A			
ATT E2	**OPERATOR ACTION:** 1. **REFER** to HC.OP-AB.COOL-0003(Q); Reactor Auxiliary Cooling System. 2. **ENSURE** compliance with Technical Specifications 3.6.3 – Containment Isolation Valves. 3. **ENSURE** compliance with Technical Specifications 3.6.5 – Secondary Containment Integrity.	Operator refers to HC.OP-AB.COOL-0003.			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliaries Cooling System**

TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**Direct the Operator to perform Condition 'A' of HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling System.**	N/A			
N/A	**HC.OP-AB.COOL-0003**	N/A			
COND A	Time	Operator enters the current Time in the space provided.			
A.1	**PRESS** the START P.B. for any available RACS pump in standby.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A AP209 START pushbutton.			
		Operator observes: • The red AP209 START light remains extinguished and the green STOP light remains illuminated. • Motor amps continue to indicate 0.			
CUE	**Respond to any reports of the 'A' RACS pump failure to start by directing the operator to continue implementing Condition 'A' of HC.OP-AB.COOL-0003.**	N/A			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliaries Cooling System**

TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.2	IF a second RACS Pump CANNOT be placed in service, THEN **ISOLATE** RACS to the out of service Off-Gas Train as follows: • IF the Common Off-Gas Train is in service, THEN **CLOSE** HV-2577. • IF Unit 1 Off-Gas Train is in service, THEN **CLOSE** HV-7712A1.	Operator observes the OFFGAS RECOMB TRAIN SELECT: • COM TRAIN red OPEN light illuminated and green CLOSE light extinguished. • TRAIN 1 red OPEN light extinguished and green CLOSE light illuminated.			
		Operator presses the OFF GAS CLR CNDS COOLING 10E306 UNIT 1 green CLOSE pushbutton	*		
		Operator observes the green CLOSE light illuminates and red HV2577 OPEN light extinguishes.			
CUE	**If the Operator Closes HV2577 the JPM may be terminated. If the operator closes the HV7712A1, allow 1 minute to recognize the mistake and then terminate the JPM.** Leaving the HV7712A1 closed and/or causing an isolation of the Common Offgas Train is failure criteria.	N/A			

JPM: ED002 OPERATOR TRAINING PROGRAM NAME: _____
Rev: 01 JOB PERFORMANCE MEASURE DATE: _____
SYSTEM: **Reactor Auxiliaries Cooling System**
TASK: **Respond To A Reactor Auxiliary Cooling Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ED002

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

TASK NUMBER: 4000230401

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The RACS System is in service with the AP209 and CP209 RACS pumps running.
2. AP209 RACS pump is scheduled for an oil change.
3. The Reactor Building EO has been briefed and is stationed at the BP209 RACS pump.
4. The BP209 has NOT been isolated since the last time it was in service and is ready for a start.

INITIATING CUE:

You are the Plant Operator.
Place the BP209 RACS pump in service and secure the AP209 RACS pump.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to any IC with the Main Generator loaded.
	ENSURE the 'A' & 'C' RACS pumps are in service and the 'B' RACS pump is in STBY.
	ENSURE the Common Offgas Train is in service and HV-2577 is open.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	ENSURE simulator is reset.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	**cwnra209 <= 0.5** // AP209 RACS pump normalized pump speed Trips BP209 RACS pump after the AP209 RACS pump is stopped
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CW08B Trip of BP209 RACS pump.	5 sec	---	ET-1	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A33 E DI AP209 RACS pump start pushbutton.	---	---	NONE	---	OFF

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ED002

Rev #	Date	Description	Validation Required*
01	7/23/07	Originally developed for ILOT NRC exam in 2005. This revision converts to HC LOR format, documents validation, and generates estimated completion time.	Y
02	8/26/08	Updated reference procedure revisions. Corrected previous typo error in procedure step A.2. No change in operator actions from previous revision. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Recirculation

TASK: Perform Scoop Tube Positioner Lock-Up Operation

TASK NUMBER: 2020080401

JPM NUMBER: 305H-JPM.BB002 **REV #:** 16

SAP BET: **NOH05JPBB02E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 9/4/08
Instructor

REVIEWED BY: N/A **DATE:** N/A
Operations Representative

APPROVED BY: [signature] **DATE:** 9/17/08
Training Department

STATION: Hope Creek

JPM NUMBER: BB002 REV: 16

SYSTEM: Reactor Recirculation

TASK NUMBER: 2020080401

TASK: Perform Scoop Tube Positioner Lock-Up Operation

ALTERNATE PATH: [ ]

K/A NUMBER: 202002 A2.05

IMPORTANCE FACTOR: 3.1 (RO) 3.1 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.BB-0002 Rev 72

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 17 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ GRADE: [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

NAME: _____

DATE: _____

SYSTEM: Reactor Recirculation

TASK: Perform Scoop Tube Positioner Lock-Up Operation

TASK NUMBER: 2020080401

INITIAL CONDITIONS:

1. The plant was at 80% Reactor Power with power ascension in progress.
2. The SPRI/ESG guidance is valid. Some rods may already be inserted.
3. A control signal failure caused the 'A' Reactor Recirc Pump Motor/Generator Scoop Tube to lock-up.
4. The 'A' Reactor Recirc pump was placed in Scoop Tube Positioner Lockup Operation IAW HC.OP-SO.BB-0002.
5. I&C has repaired the control signal failure.
6. An NCO is stationed at the 'A' Reactor Recirc Pump Motor/Generator Scoop Tube Positioner.
7. Manual adjustment of the 'A' Reactor Recirc Scoop Tube has been terminated.
8. The 'A' Reactor Recirc Scoop Tube Positioner Power Switch is ON.

INITIATING CUE:

You are the Reactor Operator
Reset the Scoop Tube lockup on the 'A' Reactor Recirc pump.

JPM: BB002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 16 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Recirculation**

TASK: **Perform Scoop Tube Positioner Lock-Up Operation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.BB-0002.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN **INFORM** operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.9.1.			
CAUT	Improper reset of a Scoop Tube Positioner can result in a significant power transient, and possible Scram due to rapid changes in Recirculation Flow.	N/A			

JPM: BB002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 16 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Recirculation**

TASK: **Perform Scoop Tube Positioner Lock-Up Operation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.9.1	**ENSURE** all prerequisites have been satisfied IAW Section 2.9.	Operator ensures that all prerequisites have been satisfied.			
CUE	IF excessive time is taken reviewing prerequisites, THEN **INFORM** operator that all are satisfied.	N/A			
5.9.2	**PRESS** SIC-621A MAN AND SIC-621B MAN push buttons.	Operator observes SIC-R621A/B MAN are illuminated and AUTO is extinguished. **Examiner Note:** Operator may press buttons even with pumps already in MAN. If buttons are NOT pressed, "C/M" should be entered in place-keeping block.			Y N Flagging
5.9.3	**PRESS** SIC-620 OUTPUT A(B) SELECT push button, for the Pump that will be reset.	Operator observes OUTPUT A SELECT light is illuminated. **Examiner Note:** Operator may press button even with OUTPUT A already selected. If button is NOT pressed, "C/M" should be entered in place-keeping block.			Y N Flagging

JPM: BB002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 16 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Recirculation**

TASK: **Perform Scoop Tube Positioner Lock-Up Operation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	SIC-621A(B) SPEED DEMAND (demanded scoop tube position) may move while the scoop tube is locked due to a maintained deviation between actual and demanded speeds. Depending on the actual conditions, it may be either above or below the scoop tube position corresponding to the actual speed. This step determines the desired demanded scope tube position for the actual speed.	N/A			
5.9.4	Using Attachment 3, **DETERMINE** the desired SIC-621A(B) SPEED DEMAND for the actual SPEED indicated on SIC-621A(B).	Operator determines the **desired** SIC-R621A SPEED DEMAND to be 58-62% IAW Attachment 3. **Examiner Note:** The target SPEED DEMAND is 60%. Some leeway has been added for meter readability and the potential interpolation of Attachment 3 data.			

JPM: BB002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 16 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Recirculation**

TASK: **Perform Scoop Tube Positioner Lock-Up Operation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.9.5	**PRESS** SIC-R621A(B) SPD CONT INCREASE OR DECREASE pushbutton as necessary to obtain the desired SIC-621A(B) SPEED DEMAND from Step 5.9.4.	Operator presses the SIC-R621A LOOP A SPD INCR and/or DECR pb until SIC-R621A SPEED DEMND matches the SPEED DEMAND from Step 5.9.4. **Examiner Note:** SPEED DEMAND is considered to be satisfactorily matched if reactor power does not change by more than 5% when scoop tube is reset.	* #		Y N Flagging Y N R.O.B
NOTE	With actual speed (SIC-R621A(B) SPEED) and demanded speed (SIC-620 A/B DEMND OUTPT) the same, the controller signal (SIC-R621A(B) SPEED DEMAND) should not move. Although a constant speed should be maintained when coming out of Lockup, a small speed change may be experienced.	N/A			
CAUT	When coming out of Scoop Tube Lockup, the potential exists for the Recirc Pump to "Run Away", and the operator should be prepared to take appropriate action.	N/A			

JPM: BB002 OPERATOR TRAINING PROGRAM NAME: _____
Rev: 16 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Recirculation**

TASK: **Perform Scoop Tube Positioner Lock-Up Operation**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.9.6	**PRESS** SCOOP TUBE TRIP RESET AND **ENSURE** SCOOP TUBE LOCK-UP light extinguishes	Operator presses the Pump A TRIPS RESET PB.	* #		Y N Flagging Y N R.O.B
		Operator observes that the SCOOP TUBE LOCK-UP light is extinguished.			
5.9.7	IF Unable to reset the Lockup from the Control Room, THEN **PERFORM** the following to manually reduce the speed of the Reactor Recirc Pump A(B) from the Scoop Tube Positioner (Local):	Operator determines step 5.9.7 is not applicable.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BB002

TASK: Perform Scoop Tube Positioner Lock-Up Operation

TASK NUMBER: 2020080401

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 80% power, MOL as follows:
	• **REDUCE** Reactor Recirc pump speeds to 60% (It is critical that 'A' Recirc pump speed is 60%).
	• **INSERT** 10B rods to 06
	PRESS the REACTOR RECIRCULATION PUMP A TRIPS SCOOP TUBE TRIP pushbutton.
	ENSURE SIC-R621A AND SIC-R621B are in Manual.
	REDUCE SIC-R621A Demand Output by 4% AND allow SIC-R621A SPEED DEMAND to saturate low.
	ENSURE SIC-R620 MAST CONT OUTPUT A SELECT is selected.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
	INITIAL *a copy of HC.OP-SO.BB-0002 Section 5.5 for the 'A' Reactor Recirc Pump.*
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BB002

Rev #	Date	Description	Validation Required?
15	11/28/07	Updated reference procedure revision numbers. No change in actions, validation not required Converted to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial, validation not required. Removed references to checking off/initialing steps in procedure. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial, validation not required. Added Note and Caution text to Element section. This is for examiner reference only and has no associated actions. This change is editorial, validation not required. Added Examiner Notes on use of "C/M" for steps that are already satisfied IAW HU-AA-104-101. This change is editorial, validation not required. Removed Critical Task identifier from step 5.9.4 (determining desired speed demand) since this is not an observable action. The result of this step is observed in step 5.9.5 (adjusting speed demand) and this step is critical. No change in actions. This change is editorial, validation not required. Raised initial recirc speed slightly from 55% to 60% to provide additional margin to 53% speed oscillations and to limit need for interpretation of speed. Speed at 55% fell between to marked divisions (54% and 56%) and speed may have been interpreted as 54, 55, or 56%. Speed is now on marked 60% division.	N
16	9/4/2008	Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod Drive Hydraulics

TASK: Conduct Emergency Makeup To The RPV Using Two CRD Pumps

TASK NUMBER: 2010200104

JPM NUMBER: 305H-JPM.BF013 **REV #:** 01

SAP BET: NOH05JPBF13E

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/28/2008
Instructor

REVIEWED BY: JM **DATE:** 9/18/8
Operations Representative

APPROVED BY: [signature] **DATE:** 9/18/08
Training Department

STATION: Hope Creek

JPM NUMBER: BF013 **REV:** 01

SYSTEM: Control Rod Drive Hydraulics

TASK NUMBER: 2010200104

TASK: Conduct Emergency Makeup To The RPV Using Two CRD Pumps

ALTERNATE PATH: [ ]

K/A NUMBER: 295031EA 1.08

IMPORTANCE FACTOR: 3.8 (RO) 3.9 (SRO)

APPLICABILITY:

EO [X] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-SO.BF-0001, Rev 28

TOOLS, EQUIPMENT AND PROCEDURES: Drain hose, Pipe wrench

ESTIMATED COMPLETION TIME: 26 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Control Rod Drive Hydraulics

TASK: Conduct Emergency Makeup To The RPV Using Two CRD Pumps

TASK NUMBER: 2010200104

INITIAL CONDITIONS:

1. The plant was scrammed due to a loss of condensate and feedwater.
2. HPCI and RCIC are unavailable.
3. EOP-101, Reactor/Pressure Vessel (RPV) Control, is being implemented.
4. Emergency Makeup to the RPV with CRD is required.
5. The BP207 CRD pump, BF201 Pump Suction Filter, BF204 Drive Water Filter, and the 'B' FCV are currently in service.
6. The scram has not been reset.

INITIATING CUE:

You are the Reactor Building operator.
Perform steps 5.4.1 through 5.4.10 of HC.OP-SO.BF-0001 to lineup for two CRD pump injection.
Another operator will be assigned to perform the remaining steps and control injection.

JPM: BF013 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod Drive Hydraulics**

TASK: **Conduct Emergency Makeup To The RPV Using Two CRD Pumps**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains procedure HC.OP-SO.BF-0001.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**				
4.0	**EQUIPMENT REQUIRED** • Wrench to remove cap from Stabilizing valve needle valve. • Small adjustable wrench to position Stabilizing valve needle valve stem AND locknut • Hoses (for filling & venting).	Operator obtains hose and pipe wrench. **Examiner Note:** After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location. Based on initial conditions, Operator may NOT obtain hose to direct venting and may vent to the floor.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.4.1.			

JPM: BF013 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod Drive Hydraulics**

TASK: **Conduct Emergency Makeup To The RPV Using Two CRD Pumps**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.1	**ENSURE** all prerequisites of Section 2.4 are satisfied.	Operator ensures that all prerequisites have been satisfied.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**				
5.4.2	**PERFORM** the following to place AF201(BF201), A(B) Pump Suction Filter, in-service: A. **OPEN** 1-BF-V078(1-BF-V029), CRD Suct Fltr AF201(BF201) Inlet Vlv.	Operator opens 1-BF-V078.	* #		
CUE	**The valve you indicated is open.**				
	B. **VENT** filter using 1-BF-V081(1-BF-V036), CRD Suct Fltr AF201(BF201) Vent Vlv.	Operator uncaps 1-BF-V081.	* #		
		Operator connects a hose between valve 1-BF-V081 and a drain hub.			
		Operator unlocks 1-BF-V081.			
		Operator throttles open 1-BF-V081.	* #		
CUE	**A steady stream of water flows from the vent line**				

JPM: BF013 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod Drive Hydraulics**

TASK: **Conduct Emergency Makeup To The RPV Using Two CRD Pumps**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator closes 1-BF-V081.	* #		
CUE	**The valve you indicated is closed.**				
		Operator caps 1-BF-V081.			
	C. **OPEN** 1-BF-V079(1-BF-V030), CRD Suct Fltr AF201(BF201) Outlet Vlv.	Operator opens 1-BF-V079.	* #		
CUE	**The valve you indicated is open.**				
5.4.3	**VERIFY** that the Main Control Room has NOT reset the SCRAM.	Operator contacts the Main Control Room to verify the scram is NOT reset.			
CUE	**The scram is NOT reset.**	**Examiner Note:** May not contact Control Room based on Initial Conditions provided.			
5.4.4	**CLOSE** 1-BF-V007(1-BF- V008), AP207(BP207) Discharge Vlv, for the idle CRD Pump.	Operator closes 1-BF-V007.	* #		
CUE	**The valve you indicated is closed.**				
5.4.5	**REQUEST** the Main Control Room to START AP207(BP207), A(B) DRIVE WTR PUMP.	Operator requests the Main Control Room start the AP207 CRD pump.	* #		
CUE	**The AP207 CRD pump is running.**				

JPM: BF013 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod Drive Hydraulics**

TASK: **Conduct Emergency Makeup To The RPV Using Two CRD Pumps**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.6	**OPEN** 1-BF-V007(1-BF-V008), A(B) CRD Pump AP207(BP207) Dsch Vlv.	Operator opens the 1-BF-V007.	* #		
CUE	**You hear flow noise through the valve. The valve you indicated is open.**				
5.4.7	**PERFORM** the following to place AF204(BF204), A(B) Drive Wtr Filter, in-service: A. **OPEN** 1-BF-V009(1-BF-V010), CRD Drive Wtr Fltr Inlet Vlv.	Operator opens 1-BF-V009.	*		
CUE	**The valve you indicated is open.**				
	B. **OPEN** 1-BF-V011(1-BF-V012), CRD Drive Wtr Fltr Outlet Vlv.	Operator opens 1-BF-V011.	*		
CUE	**The valve you indicated is open.**				
5.4.8	**REQUEST** the Main Control Room to open HV-F003, DRIVE WTR PC VLV.	Operator requests the Main Control Room open HV-F003.	*		
CUE	**The HV-F003 is open.**				
5.4.9	**OPEN** 1-BF-V062, DRIVE WTR PC VLV BYPASS.	Operator unlocks and opens the 1-BF-V062.	*		
CUE	**The valve you indicated is open.**				

JPM: BF013 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod Drive Hydraulics**

TASK: **Conduct Emergency Makeup To The RPV Using Two CRD Pumps**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.10	**VERIFY** 1-BF-V045, CRD CHRG WTR HDR INLET ISLN VLV, OPEN.	Operator verifies the 1-BF-V045 is open by turning the handwheel in the closed direction, then back to full open.			
CUE	**The valve you indicated is fully open.**				
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BF013

TASK: Conduct Emergency Makeup To The RPV Using Two CRD Pumps

TASK NUMBER: 2010200104

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was scrammed due to a loss of condensate and feedwater.
2. HPCI and RCIC are unavailable.
3. EOP-101, Reactor/Pressure Vessel (RPV) Control, is being implemented.
4. Emergency Makeup to the RPV with CRD is required.
5. The BP207 CRD pump, BF201 Pump Suction Filter, BF204 Drive Water Filter, and the 'B' FCV are currently in service.
6. The scram has not been reset.

INITIATING CUE:

You are the Reactor Building operator.
Perform steps 5.4.1 through 5.4.10 of HC.OP-SO.BF-0001 to lineup for two CRD pump injection.
Another operator will be assigned to perform the remaining steps and control injection.

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BF013

Rev #	Date	Description	Validation Required?
01	8/28/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Core Spray

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

JPM NUMBER: 305H-JPM. BE002 **REV #:** 08

SAP BET: NOH05JPBE02E

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [X] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 9/3/08
Instructor

REVIEWED BY: N/A **DATE:** N/A
Operations Representative

APPROVED BY: RT Boerl **DATE:** 9/18/08
Training Department

STATION: Hope Creek

JPM NUMBER: BE002 REV: 08

SYSTEM: Core Spray

TASK NUMBER: 2000530504

TASK: Perform Torus Makeup Via Core Spray System

ALTERNATE PATH: [ ]

K/A NUMBER: 295030 EA1.06

IMPORTANCE FACTOR: RO 3.4 SRO 3.4

APPLICABILITY:

EO [ ] RO [X] STA [X] SRO [X]

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-EO.ZZ-0315 (Q) Rev. 4

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 14 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ GRADE: [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

NAME: _____

DATE: _____

SYSTEM: Core Spray

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

INITIAL CONDITIONS:

1. A leak on the 'D' RHR Pump suction line has lowered suppression pool level to 73 inches.
2. The leak has been isolated and suppression pool level is stable.

INITIATING CUE:

Make-up to the Suppression Chamber from Core Spray Loop B IAW HC.OP-EO.ZZ-0315

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains/locates procedure HC.OP-EO.ZZ-0315.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**Examiner Cue: If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**				
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.			

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	**EQUIPMENT REQUIRED** 4.1 Key #9 for EOP Locker in OSC (obtain from OS office or break red key holder glass in OSC AND EOP-315 Implementation Kit (EOP Locker in OSC) Contents: 1 Wire Cutter	Operator obtains the following required equipment: 1. Key #9 for EOP locker in OSC (obtain from OS office or break red key holder glass in OSC) 2. EOP-315 implementation kit from EOP locker in OSC **Examiner Note:** After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.			
5.1.1	**ENSURE** that all prerequisites have been satisfied IAW Section 2.1.	Operator ensures that all prerequisites have been satisfied.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**				
5.1.2	**UNLOCK** AND **OPEN** 1-AP-V068 //Cond Stor & Xfr to Core Spray Pump B and D Suction Fill & Flush Isln Vlv//. (local, Room 4203 reactor building, elevation 77')	Operator UNLOCKS and OPENS 1-AP-V068, Cond Stor and Xfr to Core Spray Pump B & D Suction Fill & Flush Isln Valve located on the 77 ft. elevation of the reactor building.	*		
CUE	**The valve you indicated is unlocked and open.**				

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.3	**ENSURE** the following (PANEL C650) are OPEN: A. HV-F001B CS Pmp B Suct Isln MOV B. HV-F001D CS Pmp D Suct Isln MOV	Operator contacts Control Room and directs Control Room Operator to verify OPEN HV-F001B and HV-F001D. **Examiner Note:** Operator may verify these valves OPEN before leaving the Control Room Area.			
CUE	**Respond as the MCR, HV-F001B and HV-F001D are open.**				
5.1.4	**UNLOCK AND THROTTLE OPEN** one OR both of the following valves to obtain the desired fill rate while monitoring CST and Torus levels (local, reactor building, elevation 54'): A. BE-V058 CS Pmps B & D Suct X-Tie Isln Vlv B. BE-V059 CS Pmps B & D Suct X-Tie Isln Vlv	Operator throttles open BE-V058 and/or BE-V059.	*		
CUE	**(As appropriate) The valve you indicated is throttled open. Flow can be heard past the valve(s).**				
		Operator informs Control Room that Suppression Chamber makeup is in progress.			
CUE	**If operator informs Control Room, provide Terminating Cue.**				

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BE002

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A leak on the 'D' RHR Pump suction line has lowered suppression pool level to 73 inches.
2. The leak has been isolated and suppression pool level is stable.

INITIATING CUE:

Make-up to the Suppression Chamber from Core Spray Loop B IAW HC.OP-EO.ZZ-0315

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BE002

Rev #	Date	Description	Validation Required?
08	9/3/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change. Added missing 5.1.4.B element for BE-V059.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

TASK NUMBER: 2120050101

JPM NUMBER: 305H-JPM.SB015 **REV #:** 02

SAP BET: NOH05JPSB15E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/28/08
Instructor

REVIEWED BY: [signature] **DATE:** 9/18/8
Operations Representative

APPROVED BY: [signature] **DATE:** 9/18/08
Training Department

STATION: Hope Creek

JPM NUMBER: SB015 **REV:** 02

SYSTEM: Reactor Protection System

TASK NUMBER: 2120050101

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

ALTERNATE PATH: [X] **K/A NUMBER:** 212000 A2.01

IMPORTANCE FACTOR: 3.7 (RO) 3.9 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Aux Building/Simulate

REFERENCES: HC.OP-SO.SB-0001 Rev 28

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 12 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

TASK NUMBER: 2120050101

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. RPS A is being powered from the ALTERNATE A FEED.
3. Maintenance has been completed on 1A-G-401, RPS MG set.
4. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 5.5.2.D.

INITIATING CUE:

Start the 1A-G-401, RPS MG SET A, in preparation to transfer RPS Bus A power from RPS Alternate Transformer A to RPS MG SET A in accordance with Section 5.5 of HC.OP-SO.SB-0001.
Contact Maintenance when ready for MG set output voltage check/adjust.

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**				
	Operator obtains procedure HC.OP-SO.SB-0001.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**				
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.5.1			
5.5.1	**ENSURE** all prerequisites of Section 2.5 are satisfied.	Operator ensures that all prerequisites have been satisfied.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**				

JPM: SBU15 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**IF asked about the current status/indications, state: The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated. The output breaker is open.**				
5.5.2	IF start of 1A(B)G401, RPS MG Set, is necessary, THEN **PERFORM** the following (A[B] MG Set Local Panel): A. **PRESS** AND **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	Operator presses and holds the AG401 MOTOR ON push-button. **Examiner Note:** Initialing the procedure steps is NOT critical.	# *		
		Operator observes the Red MOTOR ON lamp illuminates.			
CUE	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**				
		The operator then initials the appropriate procedure step.			

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	B. **VERIFY** A-C VOLTS Generator Output Voltage AND **PERFORM** the following: 1. IF voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, THEN **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage and *expects* a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds.			
CUE	**The meter identified rises and stabilizes at approximately 100 volts.**				
		Operator determines need to proceed to Step 5.5.2.B.2.			
	2. IF voltage does NOT increase to 115 - 125 volts, THEN **PERFORM** the following: a. **RELEASE** the MOTOR ON push-button.	Operator releases the AG401 MOTOR ON push-button.	# *		
		The operator then initials the appropriate procedure step.			
	b. **PRESS AND HOLD** MOTOR OFF push-button.	Operator presses and holds the AG401 MOTOR OFF push-button.	# *		

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____
Rev: 02 JOB PERFORMANCE MEASURE DATE: _____
SYSTEM: **Reactor Protection System**
TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		The operator then initials the appropriate procedure step.			
	c. WHEN the MOTOR ON light extinguishes, THEN **RELEASE** the MOTOR OFF push-button.	When the AG401 MOTOR ON light extinguishes, the operator releases the AG401 MOTOR OFF push-button.	*		
CUE	**The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated.**				
		The operator then initials the appropriate procedure step.			
	d. **REPEAT** Step 5.5.2.A.	Operator returns to Step 5.5.2.A.			
CUE	**If asked about restarting the MG Set, inform the operator that one restart attempt is allowed and restart can be attempted while the MG Set is spinning.**				
		The operator then initials the appropriate procedure step.			

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.5.2	IF start of 1A(B)G401, RPS MG Set, is necessary, THEN **PERFORM** the following (A[B] MG Set Local Panel): A. **PRESS** AND **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	Operator presses and holds the AG401 MOTOR ON push-button.	# *		
		Operator observes the Red MOTOR ON lamp illuminates.			
CUE	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**				
		The operator then initials the appropriate procedure step.			
	B. **VERIFY** A-C VOLTS Generator Output Voltage AND **PERFORM** the following: 1. IF voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, THEN **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage expecting an increase to 115-125 volts.			

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**The meter identified has risen from 0 volts, and has stabilized at approximately 120 volts for approximately 5 seconds.**				
		Operator releases the AG401 MOTOR ON push-button.	# *		
		The operator then initials the appropriate procedure step.			
	2. IF voltage does NOT increase to 115 - 125 volts, THEN **PERFORM** the following:	Operator determines this step no longer applies.			
	C. WHEN 1 minute of MG Set operation has elapsed, THEN **PLACE** RPS MG Set 1A(B)G401 GENERATOR OUTPUT breaker to ON AND **INITIAL** Attachment 1.	Operator waits one minute.			
		Operator places the RPS MG Set AG401 GENERATOR OUTPUT breaker to ON.	# *		
CUE	**The breaker identified is in the stated position.**				
		Operator initials Attachment 1.			

JPM: SB015 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Protection System**

TASK: **Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		The operator then initials the appropriate procedure step.			
	D. **REQUEST** Maintenance Department to **CHECK** AND **ADJUST** (as necessary), the RPS MG Set(s) output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (1AN411) (unloaded) IAW HC.MD-PM.SB-0001(Q), OTHERWISE, **VERIFY** A-C VOLTS at local panel meter is 115 to 125 volts.	Operator requests maintenance to check and adjust if necessary RPS MG Set A output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (unloaded) IAW HC.MD-PM.SB-0001(Q), otherwise, verify A-C VOLTS at local panel meter is 115 to 125 volts.			
CUE	**Respond as necessary and provide Terminating Cue.**				
CUE	WHEN operator informs you the task is complete, *OR the JPM has been terminated for* other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: SB015

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

TASK NUMBER: 2120050101

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. RPS A is being powered from the ALTERNATE A FEED.
3. Maintenance has been completed on 1A-G-401, RPS MG set.
4. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 5.5.2.D.

INITIATING CUE:

Start the 1A-G-401, RPS MG SET A, in preparation to transfer RPS Bus A power from RPS Alternate Transformer A to RPS MG SET A in accordance with Section 5.5 of HC.OP-SO.SB-0001.
Contact Maintenance when ready for MG set output voltage check/adjust.

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: SB015

Rev #	Date	Description	Validation Required?
02	8/28/08	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Ensure the Operating Shift is Adequately Manned

TASK NUMBER: 2990750302

JPM NUMBER: 305H-JPM.ZZ009 **REV #:** 01
NRC ADMIN JPM SRO A1

SAP BET: **NOH05JPZZ09E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [ ] STA [ ] SRO [X]

DEVELOPED BY: J. Berglund **DATE:** 11/9/08
Instructor

REVIEWED BY: _____ **DATE:** 12/12/8
Operations Representative

APPROVED BY: Mark W Pank **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ009 **REV:** 01

SYSTEM: Conduct of Operations

TASK NUMBER: 2990750302

TASK: Ensure the Operating Shift is Adequately Manned

ALTERNATE PATH: [X] **K/A NUMBER:** 2.1.5

IMPORTANCE FACTOR: 2.9 (RO) 3.8 (SRO)

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: LS-AA-119 Rev 5
Tech Spec 6.2.2

TOOLS, EQUIPMENT AND PROCEDURES:

Blank paper copy of LS-AA-119 Attachment 1 "Overtime Guideline Deviation Authorization."

ESTIMATED COMPLETION TIME: 10 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Ensure the Operating Shift is Adequately Manned

TASK NUMBER: **2990750302**

INITIAL CONDITIONS:

The following Hope Creek Generating Station working hour history is given for an Operations crew. The hours worked are in the Main Control Room during Operational Condition 1.

Date	CRS Jim Smith	RO John Jones	PO Bob Adams
1/28/09	12 hours-Days	12 hours-Days	12 hours-Days
1/29/09	12 hours-Days	OFF	OFF
1/30/09	12 hours-Days	OFF	OFF
1/31/09	OFF	12 hours-Days	OFF
2/1/09	12 hours-Days	12 hours-Days	OFF
2/2/09	12 hours-Days	12 hours-Days	12 hours-Days
2/3/09	12 hours-Days	12 hours-Days	12 hours-Days
2/4/09	12 hours-Days	12 hours-Days	12 hours-Days
2/5/09	12 hours-Days	12 hours-Days	12 hours-Days

Today is 2/5/09.

The crew is scheduled to work a 12 hour Dayshift from 0600-1800 tomorrow, 2/6, on watch in the Main Control Room.

INITIATING CUE:

EVALUATE the working hour history for the personnel above AND **TAKE ANY ACTIONS**, if required, to ensure the CRS, RO, and PO watchstations are staffed for the 12 hour 2/6 Dayshift watch tomorrow.

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND a paper copy of LS-AA-119.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
4.1.1	An individual should not be permitted to work more than 16 hours straight. 1. Activities listed in Step 1.4.4 may be excluded from time counted toward this time limitation.	Operator determines all work hours were applicable and no operator has or will exceed 16 hours straight.			
4.1.2	An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any seven-day (168 hr) period. 1. Activities listed in Step 1.4.4 may be excluded from time counted toward these time limitations.	Operator determines all work hours were applicable and the **RO will exceed** 72 hours in a seven-day period if 12 hour 2/6 Dayshift is worked.	*		

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	IF asked whether another RO is available, THEN **INFORM** the operator that due to a widespread illness, NO other RO's are available.	N/A			
4.1.3	A break of at least eight hours should be allowed between work periods. 1. An eight hour break between work periods only becomes applicable if one of the limitations in Steps 4.1.1 and 4.1.2 has been met or exceeded. 2. Shift turnover time and casual personal time noted in Step 1.4.4 may be included as part of the eight hour break between work periods.	Operator determines CRS will meet the limitations in step 4.1.2 and the RO has met and may exceed the limitations in step 4.1.2, but each operator has had a break of at least eight hours between work periods.			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2	Overtime Guideline Deviation Recognizing that very unusual circumstances may arise (e.g., emergency situations to protect the public safety, critical emergent work requiring specialized skills, actions needed to avoid an unnecessary shutdown, or other urgent activities deemed necessary by station management) requiring deviation from the above guidelines, such deviation shall be considered on an individual basis and authorized by the Plant Manager or designated manager. Authorized deviations to the working hour guidelines shall be documented on Attachment 1 (i.e., each individual's name shall be listed).	Operator determines the RO watchstation is required to be staffed in OPCON 1. (Tech Spec 6.2.2)			
CUE	IF asked whether another RO is available, THEN **INFORM** the operator that due to a widespread illness, NO other RO's are available.	N/A			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2.1	Consistent with GL 82-12, the paramount consideration in such authorization shall be that significant reductions in the effectiveness of personnel would be highly unlikely. Authorized deviations to the working hour guidelines shall be documented on Attachment 1 (i.e., each individual's name shall be listed).	Operator determines Attachment 1 is required to document exceeding work hour guidelines.			
4.2.2	In an emergency situation, it is acceptable to obtain a verbal overtime guideline deviation authorization prior to an individual exceeding the above guidelines and subsequently complete Attachment 1 when time allows.	Operator determines there is sufficient time to complete an Attachment 1.			
4.2.3	Overtime hours worked for activities such as vacation coverage, normal shift coverage, do not constitute very unusual circumstances. Overtime worked for these types of activities should not exceed the GL 82-12 limitations.	Operator determines lack of operator availability due to widespread illness is unusual circumstance.			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2.4	During activities noted in Step 4.2, overtime guideline deviations shall be considered and approved on an individual basis as noted above. The cognizant supervisor(s) will assess each individual for fatigue and mental alertness prior to an individual exceeding the GL 82-12 overtime guidelines and performing safety-related work. The cognizant supervisor(s) will assess each individual over the duration an individual is working in excess of the GL 82-12 guidelines. These assessments are not documented. 1. **If** an individual is observed to be fatigued or exhibits unsatisfactory mental alertness, **then** the individual will be removed from performing safety-related work.	Operator assesses workers for alertness and signs of fatigue.			
CUE	IF asked about the alertness of the operators, THEN **INFORM** the operator all three operators appear alert and show no signs of fatigue.	N/A			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2.5	A single Overtime Guideline Deviation Authorization will be completed and remain active for the entire time period an individual exceeds a GL 82-12 overtime guideline.	Operator determines a single Attachment 1 is required to document exceeding work hour guidelines.			
CUE	AFTER the Operator demonstrates the ability to obtain an Attachment 1, THEN **PROVIDE** a blank copy of Attachment 1.	N/A			
4.3	**When** it has been determined that a deviation from the GL 82-12 overtime guidelines is necessary, **then** prior to an individual exceeding the GL 82-12 overtime guidelines and performing safety-related work, **initiate** Attachment 1, "Overtime Guideline Deviation Authorization." ***(cognizant supervisor or designee)***	Operator obtains blank Attachment 1, "Overtime Guideline Deviation Authorization. **Examiner Note:** This is included in the provided copy of LS-AA-119.			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.3.1	**COMPLETE** columns one through four of Attachment 1. 1. If Attachment 1 is being completed for a large number of individuals, multiple forms will be required or a complete list of names may be attached to a single Attachment 1. 2. The "Start Time/Date" in column 4 is the time at which an individual will exceed one of the overtime guidelines, **not** the start of the shift or work period.	**Examiner Note:** Refer to Exhibit 1 for example of completed form. Operator enters **John Jones** in Column 1.	*		
		Operator enters **Operations** in Column 2.			
		Operator enters **D** in Column 3. (Long descriptions are also acceptable, such as "72hrs in 7 days")	*		
		Operator enters **0600** and **2/6/09** in Column 4.	*		
4.3.2	**PROVIDE** a description of the work to be performed verifying that the work is safety-related.	Operator enters description of work.			
4.3.3	**PROVIDE** a justification describing why the safety-related work needs to be performed on overtime.	Operator enters justification for needing overtime. Description may vary, but should convey "unusual circumstance" and not violate step 4.2.	*		
4.3.4	**SIGN** Attachment 1 as the cognizant supervisor of designee.	Operator signs and dates the attachment.			
4.3.5	**FORWARD** the form to the Plant Manager or designated manager for approval	Operator seeks Plant Manager or designee approval.			

JPM: ZZ009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Ensure the Operating Shift is Adequately Manned**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN the operator forwards the Attachment for approval, THEN **ROLE PLAY** as the Plant Manager and approve the Attachment.	N/A			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ009

TASK: Ensure the Operating Shift is Adequately Manned

TASK NUMBER: 2990750302

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

ATTACHMENT 1

Overtime Guideline Deviation Authorization
Page 1 of 1

The following individuals are needed to perform safety-related work and will exceed the overtime guidelines (per Generic Letter (GL) 82-12. Attach list of additional names as needed)

Name	Department	GL 82-12 Guideline Exceeded (Note 5)	Time Period Overtime Limit is Exceeded	
			Start Time/Date	End Time/Date
(Column 1)	(Column 2)	(Column 3)	(Column 4)	(Column 5)
John Jones	Operations	D	0600 / 2-6-09	/
			/	/
			/	/
			/	/
			/	/
			/	/
			/	/
			/	/

Note 1: The cognizant supervisor will complete the information in columns 1 – 4 above. This form is then forwarded to the Plant Manager (or designated manager) for review.

Note 2: The Plant Manager's (or designated manager's) approval shall be completed prior to an individual exceeding the overtime guidelines and performing safety related work. The Plant Manager's approval may be received verbally by telephone. This form is then forwarded back to the cognizant supervisor.

Note 3: The cognizant supervisor will perform an assessment of each individual's fatigue and mental alertness prior to the start of performing safety-related work; and throughout the duration of the overtime deviation period. If the supervisor observes the individual to be fatigued or not mentally alert, that individual will not be assigned to perform safety-related work.

Note 4: The cognizant supervisor will complete column 5 after the overtime deviation period is complete.

Note 5: GL 82-12 Overtime Guideline to be exceeded:
- A – more than 16 consecutive hours
- B – more than 16 hours in a 24 hour period
- C – more than 24 hours in a 48 hour period
- D – more than 72 hours in a seven day (168 hr) period
- E – less than an 8 hour break between work periods

Description of safety-related work to be accomplished: Stand Licensed Operator watch in the Main Control Room

Justification for needing overtime: To maintain minimum staffing IAW T/S 6.2.2. No other operators available due to widespread illness.

Submitted by: *Operator* NOW / TODAY
Cognizant Supervisor (or designee) Time Date

Approved by: ______________ ______ / ______
Plant Manager (or designated manager) **Time** **Date**

INITIAL CONDITIONS:

The following Hope Creek Generating Station working hour history is given for an Operations crew. The hours worked are in the Main Control Room during Operational Condition 1.

Date	CRS Jim Smith	RO John Jones	PO Bob Adams
1/28/09	12 hours-Days	12 hours-Days	12 hours-Days
1/29/09	12 hours-Days	OFF	OFF
1/30/09	12 hours-Days	OFF	OFF
1/31/09	OFF	12 hours-Days	OFF
2/1/09	12 hours-Days	12 hours-Days	OFF
2/2/09	12 hours-Days	12 hours-Days	12 hours-Days
2/3/09	12 hours-Days	12 hours-Days	12 hours-Days
2/4/09	12 hours-Days	12 hours-Days	12 hours-Days
2/5/09	12 hours-Days	12 hours-Days	12 hours-Days

Today is 2/5/09.

The crew is scheduled to work a 12 hour Dayshift from 0600-1800 tomorrow, 2/6, on watch in the Main Control Room.

INITIATING CUE:

EVALUATE the working hour history for the personnel above AND **TAKE ANY ACTIONS**, if required, to ensure the CRS, RO, and PO watchstations are staffed for the 12 hour 2/6 Dayshift watch tomorrow.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Complete The Daily Surveillance Logs

TASK NUMBER: 4010010201

JPM NUMBER: 305H-JPM.ZZ017 **REV #:** 01
NRC ADMIN JPM SRO A2

SAP BET: **NOH05JPZZ17E**

ALTERNATE PATH: ☐

APPLICABILITY:

EO ☐ **RO** ☐ **STA** ☐ **SRO** ☒ X

DEVELOPED BY: J. Berglund **DATE:** 11/8/08
Instructor

REVIEWED BY: _____ **DATE:** 12/12/8
Operations Representative

APPROVED BY: _____ **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ017 **REV:** 01

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

ALTERNATE PATH: [ ] **K/A NUMBER:** 2.1.18

IMPORTANCE FACTOR: 3.6 (RO) 3.8 (SRO)

APPLICABILITY:

EO [ ] RO [ ] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev 113

TOOLS, EQUIPMENT AND PROCEDURES:

Paper copies of HC.OP-DL.ZZ-0026 Attachment 1 Page 1 of 1

ESTIMATED COMPLETION TIME: 10 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Complete The Daily Surveillance Logs

TASK NUMBER: **4010010201**

INITIAL CONDITIONS:

1. The Plant is in OPCON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. The National Weather Service has forecast a Severe Storm Warning for New Castle and Salem Counties for the next 12 hours.
4. River temperature is 83 degF but is NOT expected to exceed 85 degF.
5. All EDGs, SACS, and SSW pumps are operable.
6. The SPV Effluent RMS is inoperable and has been C/T for repairs.

INITIATING CUE:

You are the Control Room Supervisor.
IMPLEMENT the Daily Surveillance Logs for today IAW HC.OP-DL.ZZ-0026 AND **IDENTIFY** all required Attachments for current plant conditions.

JPM: ZZ017 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Complete The Daily Surveillance Logs**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND a paper copy of HC.OP-DL.ZZ-0026(Q).	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.1.			

JPM: ZZ017 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Complete The Daily Surveillance Logs**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1	**Shift Manager/Control Room Supervisor** - the SM/CRS is responsible to implement, review, and ensure completion of the log including (CRS has primary responsibility for all log reviews and documentation): 2.1.1 The SM/CRS shall implement the log at the beginning of each day by completing Attachment 1, Section A; Log Initiation, listing those Attachments that require performance due to present conditions. Also, the present Operational Condition shall be listed.	**Examiner Note:** Examiner Copy Exhibit 1 is provided for reference. Operator determines Attachment 1 is required due to current Operational Condition.			
		Operator checks Attachment **1** on Attachment 1 Section A Log Initiation.	*		
		Operator determined Attachment 3j is required due to Severe Storm Warning that may affect Artificial Island..			
		Operator checks Attachment **3j** on Attachment 1 Section A Log Initiation.	*		
		Operator determines Attachment 3h is required IAW Item 1 and T/S 4.7.1.3.b.1 due to current River Water temperature.			
		Operator checks Attachment **3h** on Attachment 1 Section A Log Initiation.	*		
		Operator determines Attachment 3t is required IAW Item 42 due to SPV RMS Inoperable.			
		Operator checks Attachment **3t** on Attachment 1 Section A Log Initiation.	*		
		Operator places a "1" in the Operational Condition blank.			

JPM: ZZ017 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Complete The Daily Surveillance Logs**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1	2.1.1 The SM/CRS shall implement the log at the beginning of each day by completing Attachment 1, Section A; Log Initiation, listing those Attachments that require performance due to present conditions. Also, the present Operational Condition shall be listed.	Operator checks Attachment **5** on Attachment 1 Section A Log Initiation. **Examiner Note:** Although not *specifically* required by the *current* conditions, Attachment 5 is typically used each day to track surveillance procedures and would be needed the first time a surveillance procedure with an action time is actually logged on.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ017

TASK: Complete The Daily Surveillance Logs

TASK NUMBER: 4010010201

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

ATTACHMENT 1
Surveillance Log

Date _____

A. LOG INITIATION

1. Operational Condition ____1____

2. Check (✓) Attachments to be performed

1	✓	3c		3g		3m		3s		3w		4a	
2		3d		3h	✓	3p		3t	✓	3x		4b	
		3e		3j	✓	3q		3u		3y		4c	
		3f		3k		3r		3v		3z		5	✓

B. LOG PERFORMANCE

1. Ensure compliance with T/S by using procedure steps 3.11 thru 3.15 T/S reference numbers and surveillance item note(s), as applicable, for any log item(s) requiring additional action.

2. Operators signature below indicates appropriate subsection of Attachment 1 and any Attachment checked (✓) above have been completed.

	DAY	EVE	MID
Attachment 1a Control Room			
Attachment 1b Auxiliary Bldg			
Attachment 1c Reactor Bldg			
Attachment 1d Turbine Bldg			

3. Signature below indicates review of all required attachments checked (✓) above has been completed, and approved for compliance with T/S requirements.

Day (Review Before 1300)	Eve (Review Before 2100)	Mid (Review Before 0500)
SM/CRS	SM/CRS	SM/CRS

C. LOG COMPLETION

1. Operational Condition _____

2. Check (✓) Attachments that have been performed

1		3c		3g		3m		3s		3w		4a	
2		3d		3h		3p		3t		3x		4b	
		3e		3j		3q		3u		3y		4c	
		3f		3k		3r		3v		3z		5	

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is in OPCON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. The National Weather Service has forecast a Severe Storm Warning for New Castle and Salem Counties for the next 12 hours.
4. River temperature is 83 degF but is NOT expected to exceed 85 degF.
5. All EDGs, SACS, and SSW pumps are operable.
6. The SPV Effluent RMS is inoperable and has been C/T for repairs.

INITIATING CUE:

You are the Control Room Supervisor.
IMPLEMENT the Daily Surveillance Logs for today IAW HC.OP-DL.ZZ-0026 AND **IDENTIFY** all required Attachments for current plant conditions.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK: Authorize the Start of a Surveillance Test

TASK NUMBER: 2990250302

JPM NUMBER: 305H-JPM.ZZ037 **REV #:** 00
NRC ADMIN JPM SRO A3

SAP BET: **NOH05JPZZ37E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

DEVELOPED BY: J. Berglund **DATE:** 11/7/08
Instructor

REVIEWED BY: [signature] **DATE:** 12/12/8
Operations Representative

APPROVED BY: Mark W Pairist **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ037 **REV:** 00

SYSTEM: Equipment Control

TASK NUMBER: 2990250302

TASK: Authorize the Start of a Surveillance Test

ALTERNATE PATH: ☐ **K/A NUMBER:** 2.2.12

IMPORTANCE FACTOR: 3.7 (RO) 4.1 (SRO)

APPLICABILITY:

EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Classroom

REFERENCES: HC.OP-ST.ZZ-0001 Rev 29
Technical Specification 3.8.1.1

TOOLS, EQUIPMENT AND PROCEDURES:
Technical Specification 3.8.1.1, Blank copy of HC.OP-ST.ZZ-0001.

ESTIMATED COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 50 Minutes

JPM PERFORMED BY: _____ **GRADE:** ☐ **SAT** ☐ **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____ Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Equipment Control

TASK: Authorize the Start of a Surveillance Test

TASK NUMBER: **2990250302**

INITIAL CONDITIONS:

1. The plant is at 100% power, 3840 MWth.
2. Main Generator output is 1260 Mwe.
3. All 4.16KV 1E Buses are in a Normal 2 Bus alignment.
4. The "A" EDG was just declared INOPERABLE.

INITIATING CUE:

This is a Time Critical JPM with one Time Critical element.
Initiate and authorize the performance of the HC.OP-ST.ZZ-0001 to satisfy the one hour requirement of T/S 3.8.1.1 action b.

ATTACHMENT 1
Page 1 of 3
SM/CRS DATA AND SIGNATURE SHEET
POWER DISTRIBUTION LINEUP – WEEKLY

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1 Regular Surveillance _____ INITIALS

1.1.2 4.8.1.1.1.a ONLY JMB INITIALS

1.1.3 Retest/Other _____ INITIALS

1.1.4 IF not performing the complete test, THEN **LIST** subsection(s) to be performed, as well as marking N/A on the applicable subsection(s) on the Attachment(s) that will not be performed, OR that do not require an independent verification IAW OP-AA-108-101-1002, Component Configuration Control.

May list subsections in step 5.4
SUBSECTION(S)

1.2 Plant Conditions

1.2.1 Operational Condition: 1

1.2.2 Reactor Power Level: 100%/3840 MWth

1.2.3 MWe: 1260 MWe

1.3 Permission to Perform the Test

1.3.1 Permission granted to perform this test.

Operator — SM/CRS

Today/Now — DATE-TIME

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power, 3840 MWth.
2. Main Generator output is 1260 Mwe.
3. All 4.16KV 1E Buses are in a Normal 2 Bus alignment.
4. The "A" EDG was just declared INOPERABLE.

INITIATING CUE:

This is a Time Critical JPM with one Time Critical element.
Initiate and authorize the performance of the HC.OP-ST.ZZ-0001 to satisfy the one hour requirement of T/S 3.8.1.1 action b.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Radiation Control

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

TASK NUMBER: 2990740302

JPM NUMBER: 305H-JPM.ZZ032 **REV #:** 01
NRC ADMIN JPM SRO A4

SAP BET: **NOH05JPZZ32E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

DEVELOPED BY: J. Berglund **DATE:** 11/9/08
Instructor

REVIEWED BY: [signature] **DATE:** 12/12/8
Operations Representative

APPROVED BY: Mark W Parrish **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ032 **REV:** 01

SYSTEM: Radiation Control

TASK NUMBER: 2990740302

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

ALTERNATE PATH: [X] **K/A NUMBER:** 2.3.11

IMPORTANCE FACTOR: 3.8 (RO) 4.3 (SRO)

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-GP.ZZ-0004 Rev 6

TOOLS, EQUIPMENT AND PROCEDURES:

Prepared copy of HC.OP-GP.ZZ-0004 (Attached)

ESTIMATED COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Radiation Control

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

TASK NUMBER: **2990740302**

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the completed HC.OP-GP.ZZ-0004 AND **DETERMINE** any required actions.

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND the attached prepared copy of HC.OP-GP.ZZ-0004.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
ATT.1	**POST TEST INFORMATION**	N/A			
2.1	The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 3.4.3.2, Reactor Coolant System Operational Leakage and the test is considered:	Operator reviews completed HC.OP-GP.ZZ-0004.			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11	**CALCULATE** the leak rate through 1BE-V007 (HV-F005A) by dividing the volume recorded in Step 5.1.9 by the elapsed time recorded in Step 5.1.10. **RECORD** leak rate in gpm on Attachment 2.	Operator recognizes a math error was made when calculating Leak Rate in step 5.1.11. Actual leak rate is 6.3 gpm, NOT 0.63 gpm (6.25 gpm rounded up).			
		Operator ensures 5.1.11 ACTUAL block is corrected to 6.25 OR 6.3 gpm. **Examiner Note:** Operator may correct data or call Performer to correct data.	*		
CUE	IF directed as Performer to correct data entered, THEN **ROLE PLAY** as Performer and **CORRECT** ACTUAL block as directed by Operator.	N/A			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11	**CALCULATE** the leak rate through 1BE-V007 (HV-F005A) by dividing the volume recorded in Step 5.1.9 by the elapsed time recorded in Step 5.1.10. **RECORD** leak rate in gpm on Attachment 2.	Operator recognizes 5.1.11 ACTUAL Leak Rate exceeds REQUIRED Leak Rate of ≤ 5 GPM.			
		Operator ensures 5.1.11 SAT/UNSAT block is corrected to UNSAT. **Examiner Note:** Operator may correct data or call Performer to correct data.	*		
CUE	IF directed as Performer to correct data entered, THEN **ROLE PLAY** as Performer and **CORRECT** SAT/UNSAT block as directed by Operator.	N/A			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
T/S 3.4.3.2	Reactor coolant system leakage shall be limited to: d. 0.5 gpm leakage per nominal inch of valve size up to a maximum of 5 gpm from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1, at rated pressure. APPLICABILITY: OPCON 1,2,3 ACTION: c. With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.	Operator determines T/S 3.4.3.2 Action c applies: With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. **Examiner Note:** Determining the SPECIFIC compensatory action is beyond the scope of the JPM. It is only necessary for the Operator to IDENTIFY the applicable Tech Spec Action.	*		

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	AFTER the Operator determines the applicable Tech Spec Action statement, THEN **INFORM** the Operator compensatory actions have been implemented.	N/A			
ATT.1	**POST TEST INFORMATION**	N/A			
2.1.2	UNSATISFACTORY AND IF necessary the T.S. ACTION statement has been implemented.	Operator signs UNSATISFACTORY block 2.1.2 of Attachment 1.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ032

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

TASK NUMBER: 2990740302

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the completed HC.OP-GP.ZZ-0004 AND **DETERMINE** any required actions.

PSEG NUCLEAR L.L.C.

HOPE CREEK GENERATING STATION

HC.OP-GP.ZZ-0004(Q) - Rev. 6

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

USE CATEGORY: I

A. Biennial Review performed Yes ___ No ___ N/A ___

B. Change Package(s) and Affected Document Number(s) incorporated into this revision.

- CP No. **80040594** CP Rev. No. **0** AD No. **P059** AD Rev. No. **0** or None ___

C. OTSC(s) incorporated into this revision:

- OTSC No(s) _____ or None ___

1.0 REVISION SUMMARY

1. Changed title of Operations Superintendent (OS) to Shift Manager (SM) throughout procedure. These changes are based on changes made in Revision 9 to NC.NA-AP.ZZ-0002(Q), Organization, and can be considered editorial in nature.
2. Attachment 2 - the notation associated which address the asterisk and acceptance criterion have been re-worded for procedure clarity. These changes are considered **editorial** based on an allowance in NC.DM-AP.ZZ-0001(Q), for rewording or adding text for clarification.
3. **DCP 80040594** - the following changes have been incorporated to address the DCP associated with the removal of the RPV head spray header:
   - Section 2.7 & 5.7 & Attachment 2 [Section 1.7] have been revised to delete the reference to RPV Head Spray Header.
   - Step 2.7.5 has been revised to delete the reference to RPV Spray Header
   - Step 5.7.11 has been revised to delete 1-BC-V020 (HV-F023). Attachment 2 has been revised to reflect this change.
4. Section 4.0 has been changed to a bulleted list. Editorial

IMPLEMENTATION REQUIREMENTS Effective date _____

Pending closure of DCP 80040594

APPROVED: _____ _____

Manager - Hope Creek Operations **Date**

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

TABLE OF CONTENTS

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

1.0 PURPOSE

This procedure can be used to determine if the leakage rate past the Reactor Coolant System Pressure Isolation Valves specified in Technical Specification Table 3.4.3.2-1 is in compliance with Technical Specification 3.4.3.2, Reactor Coolant System Operational Leakage.

This procedure may also be used whenever an abnormal increase, or incident of high header pressure is observed at any of the following instruments:

1BEPISH-N654A / 1BEPI-R600A
1BEPISH-N654B / 1BEPI-R600B
1BCPISH-N653A
1BCPISH-N653B
1BCPISH-N653C / 1BCPI-N053C
1BCPISH-N653D / 1BCPI-N053D
1BCPISH-N657

2.0 PREREQUISITES

2.1 Core Spray Loop A Injection Header Leak Rate Test

2.1.1 Permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. JMB

2.1.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. JMB

2.1.3 No other testing or maintenance is in progress that will adversely affect the performance of this test. JMB

2.1.4 The Core Spray System is in a standby lineup. JMB

2.1.5 Leakage into the Core Spray Loop A Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654A (Panel 10C617) OR 1BEPI-R600A (Panel 10C650). JMB

2.1.6 Radiation Protection should be contacted prior to performing venting and/or draining in this procedure. The individual(s) performing the venting and or draining should obtain instructions AND approval from the Radiation Protection Shift Technician OR the Radiation Protection Supervisor. JMB

2.2 **Core Spray Loop B Injection Header Leak Rate Test**

2.2.1 Permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. N/A

2.2.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. N/A

2.2.3 No other testing or maintenance is in progress that will adversely affect the performance of this test. N/A

2.2.4 The Core Spray System is in a standby lineup. N/A

2.2.5 Leakage into the Core Spray Loop B Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654B (Panel 10C618) OR 1BEPI-R600B (Panel 10C650). N/A

2.2.6 Radiation Protection should be contacted prior to performing venting and/or draining in this procedure. The individual(s) performing the venting and or draining should obtain instructions AND approval from the Radiation Protection Shift Technician OR the Radiation Protection Supervisor. N/A

2.3 **RHR SDC Supply Header from B Recirc Loop**

2.3.1 Permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. N/A

2.3.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. N/A

2.3.3 No other testing or maintenance is in progress that will adversely affect the performance of this test. N/A

2.3.4 The RHR System is in a standby lineup. N/A

2.7 **RHR B LPCI Injection Header / SDC Return Header to B Recirc Loop**

2.7.1 Permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. N/A

2.7.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. N/A

2.7.3 No other testing or maintenance is in progress that will adversely affect the performance of this test. N/A

2.7.4 The RHR System is in a standby lineup. N/A

2.7.5 Leakage into the RHR B LPCI Injection and SDC Return Header to B Recirc Loop Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BCPISH-N653B. (Panel 10C618) N/A

2.7.6 Radiation Protection should be contacted prior to performing venting and/or draining in this procedure. The individual(s) performing the venting and or draining should obtain instructions AND approval from the Radiation Protection Shift Technician OR the Radiation Protection Supervisor. N/A

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions

3.1.1 IF at any time during the performance of this test a step cannot be completed or is observed to be unsatisfactory the NCO AND the SM/CRS should be immediately notified. [**CD-927E**] JMB

3.1.2 This system contains potentially radioactive contaminated fluid. **OBSERVE** good radiological practices to prevent the spread of contamination. JMB

3.1.3 IF leak rate is excessive AND prevents depressurizing piping through any of the specified depressurization points, THEN the specified point should be closed AND the SM/CRS informed of the condition. JMB

3.2 **Limitations**

Performance of all subsections may not be necessary.
IF not performing all subsections, the performer should determine which subsections are to be performed. All steps within each subsection are to be performed in sequence unless otherwise specified. JMB

3.3 **Other**

The I&C Technician should install the Measuring and Test Equipment (M&TE) specified in this procedure. JMB

4.0 EQUIPMENT REQUIRED

- Calibrated stop watch
- One poly bottle
- Two-way radios or equivalent
- Pressure indicator (± 2% of full scale accuracy) for injection header pressure determination. Range of instrument must be 0 - 450 psig or less.
- One Graduated Cylinder (or equivalent measuring device).

5.0 PROCEDURE

NOTE 5.0

All operations are performed locally unless otherwise noted.

5.1 Core Spray Loop A Injection Header Leak Rate Test

5.1.1 IF this is the first subsection of the procedure to be performed, **LOG** test start time in the Control Room log(s) JMB

5.1.2 **ENSURE** that all prerequisites have been satisfied IAW Section 2.1 of this procedure. JMB

5.1.3 IF this is the first subsection of the procedure to be performed. **ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed, JMB

5.1.4 **RECORD** M&TE identification numbers and calibration due dates on Attachment 2. JMB

5.1.5 **ENSURE** 1AP-V041 Condensate Transfer Supply to A CS Loop is closed. (RB 102' Rm 4331) JMB

5.1.6 **ENSURE** 1-BE-V088 Jockey Pump Supply to A CS Loop is closed. (RB. 54' Rm 4116B) JMB

5.1.7 **OPEN** P-BE-V9996 Instrument Root Valve for A Core Spray Pump Discharge Header Pressure Indicator BE-PI-4578A (RB 54' Rm 4118A). **INITIAL** Attachment 2. JMB

5.1.8 **RECORD** on Attachment 2, the A Core Spray Pump Discharge Header Pressure Indication from BE-PI-4578A. JMB

5.1.9 **REDUCE** Core Spray Loop A Injection Header pressure to 100 psig AND **COLLECT** leakoff as follows: JMB

A. **REDUCE** header pressure by draining into a poly bottle via P-BE-V9992 AND P-BE-V9992 DRI C CS Pump Discharge Pressure Indicator (BE-PI-4578C) Root and Drain Valves (RB 54' Rm 4116). JMB

B. WHEN Core Spray A Injection piping pressure as indicated on BE-PI-4578A reaches 100 psig, **START** the stopwatch and **CLOSE** AND **CAP** P-BE-V9992 DRI. JMB

C. **CLOSE** P-BE-V9992. JMB

D. **DETERMINE** volume of fluid collected (use a graduated cylinder if necessary, AND **TAKE** into account any fluid dumped). **RECORD** volume on Attachment 2. JMB

5.1.10 WHEN A Core Spray Pump discharge header pressure indication on BE-PI-4578A reaches the initial value recorded in Step 5.1.8, **STOP** the stop watch AND **RECORD** elapsed time in Attachment 2. JMB

5.1.11 **CALCULATE** the leak rate through 1BE-V007 (HV-F005A) by dividing the volume recorded in Step 5.1.9 by the elapsed time recorded in Step 5.1.10. **RECORD** leak rate in gpm on Attachment 2. JMB

5.1.12 **CLOSE** P-BE-V9996 Instrument Root Valve for A Core Spray Pump discharge header pressure indicator BE-PI-4578A. **INITIAL** Attachment 2. JMB

5.1.13 IF required, **OPEN** Condensate Transfer Supply to A CS Loop - 1-AP-V041. (RB 102' Rm 4331) JMB

5.1.14 **OPEN** Jockey Pump Supply to A CS Loop 1-BE-V088. JMB

5.1.15 **PERFORM** independent verification that the A Core Spray System has been returned to normal by completing Attachment 2. AEJ

5.1.16 IF this is the final subsection of the procedure to be performed,
LOG test end time in the Control Room log(s) JMB

5.1.17 IF this is the final subsection of the procedure to be performed,
SUBMIT this procedure to the SM/CRS for review
AND completion of Attachment 1. JMB

5.2 Core Spray Loop B Injection Header Leak Rate Test

5.2.1 IF this is the first subsection of the procedure to be performed,
LOG test start time in the Control Room log(s) N/A

5.2.2 **ENSURE** that all prerequisites have been satisfied IAW Section 2.2
of this procedure. N/A

5.2.3 IF this is the first subsection of the procedure to be performed,
ENSURE Attachment 1, Section 1.0 of the SM/CRS
Data and Signature Sheet has been completed,. N/A

5.2.4 **RECORD** stop watch M&TE identification number and
calibration due date on Attachment 2. N/A

5.2.5 **ENSURE** 1-AP-V062 Condensate Transfer Supply to B CS Loop is closed.
(RB 102' Rm 4322B) N/A

5.2.6 **ENSURE** 1-BE-V083 Jockey Pump Supply to B CS Loop is closed.
(RB 54' Rm 4105A) N/A

5.2.7 **OPEN** P-BE-V9986 Instrument Root Valve for B Core Spray
Pump discharge header pressure indicator BE-PI-4578B
(RB 54' Rm 4104B).
INITIAL Attachment 2. N/A

5.2.8 **RECORD** on Attachment 2, the B Core Spray Pump discharge
header pressure indication from BE-PI-4578B. N/A

5.7.13 **REMOVE** B LPCI Injection header Discharge pressure M&TE as follows
AND **INITIAL** Attachment 2: N/A

A. **CLOSE** Test Connection Valve P-BC-V9958. N/A

B. **REMOVE** M&TE pressure indicator at test connection PP-N058B. N/A

C. **CAP** Test Connection PP-N058B. N/A

5.7.14 **PERFORM** independent verification that the RHR system has been returned to normal by completing Attachment 2. N/A

5.7.15 IF this is the final subsection of the procedure to be performed, **LOG** test end time in the Control Room log(s). N/A

5.7.16 IF this is the final subsection of the procedure to be performed, **SUBMIT** this procedure to the SM/CRS for review AND completion of Attachment 1. N/A

6.0 RECORDS

6.1 **RETAIN** the following IAW NC.NA-AP.ZZ-0011(Q); Records Management Program:

- Procedure cover page
- Attachment 1 - SM/CRS Data and Signature Sheet
- Attachment 2 - Inplant Data Sheet

7.0 REFERENCES

7.1 **P&ID**: M-51-1
M-52-1

7.2 **Procedures**

NC.NA-AP.ZZ-0005(Q)	Station Operating Practices
NC.NA-AP.ZZ-0012(Q)	Technical Specification Surveillance Program
NC.DE-AP.ZZ-0030(Q).	Control of Temporary Modification

7.3 **Commitment Documents**

CD-927E NRC INFO 97-25
CD-358F

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1 Regular Surveillance _____
INITIALS

1.1.2 Retest/Other *JMJ*
INITIALS

1.1.3 IF not performing the complete test,
THEN **LIST** subsection(s)/ valve(s) to be performed, as well as marking N/A on the applicable subsection(s)/ valve(s) on the Attachment(s) that will not be performed,
OR that do not require an independent verification IAW NC.NA-AP.ZZ-0005(Q); Station Operating Practices.

5.1 Core Spray Loop A Injection Header ONLY
SUBSECTION(S)/VALVES

1.2 Plant Conditions

1.2.1 Operational Condition **2**

1.2.2 Reactor Power Level **7%**

1.2.3 Reactor Pressure **905 psig**

1.3 Permission to Perform the Test

1.3.1 Permission granted to perform this test.

Joe Johnson **Today/3 hours ago**
SM/CRS DATE-TIME

1.3.2 Order No. _____

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

2.0 POST TEST INFORMATION

2.1 The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 3.4.3.2, Reactor Coolant System Operational Leakage and the test is considered:

2.1.1 SATISFACTORY

_____ / _____
SM/CRS DATE-TIME

2.1.2 UNSATISFACTORY AND
IF necessary the T.S. ACTION statement has been implemented.

_____ / _____
SM/CRS DATE-TIME

2.1.3 Order No. _____

2.1.4 Remarks _____

_____

_____

_____

_____

_____

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

3.0 PROCEDURE PERFORMER(S) AND VERIFIER(S)

3.1 I have read and understand the steps of this procedure that I am required to perform. (All Departments)

PRINT NAME	SIGNATURE	INITIALS	DATE/TIME
Joe Johnson	Joe Johnson	JMJ	Today/3 hrs ago
Jim Berglund	JBerglund	JMB	Today/2 hrs ago
Archie Faulkner	AFaulkner	AEF	Today/2 hrs ago

JOB PERFORMANCE MEASURE

ATTACHMENT 2
INPLANT DATA SHEET
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION

1.1 **Core Spray Loop A Injection Header Leak Rate Test**

STEP	TEST EQUIPMENT	INST. TAG/MTE NO.	CAL DUE DATE	NOTES
5.1.4	STOP WATCH	**LDC-1**	**4/30/09**	

STEP	NOMENCLATURE	REQ POSITION	PERF
5.1.7	P-BE-V9996 BE-PI-4578A ROOT VLV	OPEN	JMB

STEP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/UNSAT	PERF	
5.1.8	CS PMP A DISCH PRESS BE-PI-4578A	**N/A**	**400** PSIG	**N/A**	JMB	
5.1.9.D	VOLUME OF FLUID COLLECTED	**N/A**	**2.5** GAL	**N/A**	JMB	
5.1.10	ELAPSED TIME FOR PRESSURE INCREASE	**N/A**	**0.4** MIN	**N/A**	JMB	
5.1.11	LEAK RATE THROUGH 1BEV007 (5.1.9.D ÷ 5.1.10)	≤ 5 GPM	**0.63** GPM	**SAT**	JMB	*

* The asterisk indicates acceptance criteria - in order to satisfy the requirements of the acceptance criteria, the SAT/UNSAT block must be marked SAT.

STEP	NOMENCLATURE	REQ POSITION	PERF	VERIF
5.1.15	P-BE-V9996 BE-PI-4578A ROOT VLV	CLOSED	JMB	AEJ
	1-BE-V088 CS LOOP A JOCK PMP TIE-IN ISLN	OPEN	JMB	AEJ
	P-BE-V9992 BE-PI-4578C ROOT VLV	CLOSED	JMB	AEJ
	P-BE-V9992 DRI BE-PI-4578C DRAIN VLV	CLOSED & CAPPED	JMB	AEJ

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative Duties/Reporting Requirements

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

TASK NUMBER: 2000500302/2000020505

JPM NUMBER: 305H-JPM.ECG006 **REV #:** 04

NRC ADMIN JPM SRO A5

SAP BET: **NOH05JPCL06E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [X] **SRO** [X]

DEVELOPED BY: Jim Berglund **DATE:** 12/12/08

Instructor

REVIEWED BY: _____ **DATE:** 12/12/8

Operations Representative

APPROVED BY: Mark W Laird **DATE:** 12/12/08

Training Department

STATION: Hope Creek

JPM NUMBER: ECG006

SYSTEM: Administrative Duties/Reporting Requirements

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.38

IMPORTANCE FACTOR: RO 2.2 SRO 4.0

APPLICABILITY:

EO [ ] RO [ ] STA [X] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: Hope Creek Event Classification Guide, TOC Rev 81

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15/13 Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: / Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Administrative Duties/Reporting Requirements

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

TASK NUMBER: **2000500302/2000020505**

INITIAL CONDITIONS:

1. With the plant operating at 100% power, Hope Creek experiences an earthquake which indicates a magnitude of > 0.1g.
2. Control Room Annunciator C6-C4 is in.
3. ON Panel 10C673:
    1. The SMA-3 Event Indicator is White
    2. The Strong Motion Accelerograph Tape Machines have advanced but are not currently running
    3. The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit
4. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
5. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to –250"; then stabilizing between –225" and –205", being maintained using all available ECCS.
6. Drywell Pressure peaked at 44 psig, then dropped to <2 psig over the next 90 seconds.
7. Drywell Pressure is 1.95 psig and continuing to slowly drop.
8. The current 33 ft. elevation wind direction is from 275° at 7 mph.
9. Plant Effluent activity is 1.17E+01 µCi/sec Noble Gas and 1.17E-02 µCi/sec I-131.

INITIATING CUE:

Based on this information, **CLASSIFY** this event AND **MAKE** the initial notifications.

This is a Time Critical Task, and has two Time Critical elements.
Time zero for this event is now.

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains Hope Creek Event Classification Guide.			
ECG Section i.IV.C	Classification: To use this ECG volume, follow this sequence: 1. ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.	Operator assesses the initial conditions, and determines that Table 3, Fission Product Barriers, and 9.0, Hazards-Internal/External, are the appropriate ECG sections.			
ECG Section i.IV.C	2. REFER to Section EAL/RAL Flowchart diagram(s), and identify the Initiating Conditions that are related to the event/condition that has occurred or is ongoing.	Operator refers to Table 3.0 and Flowchart Diagrams and identifies that the Initial Conditions for Table 3.0 and EAL 9.5.2 are related to the event that has occurred.			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C	3. REVIEW the associated EALs or RALs as compared to the event and SELECT the highest appropriate emergency or reportable action level. If identification of an EAL is questionable, refer to paragraph IV.A above. If there is any doubt with regard to assessment of a particular EAL or RAL, the ECG Technical Basis Document should be reviewed. Words contained in an EAL or RAL that are bold face are either threshold values associated with that action level or are words that are defined in the basis for that specific EAL/RAL.	Operator reviews the EALs in section 9.5, and determines that EAL #9.5.2 is the highest emergency action level met or exceeded (ALERT).			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section. i.IV.C	4. If an EAL has been entered, then equal level EALs or lower level EALs and RALs are not required to be reported as long as the applicable information is communicated to the NRC using Attachment 5, NRC Data Sheet. If a RAL has already been reported and other conditions subsequently appear that meet the requirements for another RAL, whether or not it is a consequence of the original RAL conditions, then a separate RAL report shall be made. However, multiple RALs may be reported in a single notification provided the time requirements for all the RALs being reported are met.	**Examiner Note:** Filling out the NRC Data Sheet is beyond the scope of this JPM.			
Table 3.0 1.	In the table review the Emergency Action Levels of all columns and identify which need further review.	Operator reviews the EALs of all columns, and determines that all columns need further review.			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

<table>
<tr><th>STEP NO.</th><th>ELEMENT</th><th>(*Denotes a Critical Step)
(#Denotes a Sequential Step)
STANDARD</th><th>*
#</th><th>EVAL
S/U</th><th>COMMENTS
(Required for UNSAT evaluation)</th></tr>
<tr><td>Table 3.0
2.</td><td>For each of the three barriers, determine the EAL with the highest point value, and circle the EAL # and point value. No more than one EAL should be selected for each barrier.</td><td>Operator determines that the following EALs have been exceeded and represent the highest value met or exceeded for the respective column:
3.1.1.b; 3.2.2.b or 3.2.1.b; 3.3.2.b or 3.3.2.d.
Operator circles the EAL numbers and point values for the EALs listed above.</td><td></td><td></td><td></td></tr>
<tr><td>Table 3.0
3.</td><td>Add the point values circled for the three barriers and enter the total below:
_____</td><td>Operator adds the values (should be circled), and enters the value 10 in the appropriate space.</td><td></td><td></td><td></td></tr>
<tr><td>Table 3.0
4.</td><td>Classify based on the point value sum as follows:
<table>
<tr><th>If the sum is:</th><th>Classify as:</th><th>Refer to:</th></tr>
<tr><td>1,2</td><td>UNUSUAL EVENT</td><td>ATT. 1</td></tr>
<tr><td>3,4</td><td>ALERT</td><td>ATT. 2</td></tr>
<tr><td>5,6,7,8</td><td>SITE AREA</td><td>ATT. 3</td></tr>
<tr><td>9,10</td><td>GENERAL</td><td>ATT. 4</td></tr>
</table></td><td>Operator determines that this classification is higher than the classification on EAL 9.5.2 and classifies the event as a General Emergency based on Table 3.0</td><td></td><td></td><td></td></tr>
</table>

ECG006 OPERATOR TRAINING PROGRAM NAME: _____
JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**
TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C	5. The STA is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO.	IF time permits, THEN Operator requests STA/IA verification of classification. **Examiner Note:** Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.			
CUE	IF the Operator requests the STA/IA to independently verify the EAL Classification, THEN **INFORM** the Operator the STA/IA is not available.	N/A			
ECG Section i.IV.C	6. IDENTIFY and IMPLEMENT the referenced Attachment under Action Required.	Operator identifies and implements ECG Attachment 4.			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	**I. <u>EMERGENCY COORDINATOR (EC) LOG SHEET</u>** **A. DECLARE A GENERAL EMERGENCY AT HOPE CREEK** **EAL #(s) _____, _____, _____** DECLARED AT _____ hrs on _____ time date	Operator declares a General Emergency, places the EAL # s 3.1.1.b, 3.2.2.b or 3.2.1.b, 3.3.2.b or 3.3.2.d, time and date in the appropriate spots in attachment 4, and initials the step as the EC. **Examiners Note: ENTER** the declaration time that the operator entered on Att. 4. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time (15 min.) Initialing the step is not critical.	*		
ECG Att. 4	**B. NOTIFICATIONS** 1. CALL the communicators to the Control Room	Operator calls the communicator using the plant page.			
CUE	<u>AFTER</u> 2 minutes, **REPORT** as the communicators and give your name as CM1 and CM2.	N/A			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	2. ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation" (EP96-003)	Operator activates the ERO. **Examiner Note:** This step cannot be simulated in the classroom.			
CUE	**INFORM** the operator the Emergency Callout System has been activated.	N/A			
ECG Att. 4	3. MAKE A PAR as follows: a. REFER to Predetermined PAR Flowchart on Pg. 3 and DETERMINE the appropriate PAR. b. IF a Radiologically Based PAR is IMMEDIATELY available, THEN COMPARE the two PARs and choose the most appropriate for inclusion on the ICMF.	Operator Refers to APPENDIX 1, determines that a GE Based 10 Points PAR is appropriate [EVACUATE ALL SECTORS 0-5 MILES, EVACUATE DOWNWIND ±1 SECTOR 5-10 MILES(ENE-E-ESE), SHELTER ALL REMAINING SECTORS, 5-10 MILES].	*		
CUE	IF asked, THEN **INFORM** the operator a Radiologically Based PAR is not available.	N/A			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	4. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	Operator Completes the ICMF. **Examiners Note:** See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EALs 3.1.1.b, 3.2.2.b/3.2.1.b, 3.3.2.b/3.3.2.d. The operator may place the Examiner's name as the Communicator or tell the Examiner to place his/her name as the Communicator.	*		
	5. PROVIDE the ICMF to the Primary Communicator (CM1) and DIRECT the Communicator to implement **ECG Attachment 6.**	Operator provides the ICMF to CM1 and directs implementation of Att.6.	*		
CUE	**LOG** the time the ICMF is provided to CM1. **LOG TIME**: _____ **ROLE-PLAY** as CM1 and **REPEAT BACK** the direction as given.	**Examiners Note:** The difference between the "DECLARED AT" TIME and this LOG TIME is the **second** critical time (13 min.)			

ECG006 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	6. **DIRECT** the Secondary Communicator (CM2) to implement ECG Attachment 8 for a GENERAL EMERGENCY.	Operator directs CM2 to implement Att.8 for a GENERAL EMERGENCY.			
CUE	**ROLE-PLAY** as CM2 and **REPEAT BACK** the direction as given.	N/A			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ECG006

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

TASK NUMBER: 2000500302/2000020505

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONTACT MESSAGE FORM

I. THIS IS Inserts CM1's name (NAME), COMMUNICATOR IN THE ☒ CONTROL ROOM ☐ TSC ☐ EOF

AT THE **HOPE CREEK** NUCLEAR GENERATING STATION.

IIa. ☒ THIS IS NOTIFICATION OF A **GENERAL EMERGENCY** WHICH WAS

DECLARED AT Todays Time (TIME - 24 HOUR CLOCK) ON Todays Date (DATE).

EAL #(s) **3.1.1.b**, **3.2.2.b or 3.2.1.b**, **3.3.2.b or 3.3.2.d**

DESCRIPTION OF EVENT:

Loss of Fuel Clad, Reactor Coolant Boundary, and Containment Barriers

IIb. ☐ THIS IS NOTIFICATION OF A **PROTECTIVE ACTION RECOMMENDATION UPGRADE** WHICH WAS MADE AT _____ (24 HOUR CLOCK) HRS ON _____ (DATE).

Reason for PAR Upgrade: _____

III. ☒ NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE for release definition

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.

IV. ☑ 33 FT. LEVEL WIND DIRECTION (**From**): **275** (From MET Computer /SPDS) (DEGREES) WIND SPEED: **7** (MPH)

V.

		Sectors	Dist.- Miles
☒	WE RECOMMEND **EVACUATION** AS FOLLOWS	**All**	**0-5**
		ENE-E-ESE	**5-10**
☒	WE RECOMMEND **SHELTERING** AS FOLLOWS		
		All Remaining	**5-10**
☑	WE RECOMMEND THE **USE OF KI** IN ACCORDANCE WITH STATE PROCEDURES		

Performer's Initials

EC Initials (Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 1.20E+04 µCi/sec Noble Gas or 1.70E+01 µCi/sec I-131.

INITIAL CONDITIONS:

1. With the plant operating at 100% power, Hope Creek experiences an earthquake which indicates a magnitude of > 0.1g.
2. Control Room Annunciator C6-C4 is in.
3. ON Panel 10C673:
   a. The SMA-3 Event Indicator is White
   b. The Strong Motion Accelerograph Tape Machines have advanced but are not currently running
   c. The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit
4. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
5. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to –250"; then stabilizing between –225" and –205", being maintained using all available ECCS.
6. Drywell Pressure peaked at 44 psig, then dropped to <2 psig over the next 90 seconds.
7. Drywell Pressure is 1.95 psig and continuing to slowly drop.
8. The current 33 ft. elevation wind direction is from 275° at 7 mph.
9. Plant Effluent activity is 1.17E+01 µCi/sec Noble Gas and 1.17E-02 µCi/sec I-131.

INITIATING CUE:

Based on this information, **CLASSIFY** this event AND **MAKE** the initial notifications.

This is a Time Critical Task, and has two Time Critical elements.
Time zero for this event is now.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

TASK NUMBER: 2990630301

JPM NUMBER: 305H-JPM.ZZ012 **REV #:** 02
NRC ADMIN JPM RO A1

SAP BET: **NOH05JPZZ12E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: J. Berglund **DATE:** 11/2/08
Instructor

REVIEWED BY: [signature] **DATE:** 12/12/08
Operations Representative

APPROVED BY: Mark W Lamb **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ012 **REV:** 02

SYSTEM: Conduct of Operations

TASK NUMBER: 2990630301

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

ALTERNATE PATH: [X] **K/A NUMBER:** 2.1.3

IMPORTANCE FACTOR: RO 3.7 SRO 3.9

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: OP-AA-112-101 Rev 2
OP-HC-112-101-1001 Rev 3

TOOLS, EQUIPMENT AND PROCEDURES: Red pen,
Blank OP-HC-112-101-1001 Attachment 6 with Control Room Key Audit initialed for Days.

ESTIMATED COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

TASK NUMBER: **2990630301**

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. The 'D' SSW pump is C/T for scheduled maintenance.
3. The 10F104 and 00F104 Instrument Air Dryers are in service and the 1AF104 Instrument Air Dryer is in Standby.
4. Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
5. Preparations for shift relief are in progress.

INITIATING CUE:

You are the Off-Going Day Shift Reactor Operator of "A" Shift.
Complete the Equipment Status Checklist, Attachment 6 of OP-HC-112-101-1001, with the exception of the Control Room Key Audit.
The Control Room Key Audit has been performed by another operator.

JPM: ZZ012 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform A Shift Turnover As On-Coming/Off-Going NCO**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND a blank copy of OP-HC-112-101-1001 Attachment 6 WITH the Control Room Key Audit completed (initialed).	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	OP-HC-112-101-1001	N/A			

JPM: ZZ012 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform A Shift Turnover As On-Coming/Off-Going NCO**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2.3	Utilize appropriate attachment from this document to document the turnover.	Operator completes OP-HC-112-101-1001 Attachment 6 with the exception of the Control Room Key Audit. **Examiner Note:** Refer to attached example of completed turnover sheet and the following critical aspects of completion.			
		Operator circles and/or crosses out operating equipment with ≥ 80% accuracy. **Examiner Note:** There are 180 total opportunities, ≤ 36 errors is passing.	*		
		Operator places an "X" over the 'D' SSW pump.	*		
		Operator recognizes HPCI Flow Controller is in MAN and should be in AUTO and reports to CRS. **Examiner Note:** Flow controller is failed and CANNOT be restored to AUTO.	*		

JPM: ZZ012 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform A Shift Turnover As On-Coming/Off-Going NCO**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	AFTER Operator recognizes HPCI Flow Controller is in MAN and reports to CRS, THEN **INFORM** Operator the mis-positioning will be investigated and corrected by another Operator.	N/A			
4.2.3	Utilize appropriate attachment from this document to document the turnover.	Operator logs HPCI Flow Controller position as being in Manual.	*		
		Operator red-circles HPCI Flow Controller entry.			
		WHEN Checklist is complete, THEN Operator signs in Off-Going Operator block.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ012

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

TASK NUMBER: 2990630301

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

Examiner Copy

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 1 of 7) **[CD-421Y]**

Shift On-Duty A Days X Nights _____ Date TODAY

To be completed by the off-going RO/PO for turnover to the oncoming RO/PO.
Circle designator for equipment in service,
X over designator for INOP/Bypassed equipment.

		Remarks
Cooling Water		
SSWS:	(A) (C) (B) ~~(D)~~	'D' SSW C/T
SACS:	(A) (C) B (D)	
TACS Loop:	(A) B	
RACS:	A (B) (C)	
Condenser/Condensate		
CW:	(A) (B) (C) (D)	
SJAE:	A (B)	
Offgas Train:	(Unit 1) Common	
PCP:	(A) (B) (C)	
SCP:	(A) (B) (C)	
HWCI:	(RUN) STOP	
Reactor Feedwater		
A RFP:	(AUTO)/MANUAL	
B RFP:	(AUTO)/MANUAL	
C RFP:	(AUTO)/MANUAL	
Startup Valves	AUTO/(MANUAL)/(CLOSED)	
Reactor		
RWCU Pump:	(A) (B)	
RWCU Filter-Demin:	(A) (B)	
Reactor Recirc Pumps:	(A) (B)	
Recirc Control:	A: AUTO/(MAN) B: AUTO/(MAN)	
CRD Pumps:	(A) B	
CRD Stabilizer:	(A) B	
CRD Flow Control:	(A) B	
Nuclear Instrumentation		
APRM:	(A) C (E) (B) (D) (F)	
IRM:	(A) (C) (E) G (B) (D) (F) H	
SRM:	(A) (C) (B) (D)	
FLOW UNITS:	(A) (C) (B) (D)	
RBM:	(A) (B)	
RWM:	Operable Inoperable	

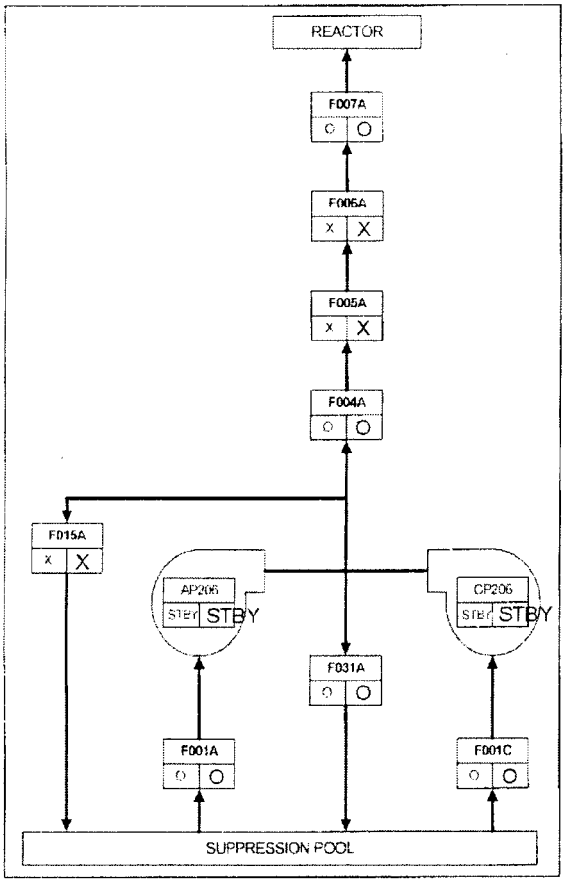
Examiner Copy

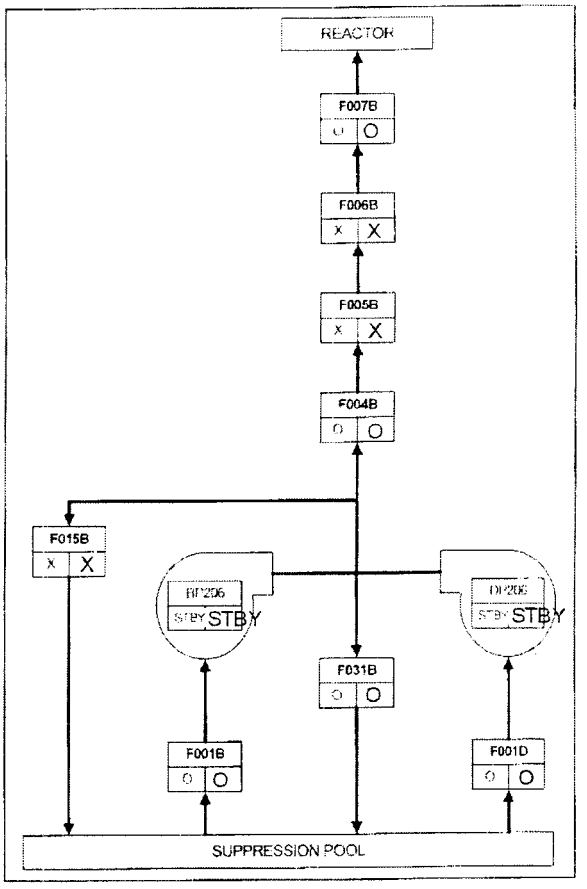
ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 2 of 7)

											Remarks
Turbine:											
T/G Oil Pump OP111											
Motor Suction Pump OP108											
Emergency Bearing Oil Pump OP112											
EHC Pumps:	(A)				B						
Lift Pumps:	A	B	C	D	E	F	G	H	J		
Seals:	(SSE)				AUX						
Main Generator:											
Voltage Regulator:	(AUTO)				MANUAL						
Auto Track:	(ON)				OFF						
Stabilizer:	(ON)				OFF						
Stator Cooling:	(A)				B						
SALEM Units On-line:	(1)	(2)			3						
Diesel Generator:	A		B		C		D				
Chilled Water:											
Turbine Bldg (K111):	(A)		(B)		C		D				
TB CW Pumps:	(A)		(B)		C						
TSC Chiller (K403):	(A)				B						
Control Area Chiller (K400):	(A)				B						
Ventilation:											
CREF:	A				B						
FRVS Recirc:	A	C	E		B	D	F				
FRVS Vent:	A				B						
Fans In Lockout:											
H2/O2 Analyzers:	A				B						
Fuel Pool Cooling Pumps:	(A)				B						
BOP System Bypass:	(Yes)				No						(Consistent With Plant Condition)
Feedwater Heaters:	(Normal)										
Air Systems:											
Instrument Air Dryers:	(10F104)		(00F104)		1AF104						
Service Air:	(10K107)				00K107						
Emergency Instrument Air:	10K100										
PCIG:	(A)				(B)						
	AUTO/(AULD)				AUTO/(AULD)						
Aux Boiler:	~~A~~		(B)		C						"A" Boiler Removed

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 3 of 7)

CORE SPRAY SYSTEM

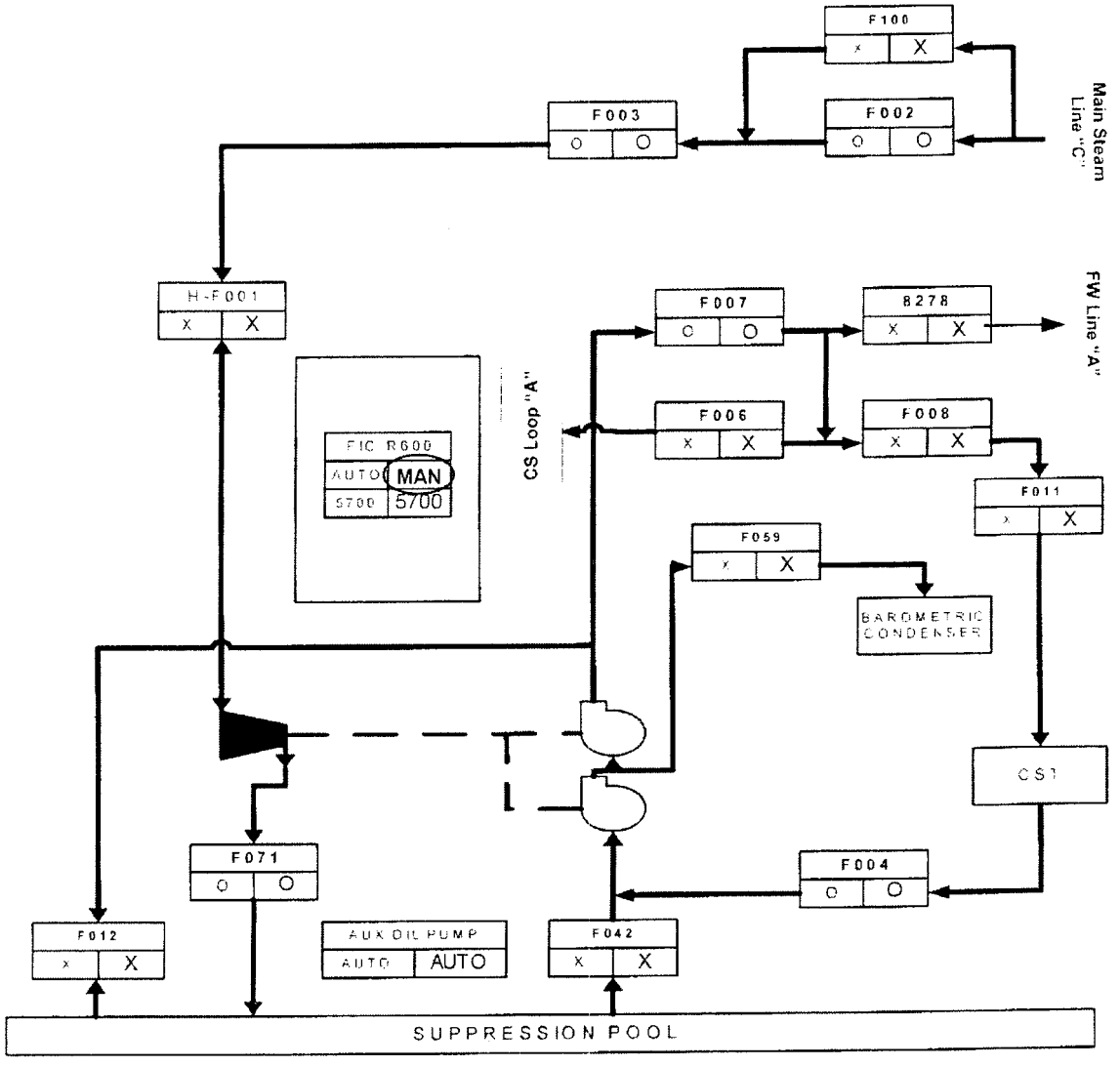




REMARKS: _____

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 4 of 7)

HPCI SYSTEM



REMARKS: _____

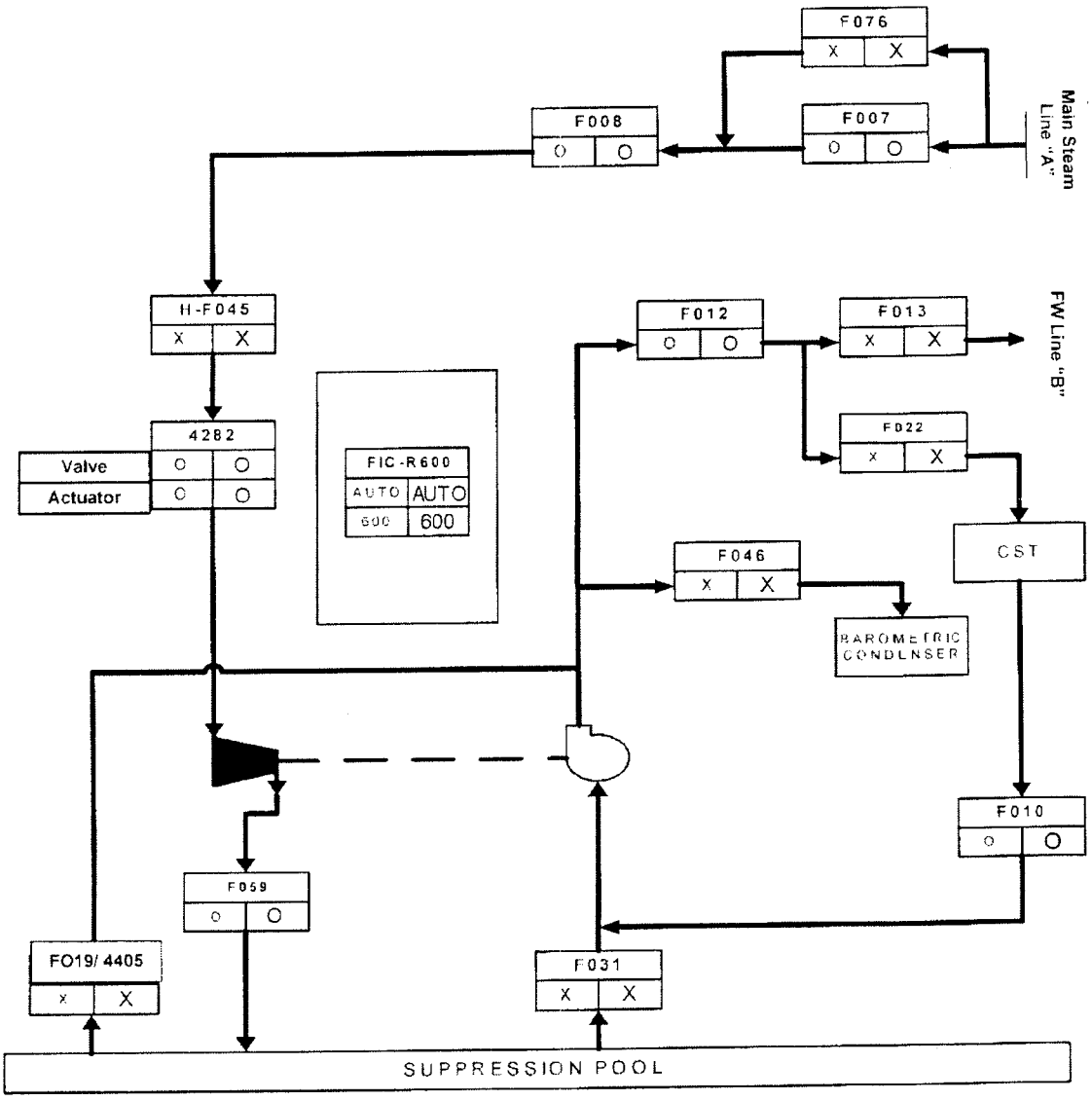
_____

_____

_____

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 5 of 7)

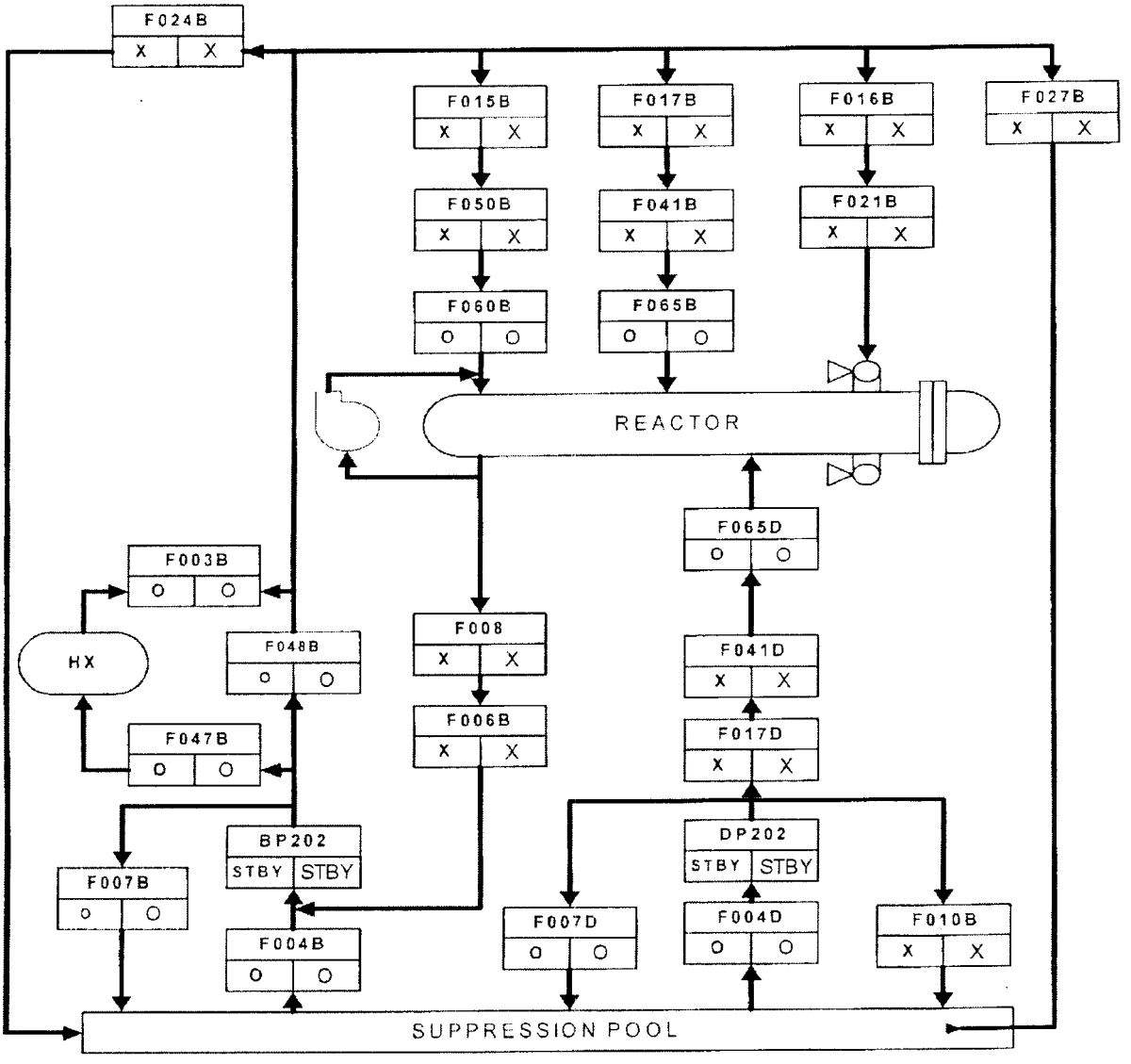
RCIC SYSTEM



REMARKS: _____

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 6 of 7)

RHR "B"



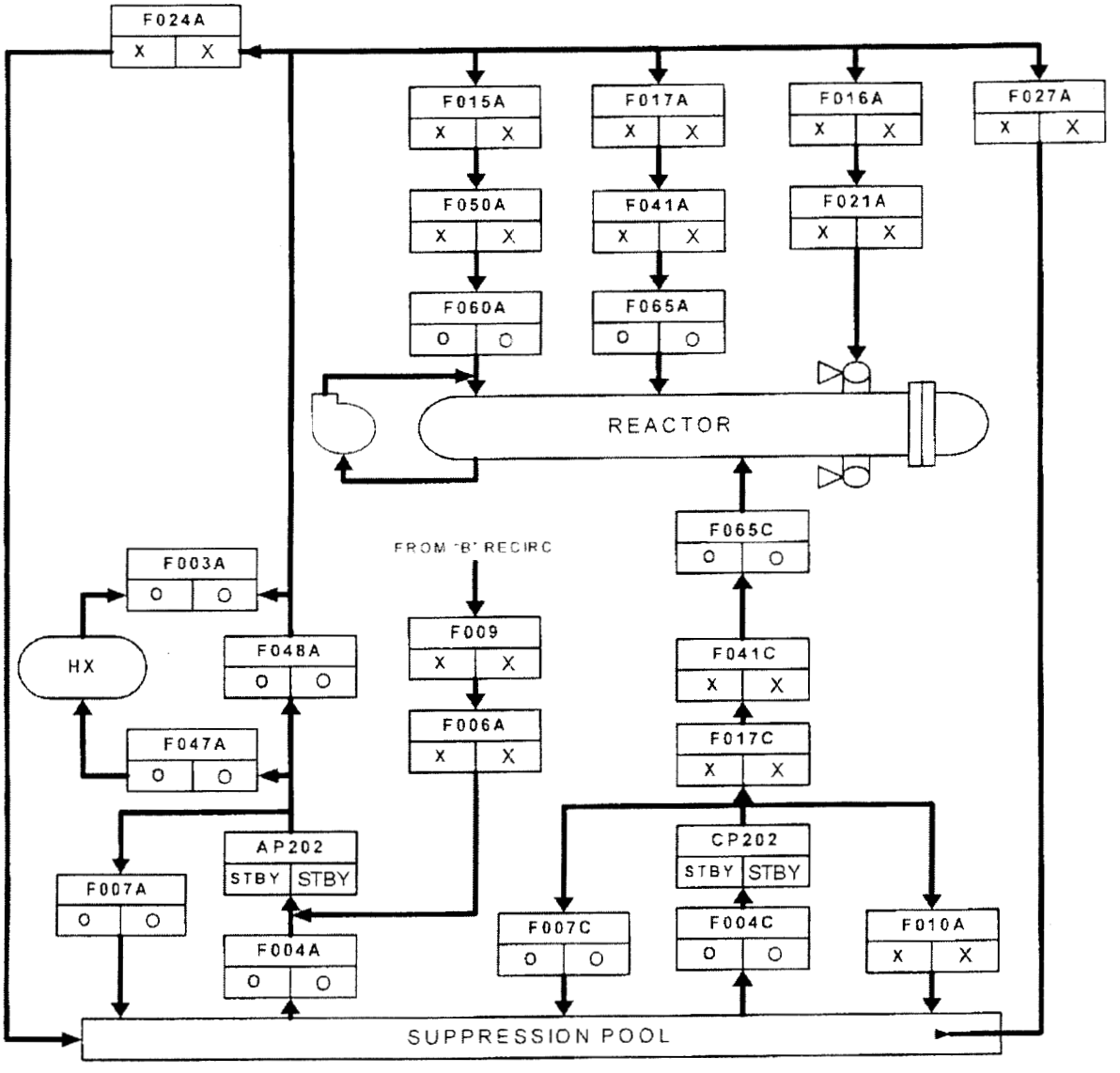
REMARKS: _____

_____

_____

ATTACHMENT 6
EQUIPMENT STATUS CHECKLIST
(Page 7 of 7)

RHR "A"



REMARKS: _____

Control Key Audit Performed By: JMB _____ **Checklist Performed By:** Signature _____
Initials Off-going Operator

I. INITIAL CONDITIONS:

I.C.

Initial	
_____	**INITIALIZE** the simulator to 100%.
_____	**ENSURE** equipment alignment matches attached checklist.
_____	**PLACE** the HPCI Flow Controller in MANUAL.
_____	**ENSURE** the 'B' SSW pump is in service.
	C/T 'D' SSW pump as follows:
_____	1. **INSERT** Malfunction **CW05D**
_____	2. **START** the 'D' SSW pump and allow to trip
_____	3. **ACKNOWLEDGE** alarms
_____	4. **PLACE** HV-2198D in LOCKOUT
_____	5. **PLACE** HV-2197D in LOCKOUT

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description
_____	**PLACE** red bezel on DP502 SSW pump.
_____	**PLACE** red bezel cover on HV-2198D discharge valve.
_____	**PLACE** red bezel cover on HV-2197D backwash valve.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CW05D Trip of DP501 SSW pump	---	---	NONE	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CW24 HV-2197D Backwash Valve breaker	---	---	NONE	---	OPEN

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A23 A1 LO DP502 OVLD/PWR FAIL light	---	---	NONE	---	OFF
	5A23 A2 LO DP502 INOP light	---	---	NONE	---	ON
	5A23 F LO DP502 SSW pump STOP	---	---	NONE	---	OFF
	5A41 A LO HV-2198D OVLD/PWR FAIL	---	---	NONE	---	ON
	5A41 E DI HV-2198D OPEN PB	---	---	NONE	---	ON
	5A41 F LO HV-2198D CLOSE light	---	---	NONE	---	OFF
	9A2 B DI HPCI FIC-R600 AUTO Pushbutton	---	---	NONE	---	OFF

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. The 'D' SSW pump is C/T for scheduled maintenance.
3. The 10F104 and 00F104 Instrument Air Dryers are in service and the 1AF104 Instrumen Air Dryer is in Standby.
4. Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
5. Preparations for shift relief are in progress.

INITIATING CUE:

You are the Off-Going Day Shift Reactor Operator of "A" Shift.
Complete the Equipment Status Checklist, Attachment 6 of OP-HC-112-101-1001, with the exception of the Control Room Key Audit.
The Control Room Key Audit has been performed by another operator.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: 2990090301

JPM NUMBER: 305H-JPM.ZZ030 **REV #:** 01
NRC ADMIN JPM RO A2

SAP BET: **NOH05JPZZ30E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: J. Berglund **DATE:** 11/8/08
Instructor

REVIEWED BY: _____ **DATE:** 12/12/8
Operations Representative

APPROVED BY: _____ **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ030 **REV:** 01

SYSTEM: Conduct of Operations

TASK NUMBER: 2990090301

TASK: Generate An SAP System Valve/Breaker Alignment

ALTERNATE PATH: [ ] **K/A NUMBER:** 2.1.29

IMPORTANCE FACTOR: 4.1 (RO) 4.2 (SRO)

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0015 Rev 21
SH.WM-DG.ZZ-0015 Rev 6

TOOLS, EQUIPMENT AND PROCEDURES: SAP Computer and accessible SAP printer.

ESTIMATED COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: **2990090301**

INITIAL CONDITIONS:

1. The plant is at 100% power steady state.
2. The current time is 3:30 am.

INITIATING CUE:

You are the Tuesday Night Shift Plant Operator.
PRINT a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) for the Shift Routine.

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**SETUP** Logon to the SAP Training Client Using: User: **TRAIN20** Password: **WELCOME9** Ensure the "WCM: Area Menu" is open (Fast Path **ZWCMM**)	N/A			
CUE	**PROVIDE** the operator the initiating cue AND the following: ☐ A prepared copy of HC.OP-DL.ZZ-0015 with an Attachment 1 completed for Dayshift (Attached) ☐ SH.WM-DG.ZZ-0015	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	HC.OP-DL.ZZ-0015	N/A			
3.6.1. A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room	Examiner Note: Refer to steps below for Standards associated with this step.			

JPM: ZZ030
Rev: 01
SYSTEM: **Conduct of Operations**
TASK: **Generate An SAP System Valve/Breaker Alignment**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	IF necessary, THEN Operator obtains the correct procedure.	Operator obtains procedure SH.WM-DG.ZZ-0015. **Examiner Note:** The procedure is only a desktop guide and the operator may be proficient at the task and NOT reference the desktop guide.			
	SH.WM-DG.ZZ-0015	N/A			
5.3.6	Printing/Reviewing Off-Normal From the WCM: Area Menu A. Click "WCM Reports" menu, then click "Off Normal Report (Version 1)".	Operator Clicks: "WCM Reports" menu. Operator then clicks "Off Normal Report (Version 1)".			
	B. Complete "Object Info" section for report to be obtained.	Operator enters the following Object Info: Planning Plant: **NNUC**	*		
		Plant Section: **HC**	*		
		Mode: **01**	*		
		Type: **F**	*		
		Technical Object: * OR **H*** OR **H1***	*		
	C. Select desired "Display Filter" either "Off Normal" or "Tagged" or both.	Operator selects "Display Filter" for "Off Normal" ONLY.	*		

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	D. If printing report:	Based on Initiating Cue, Operator determines printing the report IS required. **Examiner Note:** It is NOT critical in the following steps HOW the Operator prints the Report. For instance, may select preview mode and then use printer icon. It is also NOT critical to actually retrieve the printout. (Not all SAP printers work in the Training Client) Critical portion is to execute steps to generate a printout.			
	• Under "Program" select "Execute and Print".	Under "Program", Operator selects "Execute and Print".	*		
CUE	IF in the LDC, THEN **PROVIDE** the Operator with an accessible SAP printer number. PRINTER PROVIDED: _____	N/A			
	• Select output device then click "Continue".	Operator Selects an output device then clicks "Continue".	*		
	E. If reviewing report, click "Execute".	Based on Initiating Cue, Operator determines this step is not required.			
	F. Click "Back".	Operator clicks "Back" to exit.			

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	HC.OP-DL.ZZ-0015	N/A			
CUE	**RETRIEVE** printed Off-Normal AND **INFORM** the operator the Report has been filed.	N/A			
3.6.1. A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room	WHEN printed Off-Normal is filed, THEN Operator enters time (simulated to be 03:30) AND initials Attachment 1.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ030

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: 2990090301

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power steady state.

INITIATING CUE:

You are the Tuesday Night Shift Plant Operator.
PRINT a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) for the Shift Routine.

JOB PERFORMANCE MEASURE

ATTACHMENT 1
(Page 1 of 1)
TUESDAY SHIFT ROUTINE LOG

Date: TODAY

REQUIRED	ROUTINES	0600 - 1800	1800 - 0600
1 X Shift	3.6.1.B **PERFORM** lamp test on all possible Sections of 10C800.	JJ	
NOTE	3.6.3 **MARK** all Control Room strip charts (Date & Initial), **VERIFIED** status of Paperless Recorders. **NOTIFIED** I&C if Memory Space digital reading ≥ 20%.	JJ	

NOTE - Only recorders that are Operating or Operable need be checked.

REQUIRED	ROUTINES	TIME COMPLETED	INITIALS
1800 - 0600	3.6.1.A **PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room		
1800 - 0600	3.6.2 Control Room cleanup		
1800 - 0600	3.6.4 Attachment 2 of SH.OP-DL.ZZ-0027(Z), has been completed and Temporary Log package for the next day has been prepared.		
1800 - 0600	3.6.5 **PLACE** the out-of-service TSC Chilled Water Pump 1A(B)-P-414 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0002(Q), A(B)K403 1E Panel Room Chilled Water System Operation.. **[70036044]**		
1800 - 0600	3.6.6 **PLACE** the out-of-service Control Area Chilled Water Pump 1A(B)-P-400 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0001(Q), Control Area Chilled Water System Operation. **[70086974]**		

Performed By: John Jones

Supervisor Review: Tim Johnson (0600-1800) _____ (1800-0600)

PSEG NUCLEAR L.L.C.

HOPE CREEK GENERATING STATION

HC.OP-DL.ZZ-0015(Q) - Rev. 21

TUESDAY SHIFT ROUTINE LOG

USE CATEGORY: II

- Biennial Review Performed: Yes _ No ✓ NA ___
- Packages and Affected Document Numbers incorporated into this revision:
  CP No. _____ CP Rev. ___ AD No. ___ Rev No. _____ None ✓
- The following OTSCs were incorporated into this revision: None

REVISION SUMMARY

This revision adds Step 3.6.6 and instruction to Attachment 1 for a Control Area Chilled Water Pump 1A(B)-P-400 - Weekly Run. This Step places the out-of-service Control Area Chilled Water Pump in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0001(Q), A(B)K400 Control Area Chilled Water System Operation. Applicable References added to Section 5.0. [**CRCA 70086974**]

IMPLEMENTATION REQUIREMENTS **Effective date 8/15/2008**

None

TUESDAY SHIFT ROUTINE LOG

1.0 PURPOSE

The purpose of this log is to record completion and results or schedule the performance of activities required at a frequency of one week or less.

2.0 RESPONSIBILITY

2.1 Shift Manager/Control Room Supervisor - the SM/CRS is responsible to review this Log once per shift and note the review where indicated. CRS has primary responsibility for completion and documentation of log reviews.

2.2 Nuclear Control Operator (NCO) - NCO completes or directs completion of all sections applicable to the shift on duty.

2.3 Operations Staff - transmits the completed log to TDR for completion.

3.0 PROCEDURE

3.1 Attachment 1 is completed every Tuesday. Attachment 1 schedules activities or additional data sheets that the NCO must complete or direct completion.

3.2 The NCO performs and initials activities conducted at the NCO watch station.

3.3 The NCO directs performance and initials completion of activities performed outside the NCO area of responsibility.

3.4 The SM/CRS is notified when an activity is not completed or an entry is out-of-specification.

3.5 Completed logs are filed at the end of the day in the Control Room file with the remainder of completed logs for that day.

3.6 Procedures for each routine are provided below listed by the corresponding routine number.

3.6.1. **Shiftly Routines**

A. Once daily,
GENERATE the WCM Off-Normal Report
USING the REPORTS/OFF-NORMAL REPORT function
(Off-Normal and NOT Tagged)
AND **FILE** in the Control Room.

B. **PERFORM** a lamp check on all possible Sections of 10C800.
REPLACE all observed burned out bulbs.

C. Once daily,
FILE all closed WCDs in the marked file in the WCC.

D. At the end of each month
TRANSFER all closed tagouts from the current month file to the two year file in the Operations supply room.
REMOVE and **DISCARD** all tagouts greater than two years old.

3.6.2. **Control Room Cleanup**

- **CLEAN** the Control Room CRT screens.
- **DUST** the Control Console.
- **TAKE** out trash.
- **CLEAN UP** unnecessary papers from the Control Room.

NOTE

Only recorders that are Operating or Operable need be checked in this section.

3.6.3. **Control Room Strip Charts & Paperless Recorders**

A. **Control Room Strip Charts**
The NCO shall use chart stamp or black ink pen on each Control Room chart, dating & initialing where required.
RESET to correct time if required.

B. **Paperless Recorders**
On the recorder Status Bar
PERFORM the following:

- **VERIFY** Memory Space Icon is illuminated "green."
- **VERIFY** PC Card Icon is illuminated "green."
- **VERIFY** Memory Space Indicator indicating "orange" if recording or "gray" if not recording.
- **VERIFY** Memory Space digital reading < 20%
  IF reading ≥ 20%, **NOTIFY** I&C.

[**REFERENCE** VTD 325037, page 28]

3.6.4. **Temporary Logs**

The Nuclear Control Operator (NCO) should
ENSURE the completion of Attachment 2 of SH.OP-DL.ZZ-0027(Z); Temporary Reading Log & Log Supplements AND **PREPARE** the Temporary Log package for the next day.

NOTE

IF it has been over a week since the out of service Chilled Water Pump has been started, it may trip due to air intrusion. [**80077941**]

3.6.5. **TSC Chilled Water Pump 1A(B)-P-414 - Weekly Run [70036044]**

PLACE the out-of-service TSC Chilled Water Pump 1A(B)-P-414 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0002(Q), A(B)K403 1E Panel Room Chilled Water System Operation.

NOTE

IF it has been over a week since the out of service Chilled Water Pump has been started, it may trip due to air intrusion. [**70086974**]

3.6.6. **Control Area Chilled Water Pump 1A(B)-P-400 - Weekly Run [70086974]**

PLACE the out-of-service Control Area Chilled Water Pump 1A(B)-P-400 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0001(Q), A(B)K400 Control Area Chilled Water System Operation.

4.0 ATTACHMENTS

4.1 Attachment 1, Tuesday Shift Routine Log

5.0 REFERENCES

P&ID; M-15-0, Sht. 1
Order 70036044 - 1A-P-414 Trips Due To Air Intrusion
Order 70086974 - Control Area Chilled Water Pump Trip On Low Flow.
80077941
70086974
SH.OP-DL.ZZ-0027(Z); Temporary Reading Log & Log Supplements
HC.OP-SO.GJ-0001(Q), A(B)K400 Control Area Chilled Water System Operation.
HC.OP-SO.GJ-0002(Q), A(B)K403 1E Panel Room Chilled Water System Operation.

ATTACHMENT 1
(Page 1 of 1)
TUESDAY SHIFT ROUTINE LOG

Date: _____

REQUIRED		ROUTINES	0600 - 1800	1800 - 0600
1 X Shift	3.6.1.B	**PERFORM** lamp test on all possible Sections of 10C800.		
NOTE	3.6.3	**MARK** all Control Room strip charts (Date & Initial), **VERIFIED** status of Paperless Recorders. **NOTIFIED** I&C if Memory Space digital reading ≥ 20%.		

NOTE - Only recorders that are Operating or Operable need be checked.

REQUIRED		ROUTINES	TIME COMPLETED	INITIALS
1800 - 0600	3.6.1.A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room		
1800 - 0600	3.6.2	Control Room cleanup		
1800 - 0600	3.6.4	Attachment 2 of SH.OP-DL.ZZ-0027(Z), has been completed and Temporary Log package for the next day has been prepared.		
1800 - 0600	3.6.5	**PLACE** the out-of-service TSC Chilled Water Pump 1A(B)-P-414 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0002(Q), A(B)K403 1E Panel Room Chilled Water System Operation.. **[70036044]**		
1800 - 0600	3.6.6	**PLACE** the out-of-service Control Area Chilled Water Pump 1A(B)-P-400 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0001(Q), Control Area Chilled Water System Operation. **[70086974]**		

REMARKS: _____

_____

Performed by: _____ _____

Supervisor Review: _____ _____
0600 - 1800 1800 - 0600

5.3.2. Change Current Position
From the WCM: Area Menu

A. Click "Work Clearance Management", go to "Current Positions", then double click "Create/Change".

B. Enter functional location preceded by an "F" in the previous box, click "Enter".

NOTE

Remark is required when changing position to off-normal or back to normal.

C. Enter position in "Current Position" field and reason for change in "Comments" field, click "Save".

5.3.3. Display Functional Location Current Position
From the WCM: Area Menu

A. Click "Work Clearance Management", go to "Current Positions", then double click "Display"

B. Enter functional location preceded by an "F" in the previous box, click "Enter".

C. After reviewing Blocking Point (item), click "Back".

5.3.4. Viewing Information Page
To view Information Page (IP) open another SAP Session

A. Enter "ZCD2" in Fast Path screen.

B. Enter Functional Location and Planning Plant data and click "Enter".

C. Select "FLOCDet" icon.

D. The Information Page (IP) is located under Blocking Points Comments section.

5.3.5. Updating Location details and IP page of Components
To update Information Page (IP) open another SAP Session

A. Enter "ZCD2" in Fast Path screen.

B. Enter Functional Location and Planning Plant data and click "Enter".

C. Select "FLOCDet" icon.

D. Click "ChangeMode

E. Type in desired special Location detail information in Location box.

F. Type in desired special instructions into Blocking Point Comments boxes.

G. Click "Save".

H. Click "Back"

I. Click "Back" again to exit the component data module and save all entries.

5.3.6. Printing/Reviewing Off-Normal
From the WCM: Area Menu

A. Click "WCM Reports" menu, then click "Off Normal Report (Version 1)".

B. Complete "Object Info" section for report to be obtained.

C. Select desired "Display Filter" either "Off Normal" or "Tagged" or both.

D. If printing report:

- Under "Program" select "Execute and Print".
- Select output device then click "Continue".

E. If reviewing report, click "Execute".

F. Click "Back".

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK: Perform the Watchstanding Duties of the Nuclear Control Room Operator

TASK NUMBER: 2990010101

JPM NUMBER: 305H-JPM.ZZ035 **REV #:** 00
NRC ADMIN JPM RO A3

SAP BET: **NOH05JPZZ35E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: J. Berglund **DATE:** 11/15/08
Instructor

REVIEWED BY: _____ **DATE:** 12/12/8
Operations Representative

APPROVED BY: Mark W Pamish **DATE:** 12/12/08
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ035 **REV:** 00

SYSTEM: Equipment Control

TASK NUMBER: 2990010101

TASK: Perform the Watchstanding Duties of the Nuclear Control Room Operator

ALTERNATE PATH: [ ]

K/A NUMBER: 2.2.23

IMPORTANCE FACTOR: RO 3.2 SRO 4.2

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev 113
HC.IC-FT.SK-0006 Rev 15

TOOLS, EQUIPMENT AND PROCEDURES:

Blank HC.OP-DL.ZZ-0026 Attachment 5, Prepared HC.IC-FT.SK-0006 Ops Info Sheet

ESTIMATED COMPLETION TIME: 10 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Equipment Control

TASK: Perform the Watchstanding Duties of the Nuclear Control Room Operator

TASK NUMBER: **2990010101**

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. I&C is performing scheduled functional test HC.IC-FT.SK-0006, RWCU NSSSS Division 4 Steam Leak Detection.
3. I&C requires opening breaker 52-242081 for the RWCU BG-HV-F004 valve to perform the test.
4. Applicable OHAs have been flagged.

INITIATING CUE:

You are the Reactor Operator.
LOG the I&C functional test onto HC.OP-DL.ZZ-0026 Attachment 5 (provided).
The applicable Technical Specification is 3.6.3 (Active) and the Required Action time is four hours.

JPM: ZZ035 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform the Watchstanding Duties of the Nuclear Control Room Operator**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND: • The attached Operations Information Sheet • A blank copy of HC.OP-DL.ZZ-0026 Attachment 5	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	OP-HC-108-115-1001	N/A			
3.	**RESPONSIBILITIES**	N/A			
3.4	**Nuclear Control Operator (NCO):** Complete HC.OP-DL.ZZ-0026(Q), Surveillance Log, Attachment 5 as required by Step 5.3.3.	**Examiner Note:** Refer to steps below and Examiner Copy of Attachment 5 for Standards associated with this step.			

JPM: ZZ035 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform the Watchstanding Duties of the Nuclear Control Room Operator**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.3	- **COMPLETE** Attachment 5 of HC.OP-DL.ZZ-0026(Q), to track allowable outage times before actions (either by Operations or other departments) are required.	Operator enters current date on Attachment.			
		Operator enters Order 60001111 in ORDER block of Attachment.			
5.3.3	- **COMPLETE** Attachment 5 of HC.OP-DL.ZZ-0026(Q), to track allowable outage times before actions (either by Operations or other departments) are required.	Operator enters "HC.IC-FT.SK-0006" in SURVEILLANCE NUMBER(S) block of Attachment.			
		Operator enters surveillance title OR description of surveillance in DESCRIPTION/PROCEDURE TITLE block of Attachment.			
		Operator enters "3.6.3" in T/S NUMBER(s) block of Attachment.	*		
		Operator enters "ACTIVE" in LCO STATUS ACTIVE/TRACKING block of Attachment.	*		

JPM: ZZ035 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform the Watchstanding Duties of the Nuclear Control Room Operator**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.3	- **COMPLETE** Attachment 5 of HC.OP-DL.ZZ-0026(Q), to track allowable outage times before actions (either by Operations or other departments) are required.	Operator enters current time, date, and initials in LOG ON TIME/DATE RO INIT block of Attachment.			
CUE	IF the Operator indicates they would normally wait until the breaker was actually opened to enter a time, THEN **DIRECT** the Operator to consider the breaker open as of NOW.	N/A			
5.3.3	- **COMPLETE** Attachment 5 of HC.OP-DL.ZZ-0026(Q), to track allowable outage times before actions (either by Operations or other departments) are required.	Operator enters current date and current time plus ≤ 4 hours in ACTION REQUIRED TIME/DATE.	*		

JPM: ZZ035 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform the Watchstanding Duties of the Nuclear Control Room Operator**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ035

TASK: Perform the Watchstanding Duties of the Nuclear Control Room Operator

TASK NUMBER: 2990010101

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

ATTACHMENT 5
Surveillance Log
T/S Surveillance and Planned Evolution AOT Tracking Log

Date: TODAY

ORDER	SURVEILLANCE NUMBERS(S) **[NOTE 1]**	DESCRIPTION/ PROCEDURE TITLE	T/S NUMBER(s)	LCO STATUS ACTIVE/ TRACKING	LOG ON TIME/DATE RO INIT	ACTION REQUIRED TIME/DATE **[NOTE 2]**	LOG OFF TIME/DATE RO INIT
60001111	**HC.IC-FT.SK-0006**	**RWCU Div 4 Leak Detection**	**3.6.3**	**ACTIVE**	**TODAY/NOW**	**TODAY/NOW +4hrs**	

NOTES:
1. ALL ENTRIES WHICH ARE NOT LOGGED OFF BY THE END OF THE DAY (i.e.: 0700), SHALL BE CARRIED OVER TO THE FOLLOWING DAY'S LOG.
2. THE ACTION REQUIRED TIME/DATE SHOULD BE DETERMINED BY THE SM/CRS IAW HC.OP-AP.ZZ-0108 (Q), OPERABILITY ASSESSMENT AND EQUIPMENT CONTROL PROGRAM, AND FILLED IN. IF THE ACTION REQUIRED TIME IS REACHED, THE SM/CRS WILL IMPLEMENT THE REQUIRED ACTIONS IAW SH.OP-AP.ZZ-0108(Q).

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. I&C is performing scheduled functional test HC.IC-FT.SK-0006, RWCU NSSSS Division 4 Steam Leak Detection.
3. I&C requires opening breaker 52-242081 for the RWCU BG-HV-F004 valve to perform the test.
4. Applicable OHAs have been flagged.

INITIATING CUE:

You are the Reactor Operator.
LOG the I&C functional test onto HC.OP-DL.ZZ-0026 Attachment 5 (provided).
The applicable Technical Specification is 3.6.3 (Active) and the Required Action time is four hours.

EXHIBIT 1

OPERATIONS INFORMATION SHEET (1 of 2)

Procedure Title: RWCU - DIVISION 4 (AMB T, dT)
NSSSS - DIVISION 4
STEAM LEAK DETECTION TEMPERATURE MONITOR
1SKXR-11499

Order #: 60001111

Performer Name: Mack Strong TODAY (Date) NOW (Time)

NOTE

Technical Specification 3.3.2 is applicable for the following:

RWCU Differential Temperature Trip Channels A2-1, A2-2, A2-3, A2-4, A2-5, AND A2-6
RWCU Ambient Trip Channels A3-1, A3-2, A3-3, A3-4, A3-5, AND A3-6
NSSSS Logic D trip channels A1-3, A1-4, A4-1, AND A4-2

Technical Specification 3.6.3 AND ACTION 3.3.7.5 is applicable when valve breaker for H1BG -BG-HV-F004 is opened.

Annunciators

- C1 C2, RWCU SYSTEM TROUBLE
- C8 A4, NSSSS MSIV LOGIC D INITIATED
- C8 C4, NSSSS ISLN SIG-STM TNL TEMP HI
- D1 E1, RRCS TROUBLE
- D1 B3, CONTAINMENT ISOLATION VALVE O/PF
- D3 A3, MN STM/RWCU AREA LEAK TEMP HI
- D3 D3, LEAK DET SYSTEM TROUBLE

Status Lights

MCP Location: D/B RRCS

- CHANNEL B, RRCS LOGIC A TROUBLE

MCP Location: NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM

- TRIP LOGIC D, MSIV TRIP LOGIC TRIPPED

EXHIBIT 1

OPERATIONS INFORMATION SHEET (2 of 2)

Computer Points

- D2088, MAIN STEAM LINE D LEAK DETECT
- D2393, STEAM LEAK DET CH D CARD AT4
- D3144, RWCU OUTBD ISLN HV-F004 OPF
- D4675, CONTAINMENT ISOLATION MOV OPF
- D5868, RWCU/MAIN ST LEAK DET TMP CH Z

Functions

- NSSSS Logic D Trip on High Steam Tunnel Temperature (Steam Leak Detection)
- RWCU outboard isolation, valve 1-BG-V004 (HV-F004), on High Ventilation D/T (Steam Leak Detection); (function defeated by opening valve breaker)
- RWCU outboard isolation, valve 1-BG-V004 (HV-F004), on Area High Temperature (Steam Leak Detection); (function defeated by opening valve breaker)

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Radiation Control

TASK: Perform Alternate RCS Leakage Determination (Floor Drains)

TASK NUMBER: 3660020201

JPM NUMBER: 305H-JPM.ZZ036 **REV #:** 00

NRC ADMIN JPM RO A4

SAP BET: **NOH05JPZZ36E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: J. Berglund **DATE:** 11/16/08

Instructor

REVIEWED BY: _____ **DATE:** 12/12/8

Operations Representative

APPROVED BY: _____ **DATE:** 12/12/08

Training Department

STATION: Hope Creek

JPM NUMBER: ZZ036 **REV:** 00

SYSTEM: Radiation Control

TASK NUMBER: 3660020201

TASK: Perform Alternate RCS Leakage Determination (Floor Drains)

ALTERNATE PATH: [ ]

K/A NUMBER: 2.3.11

IMPORTANCE FACTOR: 3.8 (RO) 4.3 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Perform/Classroom

REFERENCES: HC.OP-ST.SK-0001 Rev 7
HC.OP-DL.ZZ-0026 Rev 113
Tech Spec 3.4.3.2.e and 4.4.3.2.1.b

TOOLS, EQUIPMENT AND PROCEDURES:

Prepared copies of HC.OP-ST.SK-0001 and HC.OP-DL.ZZ-0026 Att 3z (Attached)

ESTIMATED COMPLETION TIME: 12 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Radiation Control

TASK: Perform Alternate RCS Leakage Determination (Floor Drains)

TASK NUMBER: **3660020201**

INITIAL CONDITIONS:

1. The plant at 100% power.
2. The Drywell Floor Drain RMS has failed and repairs are expected to take 48 hours.
3. Drywell Floor Drain inleakage is being determined manually IAW HC.OP-ST.SK-0001 with a multimeter and stopwatch once per hour.
4. I&C has just completed taking the 0700 Final Milliamp reading.

INITIATING CUE:

You are the Extra NCO.
COMPLETE the hourly calculation of Drywell Floor Drain inleakage IAW HC.OP-ST.SK-0001 (Provided) AND **RECORD** the result on HC.OP-DL.ZZ-0026 Attachment 3z (Provided).
The current time is 0700.

JPM: ZZ036 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Alternate RCS Leakage Determination (Floor Drains)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND: • A prepared copy of HC.OP-ST.SK-0001 (Attached) • A prepared DL.ZZ-0026 Att. 3z to record final reading on (Attached)	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN **INFORM** operator that all are satisfied.	N/A			

JPM: ZZ036 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Alternate RCS Leakage Determination (Floor Drains)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.10	**CALCULATE** Differential Milliamp "Diff mA" AND Differential Time "Diff Time" AND **RECORD** on Attachment 2, Section 2.3.	Operator calculates Differential Milliamps of **0.257 - 0.26** and records on Attachment 2. 12.393 - 12.136 = 0.257 **Examiner Note:** Rounding to 0.26 mA is acceptable.	*		
		Operator calculates Differential Time of **60 minutes** and records on Attachment 2.	*		
5.1.11	**CALCULATE** "Inleakage (GPM)", using formula at bottom of Attachment 2, Section 2.3 AND **RECORD** the rate, date, AND **INITIALS** on the Attachment.	Operator calculates inleakage of 0.0998 gpm and records **0.0998 - 0.101** on Attachment 2. $\frac{0.257 \times 23.31}{60 \text{ minutes}} = 0.0998$ gpm **Examiner Note:** Rounding to 0.1 gpm is acceptable.	*		
5.1.12	**RECORD** required leak rate readings from Attachments IAW HC.OP-DL.ZZ-0026(Q); Surveillance Log.	Operator records leak rate on HC.OP-DL.ZZ-0026 Attachment 3z.	*		

JPM: ZZ036 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

TASK: **Perform Alternate RCS Leakage Determination (Floor Drains)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CAUT 5.1.13	**Allow for enough time when obtaining the next reading so that the calculated leak rate is obtained at least once every four hours IAW T/S 3.4.3.1 ACTION a.1.**	N/A			
5.1.13	**CONTINUE** calculating inleakage rate using steps 5.1.7 through 5.1.11 UNTIL the capability to obtain leak rate information from the RMS, for Drywell Floor Drain System has returned, THEN **PROCEED** to step 5.1.29 to exit this procedure.	Operator determines capability to obtain leak rate information from RMS is not yet available and does NOT exit the procedure.			
CUE	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:**	N/A			

ATTACHMENT 3z
Action Statement Surveillance

Generic Action Statement Surveillance Sheet Applicability:

When entering a T/S Action Statement that requires increased surveillance.

Action Statement Number **LDC-1** Date **TODAY**

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	DAY	EVE	MID	COMMENTS
					N/A	N/A	N/A	
					N/A	N/A	N/A	

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700
Drywell Floor Drain Flow ST.SK-0001	**1,2,3**			**5 gpm**	**0.01**										

1800	1900	2000	2100	2200	2300	0000	0100	0200	0300	0400	0500	0600	COMMENTS

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700

1800	1900	2000	2100	2200	2300	0000	0100	0200	0300	0400	0500	0600	COMMENTS

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ036

TASK: Perform Alternate RCS Leakage Determination (Floor Drains)

TASK NUMBER: 3660020201

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant at 100% power.
2. The Drywell Floor Drain RMS has failed and repairs are expected to take 48 hours.
3. Drywell Floor Drain inleakage is being determined manually IAW HC.OP-ST.SK-0001 with a multimeter and stopwatch once per hour.
4. I&C has just completed taking the 0700 Final Milliamp reading.

INITIATING CUE:

You are the Extra NCO.
COMPLETE the hourly calculation of Drywell Floor Drain inleakage IAW HC.OP-ST.SK-0001 (Provided) AND **RECORD** the result on HC.OP-DL.ZZ-0026 Attachment 3z (Provided).
The current time is 0700.

HC.OP-ST.SK-0001(Q) - Rev. 7

ALTERNATE RCS LEAKAGE DETERMINATION

USE CATEGORY: I

REVISION SUMMARY

Rev. 7

1. Note 1.0 of Attachment 2 stating the requirements of Independent Verification was deleted. The use of N/A is self explanatory. This change is generic and can be considered editorial based on allowance in NC.NA-AP.ZZ-0001(Q), for "Revising a procedure to include changes previously reviewed and approved".

2. This procedure has been converted from Professional Write to Microsoft Word.

3. The following changes were made in this revision to bring the procedure in line with the rules governing procedure format, content, and writer/reviewer guidelines, as contained in NC.NA-WG.ZZ-0001(Q), Procedure Writers Guide and can be considered Editorial in nature. Due to the extensive changes, revision bars were omitted.

   - Added "RECORDS" section 6.0
   - Capitalization and Bolding of action verbs
   - Added Recurring Task number to references
   - Changed procedure Font from "Arial" to "Times New Roman"
   - Revised Cautions and Note boxes format from margin to margin
   - Moved "Commitment Document" numbers from left margins to end of applicable steps
   - Added Placekeeping/Step completion signoffs throughout procedure
   - Replaced "SIGN" with "INITIAL" throughout procedure.
   - Replaced "REQUEST" with "DIRECT" throughout procedure.

4. Incorporates revision request **OP-97-0176 (PR 970401160)** by revising procedure to modify and add steps for the collection of M&TE data and the recording of M&TE removal. See changes to steps 5.1.29.A, and 5.2.16.A and the addition of steps 5.1.4 and 5.2.4.

(Continued)

IMPLEMENTATION REQUIREMENTS

Effective Date_____

APPROVED: _____ _____
Operations Manager **Date**

HC.OP-ST.SK-0001(Q) - Rev. 7

ALTERNATE RCS LEAKAGE DETERMINATION

USE CATEGORY: I

REVISION SUMMARY CONTINUATION SHEET

Rev. 7

5. Organizational title changes were made in this revision to bring the procedure in line with guidelines, as contained in NC.NA-AP.ZZ-0002(Q), Nuclear Business Unit Organization, Attachment 1 and are considered editorial based on an allowance in NC.NA-AP.ZZ-0001(Q), Attachment 7 for "changing personnel titles to reflect organizational changes (without changing authority or responsibilities)." Due to the extensive changes, revision bars were omitted.

6. Based on comments the following changes were made: Removed Caution 5.0 as being redundant to Precaution 3.1; Removed Precaution 3.1.2 as being redundant to Cautions 5.1.6.A and 5.2.5.A.

ALTERNATE RCS LEAKAGE DETERMINATION

TABLE OF CONTENTS

ALTERNATE RCS LEAKAGE DETERMINATION

1.0 PURPOSE

The purpose of this procedure is to determine Reactor Coolant System leak rate in the event the normal Drywell Floor and/or Equipment Drain Sump Monitoring System is inoperable and to satisfy Tech. Spec. 3.4.3.1.a and 4.4.3.2.1.b.

2.0 PREREQUISITES

2.1 Determining Drywell Floor Drain Leak Rate

2.1.1 Permission to perform this test has been obtained from the OS/CRS/WCCS as indicated by the completion of Attachment 1, Section 1.0. JMB

2.1.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. JMB

2.1.3 The RO/PO has been informed that the following test is to be performed. JMB

2.1.4 No other testing or maintenance is in progress that will adversely affect the performance of this test. JMB

2.1.5 The ability to read Drywell Floor Drain inleakage on RMS modules 1SKLI-4930 (Panel 10C604) OR 1SKLI-4930A (Control & Diesel Generator Bldg. El. 124') is lost. JMB

2.1.6 I&C personnel are available to connect multimeter and/or chart recorder at Panel 1DC695. JMB

2.2 **Determining Drywell Equipment Drain Leak Rate**

2.2.1 Permission to perform this test has been obtained from the OS/CRS/WCCS as indicated by the completion of Attachment 1, Section 1.0. N/A

2.2.2 All personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure.

2.2.3 The RO/PO has been informed that the following test is to be performed. N/A

2.2.4 No other testing or maintenance is in progress that will adversely affect the performance of this test. N/A

2.2.5 The ability to read Drywell Equipment Drain inleakage on RMS modules 1SKLI-4930 (Panel 10C604) OR 1SKLI-4930A (Control & Diesel Generator Bldg. - El. 124') is lost. N/A

2.2.6 I&C personnel are available to connect multimeter and/or chart recorder at Panel 1DC695. N/A

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions

IF at any time during the performance of this test, a step cannot be completed OR is observed to be unsatisfactory;
THEN IMMEDIATELY **NOTIFY** the RO/PO
AND the OS/CRS/WCCS. **[CD-927E]** JMB

3.2 Limitations

3.2.1 All steps within each section within the body of this procedure are to be completed in sequence unless otherwise specified. JMB

3.2.2 **ENSURE** leak rate is in compliance with T/S 3.4.3.2, during Conditions 1, 2, and 3. JMB

3.2.3 Section 5.1 and 5.2 may be performed concurrently. JMB

4.0 EQUIPMENT REQUIRED

- Keithly Model 197 Multimeter or equivalent
- Gould Model 2200S Chart Recorder or equivalent
- Calibrated Stopwatch

5.0 PROCEDURE

NOTE 5.0

A. All operations are performed locally at Junction Box 1DC695 unless otherwise noted.

B. Junction Box 1DC695 is located in the Control & Diesel Generator Bldg. - El. 124' -Room 5448.

5.1 Determining Drywell Floor Drain Leakage

5.1.1 IF this is the first subsection of the procedure to be performed THEN **LOG** test start time in the Control Room log(s). JMB

5.1.2 **ENSURE** that all prerequisites have been satisfied IAW Section 2.1. JMB

5.1.3 **ENSURE** Attachment 1, Section 1, of the OS/CRS/WCCS Data and Signature Sheet has been completed and Regular Surveillance or Retest is indicated. JMB

5.1.4 **RECORD** the M&TE identification and calibration due dates for test equipment to be utilized for this test on Attachment 2. JMB

NOTE 5.1.5

If failure to read Drywell Floor Drain Sump level at 1SKLI-4930 and 1SKLI-4930A was by power failure to the RM-80 Motherboard or failure of 1SKLT-4931, proceed to step 5.1.14

5.1.5 Floor Drain Sump levels should be monitored AND a leak rate calculated using the time intervals between readings specified on Attachment 3. JMB

5.1.6 **DIRECT** I&C to **CONNECT** a Keithley Model 197 Multimeter set to read milliamps DC or equivalent as follows: JMB

CAUTION 5.1.6.A

The Action Pack Isolator is removed prior to connecting the Multimeter, as an accidental short circuit while disconnecting or connecting wiring may cause a failure of the Action Pack Isolator.

A. **REMOVE** A-2 Action Pack Isolator. AEJ

B. **LIFT** lead from 1SKLT-4931 //Drywell Floor Drain Sump Level Transmitter// at terminal 4, TB4 AND **INITIAL** Attachment 2, Section 2.1. AEJ

C. **CONNECT** one input of multimeter to lifted lead AND **INITIAL** Attachment 2, Section 2.1. AEJ

D. **CONNECT** the other input of multimeter to terminal 4, TB4 AND **INITIAL** Attachment 2, Section 2.1. AEJ

Continued Next Page

5.1.6 (Continued)

NOTE 5.1.6.E

If multimeter indication is offscale high or low, NOTIFY OS/CRS/WCCS that the Drywell Floor Drain Sump level may be out of normal range or possible failure of 1SKLT-4931.

E. **ENSURE** multimeter indicates 4 - 20 milliamps. AEJ

F. **INSERT** A-2 Action Pack Isolator. AEJ

NOTE 5.1.7

The following steps will be performed to obtain data in order to calculate leak rate. A calibrated stop watch should be used for accuracy in timing reading intervals.

5.1.7 **PRESS** START Pb on //DRYWELL FLOOR DRAIN SUMP BT267 pump// C(D)P267 (10C650D). JMB

5.1.8 WHEN the sump pump stops automatically on low sump level, SIMULTANEOUSLY **START** the stopwatch.
RECORD the "Initial Milliamp" reading on the Multimeter AND "Initial Time" on Attachment 2, Section 2.3. AEJ

NOTE 5.1.9

The initial time interval between taking the "Initial Milliamp" reading and the "Final Milliamp" reading should be obtained from Attachment 3, and based on the last recorded reading for HC.OP-DL.ZZ-0026(Q), Drywell Floor Drain leakage. Subsequent time intervals should be obtained from Attachment 3 and based on what the last calculated Inleakage reading was. Using the time interval between readings, allows for a continuous fill of the sump readings without an automatic start of the sump pump on level. This would prevent obtaining a valid calculated reading using this method.

5.1.9 At the interval specified in Attachment 3,
AND using the running stopwatch for accuracy,
RECORD "Final Time",
AND "Final Milliamps" on Attachment 2, Section 2.3. AEJ

5.1.10 **CALCULATE** Differential Milliamp "Diff mA"
AND Differential Time "Diff Time"
AND **RECORD** on Attachment 2, Section 2.3. _____

5.1.11 **CALCULATE** "Inleakage (GPM)", using formula at bottom of Attachment 2, Section 2.3
AND **RECORD** the rate, date,
AND **INITIALS** on the Attachment. _____

5.1.12 **RECORD** required leak rate readings from Attachments IAW HC.OP-DL.ZZ-0026(Q); Surveillance Log. _____

CAUTION 5.1.13

Allow for enough time when obtaining the next reading so that the calculated leak rate is obtained at least once every four hours IAW T/S 3.4.3.1 ACTION a.1.

5.1.13 **CONTINUE** calculating inleakage rate using steps 5.1.7 through 5.1.11 UNTIL the capability to obtain leak rate information from the RMS, for Drywell Floor Drain System has returned,
THEN **PROCEED** to step 5.1.29 to exit this procedure. _____

5.1.14 **DIRECT** I&C to **CONNECT** a Gould Model 2200S Chart Recorder OR equivalent as follows: N/A___

A. **CONNECT** positive input of recorder to terminal 7, TB3 AND **INITIAL** Attachment 2, Section 2.1. N/A___

B. **CONNECT** negative input of recorder to terminal 8, TB3 AND **INITIAL** Attachment 2, Section 2.1. N/A___

C. **SET** recorder pin to center scale with a gain of 5 VDC per major division. N/A___

D. **SET** recorder chart speed at 5 mm/min. N/A___

5.1.15 **PRESS** START Pb on //DRYWELL FLOOR DRAIN SUMP BT267 pump// C(D)P267 (10C650D). N/A___

NOTE 5.1.16

The recorder pin will indicate 0 VDC when the Floor Drain Sump Pump(s) is running and 5 VDC when the pump is not running.

5.1.16 **OBSERVE** recorder pin indicates 0 VDC while pump is running. N/A

5.1.17 **ALLOW** pump to stop automatically on low sump level. N/A

5.1.18 **RECORD** on the chart the time, date and initials at point where pump stopped (chart should indicate 5 VDC). N/A

5.1.19 **RECORD** "Pump Stop Time" on Attachment 2, Section 2.2. N/A

NOTE 5.1.20

The recorder pin will indicate 0 VDC when the Floor Drain Sump Pump(s) is running and 5 VDC when the pump is not running.

5.1.20 At the interval specified by Attachment 3, and based on the last recorded reading for HC.OP-DL.ZZ- 0026(Q), Drywell Floor Drain leakage, **CONTINUE** to observe the recorder at each interval for indication of a sump pumpout. N/A

5.1.21 IF there has not been a pumpout
AND the required T/S 4 hour reading is due
THEN **GO TO** step 5.1.27. N/A

5.1.22 IF there was a sump pumpout,
THEN **CALCULATE** "Pump Start Time" and "Pump Stop Time" from the chart by measurement from the previous stop time (5 mm/min.),
AND **RECORD** on Attachment 2, Section 2.2. N/A

5.1.23 **RECORD** Differential Time "Diff Time" from the previous Pump Stop Time (auto shutdown) to the last Pump Start Time on Attachment 2, Section 2.2. N/A

5.1.24 Using Equation on Attachment 2, Section 2.2, **CALCULATE** AND **RECORD** "Inleakage (GPM)", "Date" AND "Initials" on Attachment. N/A

5.1.25 **CONTINUE** to monitor and calculate leak rates using steps 5.1.21 through 5.1.24 so that the leak rate is obtained at least once every four hours IAW T/S 3.4.3.1 ACTION a.1. N/A

5.1.26 **RECORD** required leak rate readings from Attachments IAW HC.OP-DL.ZZ-0026(Q); Surveillance Log. N/A

5.1.27 IF there was NOT a pumpout, THEN **RECORD** the "Inleakage (GPM)" as less than the value specified in Table 5.1.27. N/A

TABLE 5.1.27

Time from Last Pumpout	Inleakage (GPM)	Time from Last Pumpout	Inleakage (GPM)
8 Hours	< 0.19		
7 Hours	< 0.21	45 Minutes	< 1.97
6 Hours	< 0.25	30 Minutes	< 2.96
5 Hours	< 0.30	18 Minutes	< 4.94
4 Hours	< 0.37	15 Minutes	< 5.92
3 Hours	< 0.49		
2 Hours	< 0.78		
1 Hour	< 1.48		

5.1.28 WHEN the capability to obtain leak rate information from the RMS for Drywell Floor Drain System has returned, THEN **CONTINUE** with the next step. N/A

5.1.29 IF this is the final subsection of this procedure to be performed THEN:

A. **DIRECT** I&C to **REMOVE** recorder and multimeter (if used) AND **RETURN** lifted lead to terminal 4 at TB4 AND **INITIAL** Attachment 2, Section 2.1. (I&C and OPS). _____

B. **LOG** test end time in the Control Room log(s). _____

C. **SUBMIT** this procedure to the OS/CRS/WCCS for review AND completion of Attachment 1. _____

RECORDS

6.1 **RETAIN** the following IAW NC.NA-AP.ZZ-0003(Q); Document Management Program:

- Procedure cover page
- Attachment 1 - OS/CRS/WCCS Data and Signature Sheet
- Attachment 2 - Inplant Data Sheet

7.0 REFERENCES

7.1 P&ID: M-25-1, Sht. 1
M-61-1, Sht. 1
M-61-1, Sht. 2

7.2 J-R 1000-0

7.3 J-373Q-87-4

7.4 DCP: 4HM-0323
4HC-0074, Pkg. 5

7.5 Commitment Document

CD-927E (NRC INFO 87-25)

ATTACHMENT 1
OS/CRS/WCCS DATA AND SIGNATURE SHEET
ALTERNATE RCS LEAKAGE DETERMINATION

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1 Regular Surveillance _____ INITIALS

1.1.2 Retest/Other JMJ INITIALS

1.1.3 If not performing the complete test, list subsection(s)/valves to be performed, as well as marking N/A on the applicable subsection(s)/valves on the Attachment(s) that will not be performed, or, that do not require an independent verification IAW NC.NA-AP.ZZ-0005(Q); Station Operating Practices.

5.1 Floor Drain Inleakage Determination with Multimeter
SUBSECTION(S)

1.2 Plant Conditions

1.2.1	Operational Condition	**1**
1.2.2	Reactor Power Level	**100%**
1.2.3	GMWe	**1260**

1.3 Permission to Perform the Test

1.3.1 Permission granted to perform this test.

Joe Johnson	**Today/0400**
OS/CRS/WCCS	DATE-TIME

1.3.2 Work Order No. _____

ATTACHMENT 1
OS/CRS/WCCS DATA AND SIGNATURE SHEET
ALTERNATE RCS LEAKAGE DETERMINATION
Page 2 of 3

2.0 **POST TEST INFORMATION**

2.1 The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 3.4.3.2, Reactor Coolant System Operational Leakage and the test is considered:

2.1.1 SATISFACTORY

_____ /_____
OS/CRS/WCCS DATE-TIME

2.1.2 UNSATISFACTORY AND
IF necessary the T.S. ACTION statement has been implemented.

_____ /_____
OS/CRS/WCCS DATE-TIME

2.1.3 Order No. _____

2.1.4 Remarks _____

_____

_____

_____

_____

_____

ATTACHMENT 1
OS/CRS/WCCS DATA AND SIGNATURE SHEET
ALTERNATE RCS LEAKAGE DETERMINATION

3.0 PROCEDURE PERFORMER(S) AND VERIFIER(S)

3.1 I have read and understand the steps of this procedure that I am required to perform. (All Departments)

PRINT NAME	SIGNATURE	INITIALS	DATE/TIME
Joe Johnson	Joe Johnson	JMJ	Today/0400
Jim Berglund	JBerglund	JMB	Today/0500
Archie Faulkner	AFaulkner	AEF	Today/0500
Kevin Faulk	KFaulk	KAF	Today/0500

ATTACHMENT 2
INPLANT DATA SHEET
ALTERNATE RCS LEAKAGE DETERMINATION

1.0 TEST INFORMATION

2.1 Alternate RCS Leakage Determination Instrumentation Setup and Removal

STEP	TEST EQUIPMENT	INST. TAG/MTE NO.	CAL DUE DATE	NOTES
5.1.4 5.2.4	Stopwatch	LDC-1	4/30/09	
	Multimeter	LDC-2	4/30/09	

STEP	NOMENCLATURE	REQ POSITION	PERF	VERIF
5.1.6.B	Lifted Lead from Term. 4, TB4	Lifted	AEJ	KAJ
5.1.6.C	Multimeter connected to Lead	Connected	AEJ	KAJ
5.1.6.D	Multimeter connected to Term. 4, TB 4	Connected	AEJ	KAJ
5.1.14.A	Positive Input connected to Term. 7, TB3	Connected	N/A	N/A
5.1.14.B	Negative Input connected to Term. 8, TB3	Connected	N/A	N/A
5.1.29.A	Recorder and Multimeter (if used)	Removed	N/A	N/A
5.1.29.A	Lifted Lead from Term. 4, TB4	Terminated	N/A	N/A
5.2.5.B	Lifted Lead from Term. 1, TB4	Lifted	N/A	N/A
5.2.5.C	Multimeter connected to Lead	Connected	N/A	N/A
5.2.5.D	Multimeter connected to Term. 1, TB4	Connected	N/A	N/A
5.2.6.A	Positive Input connected to Term. 1, TB3	Connected	N/A	N/A
5.2.6.B	Negative Input connected to Term. 2, TB3	Connected	N/A	N/A
5.2.16.A	Recorder and Multimeter (if used)	Removed	N/A	N/A
5.2.16.A	Lifted Lead from Term. 1, TB4	Terminated	N/A	N/A

ATTACHMENT 2
INPLANT DATA SHEET
ALTERNATE RCS LEAKAGE DETERMINATION
Page 2 of 5

2.2 Determining Drywell Floor Drain Leak Rate Using Chart Recorder

Pump Stop Time	Pump Start Time	Diff. Time (Minutes)	Inleakage (GPM)	Date	Initials
N/A	N/A	N/A	N/A	N/A	N/A

Pump Start at High Level Alarm

97.7 Gallons = Inleakage (GPM)
Diff. Minutes

ATTACHMENT 2
INPLANT DATA SHEET
ALTERNATE RCS LEAKAGE DETERMINATION
Page 3 of 5

2.3 **Determining Drywell Floor Drain Leak Rate Using Multimeter**

5.1.8		5.1.9		5.1.10		5.1.11	
Initial Time	Initial Milliamps	Final Milliamps	Final Time	Diff mA	Diff Time (Min)	Inleakage (GPM)	Init/ Date
06:00	12.136	12.393	07:00				

(Diff. MA) x (23.31) = Inleakage (GPM)
Diff. Time (Minutes)

ATTACHMENT 2
INPLANT DATA SHEET
ALTERNATE RCS LEAKAGE DETERMINATION
Page 4 of 5

2.4 **Determining Drywell Equipment Drain Leak Rate Using Chart Recorder**

Time	Pump Stop Time	Pump Start Time	Diff. Time (Minutes)	Inleakage (GPM)	Date	Initials
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Pump Start at High Level Alarm

$$\frac{\text{178.4 Gallons}}{\text{Diff. Minutes}} = \text{Inleakage (GPM)}$$

ATTACHMENT 2
ALTERNATE RCS LEAKAGE DETERMINATION
INPLANT DATA SHEET

2.5 **Determining Drywell Equipment Drain Leak Rate Using Multimeter**

Time	Milliamps	Volume (Gallons)	Diff Volume (Gallons)	Diff Time (Minutes)	Inleakage (GPM)	Date	Initials
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Diff. Volume (Gallons) = Inleakage (GPM)
Diff. Time (Minutes)

ATTACHMENT 3
1SKLT-4931 OUTPUT (Ma)
FLOOR DRAIN SUMP PUMPDOWN INTERVALS

Time Intervals between obtaining Sump Level Readings based on Inleakage Flow Rate

Time Interval	Inleakage Flow Rate (GPM)
1 Hour	$\leq$ 1.0
30 Minutes	> 1.0 but $\leq$ 2.0
15 Minutes	> 2.0

ATTACHMENT 3z
Action Statement Surveillance

Generic Action Statement Surveillance Sheet Applicability:

When entering a T/S Action Statement that requires increased surveillance.

Action Statement Number **LDC-1** Date **TODAY**

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	DAY	EVE	MID	COMMENTS
					N/A	N/A	N/A	
					N/A	N/A	N/A	

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700
Drywell Floor Drain Flow ST.SK-0001	**1,2,3**			**5 gpm**											

1800	1900	2000	2100	2200	2300	0000	0100	0200	0300	0400	0500	0600	COMMENTS

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700

1800	1900	2000	2100	2200	2300	0000	0100	0200	0300	0400	0500	0600	COMMENTS