Form 3.2-1 Administrative Topics Outline

Facility: Calvert Cliffs Nuclear Power Plant Examination Level: SRO-I	Date of Examination: 6/5/2023 Operating Test Number: 2023

Administrative Topic	Activity and Associated K/A	Type Code
Conduct of Operations	Reactivation of SRO License G2.1.4 Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc. (SRO-3.8)	R, D
Conduct of Operations	Determine reportability requirements G2.1.38 Knowledge of the station’s requirements for verbal communications when implementing procedures. (SRO-3.8)	R, D
Equipment Control	Evaluate and then independently verify AFW Pump performance data during a Surveillance Test, then determine Tech Spec actions G2.2.12 Knowledge of surveillance procedures. (SRO-4.1)	R, D
Radiation Control	Administrative Requirements for RMS Inoperability G2.3.12 Knowledge of radiological safety principles and procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, or alignment of filters. (SRO-3.7)	R, D
Emergency Plan	Determine Emergency Action Level G2.4.41 Knowledge of the emergency action level thresholds and classifications. (SRO-4.6)	R, N

* Type Codes & Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) [4]

(N)ew or (M)odified from bank (≥ 1) [1]

(P)revious 2 exams (≤ 1; randomly selected) [0]

Form 3.2-2 Control Room/In-Plant Systems Outline

Facility: Calvert Cliffs Nuclear Power Plant Examination Level: SRO-I	Date of Examination: 6/5/2023 Operating Test Number: 2023

System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. SIM-1 Respond to a CEDS failure 001 Control Rod Drive System (CRDS) A4.17 Rod Position (RO-4.0)	A, D	1
b. SIM-2 Respond to an RCS Leak on the Charging Header 002 Reactor Coolant System (RCS) A2.01 Loss of Coolant Inventory (RO-4.4/SRO-4.5)	A, N	2
c. SIM-3 Verify HPSI/LPSI Flow 006 Emergency Core Cooling System (ECCS) A4.01 ECCS pumps (RO-4.3)	A, D, EN, L	3
d. SIM-4 Restore Shutdown Cooling 005 Residual Heat Removal System (RHR) A2.04 RHR Valve Malfunction (RO-3.9/SRO-3.7)	A, D, L	4P
e. SIM-5 Respond to a condensate or feedwater rupture at power 059 Main Feedwater System (MFW) K3.01 CDS (RO-3.2)	D	4S
f. SIM-7 Respond to a loss of 11 4KV Bus 062 AC Electrical Distribution System (ED AC) A1.10 Lights and Alarms (RO-3.4)	A, N	6
g. SIM-8 Shift Control Room Ventilation 050 Control Room Ventilation (CRV) A4.02 Fans (RO-3.3)	N	9
In-Plant Systems		
a. PLT-1 Bypass SIAS Sensor Modules 013 Engineered Safety Features Actuation System (ESFAS) K5.14 Placing a Channel bypass (RO-3.7)	N	2
b. PLT-2 Startup Hydrogen Purge 028 Hydrogen Recombiner and Purge Control System (HRPS) A4.01 HRPS Controls (RO-2.8)	D, R	5
c. PLT-3 Respond to a Loss of Instrument Air 078 Instrument Air System (IAS) A1.01 Instrument Air Pressure (RO-3.5)	D, E	8

* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / **SRO-I** / SRO-U
(A)lternate path	4-6 / **4-6** / 2-3 [5]
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ **8** / ≤ 4 [6]
(E)mergency or abnormal in-plant	**≥** 1 / ≥ **1** / ≥ 1 [1]
(EN)gineered safety feature	**≥** 1 / ≥ **1** / ≥ 1 (control room system) [1]
(L)ow-Power / Shutdown	**≥** 1 / ≥ **1** / ≥ 1 [2]
(N)ew or (M)odified from bank including 1(A)	**≥** 2 / ≥ **2** / ≥ 1 [4 including 2(A)]
(P)revious 2 exams	**≤** 3 / ≤ **3** / ≤ 2 (randomly selected) [0]
(R)CA	**≥** 1 / ≥ **1** / ≥ 1 [1]
(S)imulator	

Form 3.2-1 Administrative Topics Outline

Facility: Calvert Cliffs Nuclear Power Plant Examination Level: RO	Date of Examination: 6/5/2023 Operating Test Number: 2023

Administrative Topic	Activity and Associated K/A	Type Code
Conduct of Operations	Calculate readings from RPS G2.1.19 Ability to use available indications to evaluate system or component status. (RO-3.9)	R, N
Conduct of Operations	Estimate Time to Boil G2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (RO-3.9)	R, D
Equipment Control	Evaluate AFW Pump performance data during a Surveillance Test G2.2.12 Knowledge of surveillance procedures (RO-3.7)	R, D
Emergency Plan	Determine Response to a Security Event G2.4.28 Knowledge of procedures relating to a security event (non-safeguards information) (RO-3.2)	R, D

* Type Codes & Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) [3]

(N)ew or (M)odified from bank (≥ 1) [1]

(P)revious 2 exams (≤ 1; randomly selected) [0]

Form 3.2-2 Control Room/In-Plant Systems Outline

Facility: Calvert Cliffs Nuclear Power Plant Examination Level: RO	Date of Examination: 6/5/2023 Operating Test Number: 2023

System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. SIM-1 Respond to a CEDS failure 001 Control Rod Drive System (CRDS) A4.17 Rod Position (RO-4.0)	A, D	1
b. SIM-2 Respond to an RCS Leak on the Charging Header 002 Reactor Coolant System (RCS) A2.01 Loss of Coolant Inventory (RO-4.4/SRO-4.5)	A, N	2
c. SIM-3 Verify HPSI/LPSI Flow 006 Emergency Core Cooling System (ECCS) A4.01 ECCS pumps (RO-4.3)	A, D, EN, L	3
d. SIM-4 Restore Shutdown Cooling 005 Residual Heat Removal System (RHR) A2.04 RHR Valve Malfunction (RO-3.9/SRO-3.7)	A, D, L	4P
e. SIM-5 Respond to a condensate or feedwater rupture at power 059 Main Feedwater System (MFW) K3.01 CDS (RO-3.2)	D	4S
f. SIM-6 Bleed and Feed to Cool the Quench Tank 007 Pressurizer Relief Tank/Quench Tank System (PRTS) A4.02 PRT/quench tank drain valve (RO-2.8)	D	5
g. SIM-7 Respond to a loss of 11 4KV Bus 062 AC Electrical Distribution System (ED AC) A1.10 Lights and Alarms (RO-3.4)	A, N	6
h. SIM-8 Shift Control Room Ventilation 050 Control Room Ventilation (CRV) A4.02 Fans (RO-3.3)	N	9
In-Plant Systems		
a. PLT-1 Bypass SIAS Sensor Modules 013 Engineered Safety Features Actuation System (ESFAS) K5.14 Placing a Channel bypass (RO-3.7)	N	2
b. PLT-2 Startup Hydrogen Purge 028 Hydrogen Recombiner and Purge Control System (HRPS) A4.01 HRPS Controls (RO-2.8)	D, R	5
c. PLT-3 Respond to a Loss of Instrument Air 078 Instrument Air System (IAS) A1.01 Instrument Air Pressure (RO-3.5)	D, E	8

* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.	
* Type Codes	Criteria for **RO** / SRO-I / SRO-U
(A)lternate path	**4-6** / 4-6 / 2-3 [5]
(C)ontrol room	
(D)irect from bank	**≤ 9** / ≤ 8 / ≤ 4 [7]
(E)mergency or abnormal in-plant	**≥ 1** / ≥ 1 / ≥ 1 [1]
(EN)gineered safety feature	**≥ 1** / ≥ 1 / ≥ 1 (control room system) [1]
(L)ow-Power / Shutdown	**≥ 1** / ≥ 1 / ≥ 1 [2]
(N)ew or (M)odified from bank including 1(A)	**≥ 2** / ≥ 2 / ≥ 1 [4 including 2(A)]
(P)revious 2 exams	**≤ 3** / ≤ 3 / ≤ 2 (randomly selected) [0]
(R)CA	**≥ 1** / ≥ 1 / ≥ 1 [1]
(S)imulator	

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #1**	OP-Test # **2023**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit-1 is at 50% power, MOC. Unit-2 is at 100% power.

Turnover: Unit-1 power was lowered to 50% for emergent maintenance. Prior to the downpower power was 100% for the last 60 days. The 1A EDG is out of service for scheduled maintenance.

Instructions to the crew: Raise reactor power to 55%.

Critical Tasks:

1. Shuts both MSIVs to stop the cooldown prior to exiting EOP-0.
2. Establishes AFW flow to at least one S/G prior to S/G levels going below (-)350 inches.
3. Restores power to 11 4KV Bus prior to 11 and 22 DC bus voltages going below 106V.

Event #	Malfunction #	Event Type*	Event Description
1	N/A	N-SRO R-ATC/BOP	Raise Reactor Power
2	ccw002_02	C-BOP/SRO TS-SRO	12 CCW Pump Trip / AOP-7C
3	P1C03_C09	C-BOP/SRO	11C FWH Level High
4	4kv001_04	C-ALL MC-ATC TS-SRO	14 4KV Bus Fault / AOP-7I
5	rcs016	C-ATC/SRO	Pressurizer Spray Valve Fails Open / EOP-0
6	tg005_01	C-BOP/SRO MC-BOP	Main Turbine Stop Valve Fails to Close
7	13kv001_01	C-ALL	P-13000-1 Transformer Loss
8	dg002_01	M-ALL	Station Blackout / EOP-7

* (N)ormal (R)eactivity (I)nstrument (C)omponent (M)ajor (TS)Tech Spec (MC)Manual Control

Scenario Overview

Initial Conditions:
Unit-1 is at 50% power, MOC, Unit-2 at 100% power.
Equipment OOS: The 1A EDG is out of service for scheduled maintenance.
Abnormal Conditions: Unit-1 power was lowered to 50% for emergent maintenance. The 0C DG is pre-aligned to the 11 4KV Bus.

Event 1 – The crew will raise reactor power to 55% per OP-3.

Event 2 – 12 Component Cooling (CCW) Pump trips. The crew will implement AOP-7C and determine that a common mode failure does not exist. Either 11 or 13 CCW Pump will be started and the RCPs will be monitored to ensure bearing temperatures and flows are returning to normal. Evaluates Tech Spec 3.7.5 and determines LCO 3.7.5. Condition A applies with a required action to restore CC loop to operable status within 72 hours.

Event 3 – 11C FWH Level will drift high due to a faulty Level Controller and level will challenge the Turbine Trip values. The crew will respond using the 1C03 Alarm Manual and manually open the High Level Dump CV to prevent a Turbine Trip and will evaluate isolating air to the control valve.

Event 4 – A fault on the 14 4KV Bus will occur. The crew will implement AOP-7I and perform the immediate actions of securing the running Charging Pumps and realign the suction flowpath back to the VCT. The crew will also direct the actions to tie 1Y10 to 1Y09. Evaluates Tech Spec 3.8.9 and determines LCO 3.8.9 Condition A applies with a required action to restore an electrical power distribution system in 8 hours.

Event 5 – Pressurizer Spray Valve, CV-100E, fails open causing PZR pressure to start lowering. The crew will respond using the 1C06 Alarm Manual. The ATC will attempt to shut the failed open spray valve by taking manual control of the controller and then by swapping the spray valve selector switch to the 100F position. When those actions fail to shut CV-100E, the crew will trip the reactor, implement EOP-0, perform the Reactivity Control safety function, and stop 11A RCP. The crew may determine later that it is necessary to also secure 11B RCP to control RCS pressure.

Event 6 – In EOP-0, MTSV-1 and MTCV-1 will fail to shut causing an overcooling of the RCS requiring the crew to perform the Critical Task to shut the MSIVs.

Event 7 – After the Critical Task of shutting the MSIVs is complete, P-13000-1 and P-13000-3 Transformer Losses will occur. The crew will manually start the 0C DG to re-energize the 11 4KV Bus. The crew will perform the Critical Task of establishing AFW flow to at least one Steam Generator prior to S/G levels reaching (-)350 inches. The crew will be required to restore vital auxiliary functions such as Component Cooling and Charging Pump flow manually.

Event 8 – The final source of electrical power, the 0C Diesel Generator will trip causing Station Blackout conditions. The crew will implement EOP-7 and will prepare for the restoration of an available electrical power source. When the alternate feeder breaker becomes available, the crew will perform the Critical Task of restoring power to the 11 4KV bus prior to DC Bus voltages dropping below minimum levels.

Instructor Scenario Information

_____ 1. Reset to IC-25 or a previously saved 50% IC.

_____ 2. Place simulator in RUN.

_____ 3. Clear PPC Screen trend lines if necessary.

_____ 4. Place simulator in FREEZE.

_____ 5. Enter Triggers:

- _____ a. P1C03_1HS1451_SWOPEN (11C FWH Dump Opened) on event 18.

_____ 6. Enter Malfunctions:

- _____ a. dg001_01, 2A EDG Start Failure, at time zero.
- _____ b. dg002_02, 1A EDG Start Failure, at time zero.
- _____ c. AFAS Channel A Failure to Actuate: afw004_01 at time zero.
- _____ d. AFAS Channel B Failure to Actuate: afw004_02 at time zero.
- _____ e. esfa012, SGIS Automatic Failure, at time zero.
- _____ f. ccw002_02, 12 CCW Pump Breaker Failure, on Event 2.
- _____ g. 4kv001_04, 14 4KV Bus Fault, on Event 4.
- _____ h. rcs016, PZR Spray Valve CV-100E Fails Open, on Event 5.
- _____ i. tg005_01 to 999, MTSV-1 and MTCV-1 Fail as is, on Event 6.
- _____ j. 13kv001_01, P-13000-1 Transformer Fault, on Event 7.
- _____ k. 13kv001_03, P-13000-3 Transformer Fault, on Event 7.
- _____ l. dg002_01, 0C DG Start Failure, on Event 8.
- _____ m. Secure the 1B EDG locally: dg001_02 on Event 10.

_____ 7. Enter Remote Functions:

- _____ a. 0C DG Disconnect to 11 4KV Bus: 189-1106 to CLOSED at time zero.
- _____ b. Open Site Power Breaker 252-1106: 252-1106 to OPEN on Event 11.
- _____ c. Shut MS Drain MOVs: 1-MS-6611(6612, 6613, 6615, 6620, 6621)-POS to 0 on Event 17.

_____ 8. Enter Panel Overrides:

- _____ a. 1A EDG Control Board Alarm: P1C18_M06_LTON to Off at time zero.
- _____ b. 1A EDG Alarm Window AA01: P1C18A_AA1_LTON to Off at time zero.
- _____ c. 1A EDG Exciter S/D Alarm Window AA05: P1C18A_AA5_LTON to Off at time zero.
- _____ d. P1C03_1LI1450_MT to 5.5 on event 3.
- _____ e. P1C03_C09_LTON to On on event 3.
- _____ f. P1C03_11CFWHTR_LTBRI to On on event 3.

_____ g. P1C03_1LI1450_MT from 5.5 to -5 in 60 on event 18.

_____ h. P1C03_C09_LTON to Off on event 18.

_____ i. P1C03_11CFWHTR_LTBRI to Off on event 18.

_____ j. 11 4KV Bus Alternate Feeder: P1C18_KF1101 to TRIP at time zero.

_____ k. P1C19_R03_LTON to OFF at time zero.

_____ 9. Administrative:

_____ a. Place the following 0C DG Bus Feeder Breaker handswitches in PTL with an Off-Normal tag: 1-CS-152-1406, 2-CS-152-2106, and 2-CS-152-2406.

_____ b. Place INFO tag on the 1A EDG Output Breaker with 1-CS-152-1703 in PTL.

_____ c. Place INFO tags on the 1A EDG Emergency Start and Slow Start pushbuttons.

_____ d. Place red dots on alarm windows: M6 on 1C18, AA01 on 1C18A, and AA05 on 1C18A.

_____ e. Place 12 CCW Pump in Service and secure 11 CCW Pump.

_____ 10. Independently verify correct completion of the following:

_____ a. Event Triggers, Malfunctions, Remote Functions, and Overrides are correctly entered.

_____ b. Administrative actions correctly performed.

_____ 11. Place simulator in RUN.

_____ 12. Ensure schedule files are in RUN.

_____ 13. Ensure Trigger files are in RUN.

_____ 14. Ensure SBT Report is running with the SBT Insight file open, if necessary.

_____ 15. Reset/Acknowledge panel and PPC alarms.

_____ 16. Ensure all PPC screens selected to Main Menu, Alarms, or SPDS Operating Summary page.

_____ 17. Select “Clock” and ensure “Horn On” for annunciators.

_____ 18. Brief the Crew:

1. Present plant conditions:	Unit-1 is at 50% power, MOC. Unit-2 is at 100% power.
2. Power history:	Unit-1 power was lowered to 50% for emergent maintenance. Before that, 100% power for previous 60 days.
3. Equipment out of service:	The 1A EDG is out of service for scheduled maintenance.
4. Abnormal conditions:	The 0C DG is pre-aligned to the 11 4KV Bus.
5. Surveillances due:	None.

6. Instructions for shift:	Raise reactor power to 55% per OP-3 page 26. Step 7 is complete and the ramp rate is <30%/hour.

_____ 19. Allow crew 1-2 minutes to acclimate themselves with their positions.

_____ 20. Instructions for the Booth Operator:

_____ a. **Event 1:** If directed by the Lead Examiner, call in as the Shift Manager and direct the Unit Supervisor to commence raising power to 55%.

_____ b. **Event 2:** Activate Event 2, 12 CCW Pump trip, when directed by the Lead Examiner.

_____ c. **Event 3:** Activate Event 3, 11C FWH Level High, when directed by the Lead Examiner.

_____ d. **Event 4:** Activate Event 4, 14 4KV Bus Fault, when directed by the Lead Examiner.

Activate Event 6 at the same time as Event 5

_____ e. **Event 5:** Activate Event 5, PZR Spray Valve CV-100E Fails Open, when directed by the Lead Examiner.

_____ f. **Event 6:** Activate Event 6, MTSV-1 and MTCV-1 fail to close, at the same time as Event 5.

Activate Event 7 after the Critical Task to shut the MSIVs is complete

_____ g. **Event 7:** Activate Event 7, P-13000-1 Transformer Loss, as soon as the Critical Task to shut the MSIVs is complete.

i. Unit-2 CRS – Announce "Loss of 21 4kv Bus, implementing AOP-7I."

_____ h. **Event 8:** Activate Event 8, Station Blackout, when directed by the Lead Examiner.

Responses to Crew Requests

If a request and response is not listed, delay the response until reviewed with the examiner. If one request is dependent upon completion of another, then subsequent actions should not be responded to until the appropriate time delay has been observed. Responses to routine requests, which have no effect the scenario, do not require examiner clearance.

Allow 2-3 minutes to perform requests from or to give reports to the Control Room unless otherwise specified.

REQUEST	RESPONSE
Event 1 – Raise Reactor Power to 55%	
1. Notification that reactor power will be raised to 55%.	Acknowledge report.
2. Chemistry sample RCS boron.	Acknowledge request.
Event 2 – 12 Component Cooling Pump Trip	
1. Chemistry informed that Corrosion Product Sampler may have experienced high temperatures.	Acknowledge report. No further actions are required.
2. ABO/TBO – Inspect 12 CCW Pump and its breaker.	• After 2 minutes, report as the TBO that the breaker tripped on overload. • After 1 more minute, report as the ABO that 12 CCW pump has no visible issues.
3. WEC informed of 12 CCW Pump failure.	Acknowledge request. No further actions required.
4. Radcon informed of loss of purification flow.	Acknowledge report. No further actions are required.
Event 3 – 11C FWH Level High	
1. Investigate 11C FWH control systems.	After 2 minutes, report "I hear a small air leak inside LC-1450 controller." If the High Level dump valve is open, report "The NLCV, HDV-1450-CV, is shut." If the High Level dump valve is shut, report "The NLCV, HDV-1450-CV, is cycling erratically."
2. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
3. Isolate NLCV Air Isolation and bleed off the air.	After 3 minutes, report "The air isolation is shut and air has been bled off the 11C FWH NLCV."
4. Isolate HLD Air Isolation and bleed off the air.	After 3 minutes, report "The air isolation is shut and air has been bled off the 11C FWH NLCV."
5. Place 11C FWH in service.	Acknowledge request. No further actions are required.
Event 4 – 14 4KV Bus Fault	

1. TBO to investigate Loss of 14 4KV Bus.	After 2 minutes, report 14 4KV Bus displays dropped flags indicating a fault on the bus.
2. OSO investigate the 1B EDG.	After 2 minutes, report 1B EDG is running unloaded without power to its auxiliaries.
3. OSO to locally trip the 1B EDG.	After 2 minutes activate Director Event 10 to initiate malfunction to trip the 1B EDG.
4. TBO directed to tie 1Y10 to 1Y09.	After 1 minute, use Remote Function 1SY09 to TO_1Y09 to tie 1Y10 to 1Y09.
5. PPO directed to tie MCC-114 and MCC-104.	After 1 minute, use Remote Function to tie the MCCs. 52-10401 to Open and 52-10420 to Close.
6. Directs 3rd Pump alignment to the 11 4KV Bus.	After 1 minute, use Remote Functions to align the requested pump to its 11 4KV Bus power supply.
Event 5 – PZR Spray Valve CV-100E Fails Open	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
Event 6 – MTSV Fails to Close	
1. WEC/Maintenance informed of the issue.	Acknowledge request. No further actions are required.
2. TBO to report local position of the MTSV/MTCV.	After 2 minutes, report that MTSV-1 is full open and MTCV-1 is approximately 30% open.
Event 7 – P-13000-1/3 Transformer Loss	
1. Verify SWGR ventilation in service per OI-22H.	Acknowledge request. No further actions are required.
2. Investigate status of 4KV Buses.	After 2 minutes, report "14 4KV Bus flags indicate 14 4KV Bus is faulted and the 11 4KV Bus is not faulted." After 2 minutes, report "power is available from P-13000-2 to Unit-1"
3. Unit 2 CRS	Announce "Loss of 21 4kv Bus implementing AOP-7I."
Event 8 – Station Blackout	
1. Investigate the 0C DG.	After 2 minutes, report the 0C DG tripped on an actuation of the low lube oil pressure switch.
2. WEC/Maintenance investigate status of Offsite power.	Report Electrical Maintenance is investigating the issue with P-13000-1 Transformer at this time.
3. ABO manually operate ADVs.	After 1 minute, position ADVs (1-MS-3938-CV and 1-MS-3939-CV using Remotes Functions.
4. Shut MS Upstream Drain MOVs locally.	After 2 minutes, activate Event 17 to shut the MS Upstream Drain MOVs.
5. Shut CD-410 and CD-411.	Acknowledge request. No further actions are required.
6. Locally open SITE POWER FDR BREAKER 252-1106.	Immediately initiate Director Event 11. After another 2 minutes, report "Site Power breaker

	252-1106 is open."
7. Investigate the status of the 11 4KV Bus alternate feeder breaker.	After 2 minutes, request the crew to place the H/S in PTL then remove the override on the alternate feeder breaker. Report the Electricians found the charging spring not charged but it has been fixed.

Event #1	**Raise Reactor Power to 55%**	**N-SRO, R-ATC/BOP**

Time	**Position**	**Applicant's Actions or Behavior**
	SRO	Acknowledges Shift Manager direction to start the reactor downpower.
	SRO	Directs ATC/BOP to start raising power to 55% per OP-3.
	BOP/SRO	May notify Generation Dispatch of raising power.
	ATC	Withdraws CEAs to raise power: • Depresses the Manual Sequential mode selector pushbutton • Places the CEA movement switch to Raise
	ATC	May perform a dilution to the VCT to raise power: • Opens VCT Makeup, CVC-512-CV • Places Makeup Water Flow Controller, FIC-210X, in Auto • Places Makeup Mode Selector Switch, HS-210, in Dilute • When dilution is complete, places CVC-512-CV to Close • Places FIC-210X in Manual and 0% output signal • Places HS-210 in Manual
	BOP	Raises Turbine Generator load to maintain T_{COLD} within 2°F of program with any of the following: • Enters Ramp Rate and enters a lower Load Reference Command • Clicks Load Set, Manual Adj, Raise • Places TURBINE LOAD SET, CS-80, in Raise • May adjust Load Limit Setpoint after power is raised
	SRO	May inform Chemistry of raising reactor power and to sample RCS boron.

Examiner notes:

Event concludes when 12 Component Cooling Pump trips.

NOTE TO EXAMINER
Cue Booth Operator to initiate Event #2, 12 CCW Pump Trip.

Event #2	**12 CCW Pump Trip**	**C-BOP/SRO, T-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	BOP	Notes CC PP DISCH PRESS LO alarm on 1C13 and U-1 480V ESF U/V TRIP alarm on 1C19. Informs the SRO.
	ATC	Notes low CCW FLOW LO alarms on 1C06 and 1C07. Informs the SRO.
	BOP	Determines that 12 CCW Pump has tripped.
	SRO	Implements AOP-7C. Distributes RCP Parameter Trip Criteria.
	ATC	Monitors RCP Thrust bearing and Guide bearing temperatures. Initially determines no Trip Criteria have been met.
	BOP	Verifies that CC Heat Tank level is > 40". Determines a common mode failure does not exist.
	BOP	May place 12 CCW Pump HS in Pull-To-Lock. Starts either 11 or 13 CCW Pump.
	BOP/SRO	May notify Chemistry that the Corrosion Product Sampler may have experienced high temperatures.
	ATC	Verifies RCP Thrust bearing and Guide bearing temperatures are lowering once CCW restored.
	SRO	Notifies the WEC of plant conditions. Requests support.
	SRO	Evaluates Tech Spec 3.7.5 and determines LCO 3.7.5 Condition A applies.

Examiner notes:

Event concludes when 11C FWH Level High occurs. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #3, 11C FWH Level High, when desired.

Event #3	**11C FWH Level High**	**C-BOP/SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	BOP	Notes FW LVL HI alarm on 1C03. Informs the SRO.
	BOP	Refers to 1C03 Alarm Manual and determines 11C FWH level is high.
	BOP	Opens 11C FWH HI LVL DUMP, HS-1451.
	BOP	Directs TBO to investigate 11C FWH level and control systems.
	SRO	Notifies the WEC of plant conditions. Requests support.
	BOP	Determines 11C FWH level has lowered with high level dump open and FWH does not need to be isolated.
	BOP	May direct TBO to isolate and bleed off air to the 11C FWH NLCV, HDV-1450-CV.
	BOP	May direct TBO to isolate and bleed off air to the 11C FWH HLD, HDV-1451-CV.

Examiner notes:

Event concludes when the 14 4KV Bus Fault occurs.

NOTE TO EXAMINER
Cue Booth Operator to initiate Event #4, 14 4KV Bus Fault, when desired.

Event #4	**14 4KV Bus Fault / AOP-7I**	**C-ALL, MC-ATC, T-SRO**

Time	Position	Applicant's Actions or Behavior
	ALL	May call Multiple Alarms after receiving several alarms on separate panels.
	BOP	Determines RPS is not calling for a trip. Notifies the US.
	ATC	Determines the primary is not stable based on the isolation of letdown.
	BOP	Determines the 14 4KV is deenergized although the 1B EDG is running. Informs the US.
	SRO	May direct the ATC to perform the Immediate Action Plaque steps for the additional loss of 1Y10. Directs the crew to implement AOP-7I.
	ATC	Performs the Manual Action of placing the running Charging Pumps in Pull-to-Lock to control PZR level.
	ATC	Performs the Manual Action of realigning the suction of the Charging Pumps back to the VCT by placing 1-CVC-501-MOV in Open and placing 1-CVC-504-MOV in Close.
	BOP	Shuts the Steam Generator Bottom Blowdown valves, 1-BD-4011-CV and 1-BD-4013-CV.
	BOP/SRO	Directs the tying of 1Y10 to 1Y09 and/or MCC-104 to MCC-114.
	BOP	Directs 13 Saltwater and 13 Service Water Pumps to be aligned to the 11 4KV Bus. Then, starts 13 SW and 13 SRW Pumps.
	BOP	May direct 13 Component Cooling Pump to be aligned to the 11 4KV Bus.
	SRO	May notify WEC/Maintenance of the loss of 14 4KV Bus.
	SRO	Evaluates Tech Spec 3.8.9 and determines LCO 3.8.9 Condition A applies with a required action to restore an electrical power distribution system in 8 hours.

Examiner notes:

Event concludes when the Pressurizer Spray Valve Fails Open occurs.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #5, Pressurizer Spray Valve Fails Open, when desired.

Event #5	**PZR Spray Valve Fails Open / EOP-0**	**C-ATC/SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC	Notes lowering RCS pressure or PZR CH100 PRESS alarm on 1C06. Informs the SRO.
	ATC	Refers to 1C06 Alarm Manual and determines PZR Spray CV, RC-100E-CV, has failed open.
	ATC	Attempts to shut the failed open spray valve by placing controller, 1-HIC-100, in manual and/or by placing PRZR SPRAY VLV SEL, HS-100-8, to the 100F position.
	ATC	Determines RC-100E-CV can not be shut and notifies SRO.
	SRO	Directs the ATC to trip the reactor and implement EOP-0.
	ATC	Trips the reactor. Notifies the SRO.
	ATC	Performs the Reactivity Control safety function verification and notifies the SRO that it is Complete.
	SRO	Directs the ATC to perform the remaining 1C06 Alarm Manual actions to secure 11A RCP.
	ATC	Secures 11A RCP. Continues to monitor RCS pressure and may determine it is necessary to also secure 11B RCP.

Examiner notes:

Event continues into the implementation of EOP-0 and in parallel with the Main Turbine Stop Valve failing to close malfunction.

NOTE TO EXAMINER

Event #6 will initiate automatically to cause a MTSV failure to close on the reactor trip.

Event #6	**EOP-0 / MTSV Fails to Close**	**C-BOP/SRO, MC-BOP**

Time	**Position**	**Applicant's Actions or Behavior**
	BOP	Determines that one Main Turbine Stop Valve failed to close. Also, one Main Turbine Control Valve failed to fully close allowing an uncontrolled RCS cooldown to occur.
	BOP	Informs the SRO of taking alternate actions per EOP-0 due to the failed open MTSV/MTCV.
	BOP	**CRITICAL TASK** Shuts both MSIVs to stop the cooldown prior to exiting EOP-0.
	BOP	Determines Turbine Trip Safety Function is met. Informs the SRO that Turbine Trip is complete.

Examiner notes:

Event concludes after the Critical Task is complete and when the P-13000-1 Transformer Loss occurs.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #7, P-13000-1 Transformer Loss, when desired.

Event #7	EOP-0 / P-13000-1/3 Transformer Loss	C-ALL

Time	Position	Applicant's Actions or Behavior
	ALL	May recognize the change in plant conditions and alarms and announce that a loss of power has occurred.
	SRO	May direct the BOP to re-assess the Vital Auxiliaries safety function if it has already been completed.
	BOP	Determines the 11 4KV Bus alternate feeder breaker failed to close.
	BOP	Manually starts the 0C DG and closes the tie breakers necessary to re-energize the 11 4KV Bus.
	BOP	Manually restarts a Component Cooling Pump. Notifies the US that Vital Auxiliaries is complete.
	ATC	Commences the Pressure and Inventory Control Safety Function. Manually starts at least one Charging Pump to control PZR level. Notifies that PIC Safety Function is complete.
	BOP	Commences the Core and RCS Heat Removal Safety Function. Initiates AFW flow to the Steam Generators using at least one AFW Pump. Notifies the US that Core and RCS Heat Removal cannot be met due to no running RCPs.
	BOP	**CRITICAL TASK** Establishes AFW flow to at least one S/G prior to S/G levels going below (-)350 inches.
	ATC/BOP	Commences the Containment Environment Safety Function. Informs the US that Containment Environment cannot be met due to LOPEs.
	ATC/BOP	Commences the RLEC Safety Function. Informs the US that RLEC cannot be met due to loss of power effects.

Examiner notes:

Event concludes when a Station Blackout occurs due to the loss of the 0C DG.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #8, Station Blackout, when desired.

Event #8	**Station Blackout / EOP-7**	**M-ALL**

Time	Position	Applicant's Actions or Behavior
	SRO	May direct the re-assessment of Vital Auxiliaries safety function.
	BOP	Determines Vital Auxiliaries Safety Function is not met. Informs the US that Vital Auxiliaries cannot be met due to the loss of the 0C DG and Station Blackout conditions.
	BOP	Determines the 11 4KV Bus alternate feeder breaker failed to close.
	BOP	If 13 AFW Pump was initially started, may re-assess Core and RCS Heat Removal. If necessary, starts 11 AFW Pump to restore AFW flow.
	ATC	May re-assess Pressure and Inventory Control Safety Function. Informs the US that PIC cannot be met due to loss of power.
	SRO	Evaluates the EOP-0 flowchart and recommends the implementation of EOP-7. Directs implementation of EOP-7.
	BOP	Places the Main Steam Upstream Drain handswitch, 1-HS-6622, in Close. May direct operators to manually isolate the MS Upstream Drain MOVs.
	ATC	Shuts the RCP Bleed-Off isolation Valves, CVC-505 and CVC-506-CV.
	ATC	Opens the RC Drain Tank to Containment Floor Isolation Valve, 1-RCW-4258-SV.
	BOP	Opens applicable 13KV and 4KV breakers in preparation of restoring 4KV power.
	BOP	Places the 4KV Bus Sequencer Manual Initiate keyswitch for the 11 4KV Bus to On.
	BOP	When the alternate feeder breaker is available, re-energizes the 11 4KV Bus.
	BOP	**CRITICAL TASK** Restores power to 11 4KV Bus prior to 11 and 22 DC bus voltages going below 106V.
	ATC	May restart vital auxiliary equipment like a CC and Charging Pumps.

Examiner notes:

The scenario will terminate after the Critical Task of restoring power to the 11 4KV Bus has been completed.

After scenario ends, if desired by Examiner, ask SRO follow-up Tech Spec questions.

SHIFT TURNOVER INFORMATION SHEET [B0459]

Date: Today

Station: Calvert Cliffs

Unit: 1	**Mode:** Online	**% Rx Power:** 50%	**MWE:** 419
Days On-Line (or Outage): 60		**On-Line (or Outage) Risk Level:** Green	

Off Normal Trends:

Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow

1A EDG

Unit: 2	**Mode:** Online	**% Rx Power:** 100	**MWE:** 941
Days On-Line (or Outage): 230		**On-Line (or Outage) Risk Level:** Green	

Off Normal Trends:

Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow

Station Event-Free Days: 691 Reactivity Management Event-Free Days: 197 Configuration Control Event-Free Days: 206 Critical Component Failure Clock Days: 103 Clearance & Tagging Event-Free Days: 691	**Significant Event Reporting:** (on the first business day following a weekend or holiday include the events since the last business day): No Significant Events
Station Duty Manager: Heath Crockett	

SHIFT TURNOVER INFORMATION SHEET [B0459]

MISCELLANEOUS	UNIT 1	UNIT 2
S/G Blowdown Status	100 gpm to CW OI-8A Sect 6.7	100 gpm to CW OI-8A Sect 6.7
VCT Pressure Band	35 – 41 psig **H2**	33 – 39 psig **H2**

SPENT FUEL EQUIPMENT CHECKOUTS:		
SFHM PE 0-081-01-O-Q	New Fuel Elevator OI-25B App A	SF Insp. Elev. OI-25B App B
Last done Two Months Ago **{C93668376}** **PMC-18-107842 extended to semi -annually (DDD Next Year)**	**6 Months Ago**	**9 Months Ago**

COMMON

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. None.

SHIFT TURNOVER INFORMATION SHEET [B0459]

UNIT 1					
Max Header Pressure PE 1-12-21-O-M SW PUMP		OI-29 Value	STP O-73A Quarterly Value (Rolling past 3 quarters) (Date Format – MM/DD/YY)		
	11	32.9 psig Yesterday Sec 6.39	32.8 Yesterday	32.9 psig 3 Months Ago	33.2 psig 6 Months Ago
	12	30.7 psig Yesterday Sec 6.46	30.7 psig Yesterday	30.8 psig 3 Months Ago	30.6 psig 6 Months Ago
	13 (11 Hdr)	32.0 psig 2 Weeks Ago Sec 6.39			
	13 (12 Hdr)	30.2 psig Yesterday Sec 6.46	29.6 psig Yesterday	30.4 psig 3 Months Ago	30.6 psig 6 Months Ago

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. The 1A EDG is out of service for scheduled maintenance.

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #2**	OP-Test # **2023**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit-1 is at 100% power, MOC. Unit-2 is at 100% power.

Turnover: None.

Instructions to the crew: None

Critical Tasks:

1. Initiates RCS cooldown not to exceed 100°F in any one-hour period.
2. Identifies 11 S/G as the ruptured SG and isolates 11 S/G within 1 hour of the reactor trip.
3. Trips all RCPs within 15 minutes of CIS.

Event #	Malfunction #	Event Type*	Event Description
1	rcs023_02	I-ATC/SRO MC-ATC	PT-100Y Fails Low
2	srw003_02	C-BOP/SRO TS-SRO	12 SRW Pump Trip / AOP-7B
3	rcs027_02	C-ATC/SRO TS-SRO	PORV-404 Leakage
4	fw004_01	R-ATC/BOP C-SRO	11 SGFP Trip / AOP-3G
5	fw004_02	C-ALL	12 SGFP Trip / EOP-0
6	ms002_01	M-ALL	11 SGTR / EOP-6
7	1-MS-114	C-BOP/SRO MC-BOP	TBV-3946 Fails Shut
8	rcs002	M-ALL	Large Break LOCA / EOP-8

* (N)ormal (R)eactivity (I)nstrument (C)omponent (M)ajor (TS)Tech Spec (MC)Manual Control

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #2**	OP-Test # **2023**

Scenario Overview

Initial Conditions:
Unit-1 is at 100% power, MOC, Unit-2 at 100% power.
Equipment OOS: None.
Abnormal Conditions: None.

Event 1 – Pressurizer Pressure Controller PT-100Y fails low. The crew will respond using the 1C06 Alarm Manual. The ATC will perform the Manual Control Action to shift pressure control to Channel X.

Event 2 – 12 SRW Pump trips requiring the crew to enter AOP-7B, Loss of Service Water. The crew will perform the actions to start 13 SRW Pump and restore flow to the 12 SRW header. Determines TS LCO 3.7.6.B applies with a required action to restore the SRW subsystem to operable status within 72 hours.

Event 3 – Leakage from PORV-404 into the Quench Tank will occur. Alarm Response Manual 1C06 actions will have crew shut the Block Valve for PORV-404 and verify the leakage has been isolated. The crew is expected to enter Tech Spec 3.4.11.A for PORV-404 being declared inoperable with a required action to close and maintain power to associated block valve with a completion time of 1 hour.

Event 4 – 11 SGFP trips requiring the crew to implement AOP-3G. The crew will perform the AOP-3G actions to perform a rapid downpower to less than 88%.

Event 5 – The fifth event will be a trip of 12 SGFP resulting in a Loss of Main Feedwater. The crew will trip the reactor and implement EOP-0 and perform the Post Trip Actions.

Event 6 – In EOP-0 four minutes after the reactor trip, a Steam Generator Tube Rupture on 11 SG will occur. The crew will implement EOP-6. In EOP-6, the crew will perform the Critical Task of initiating an RCS cooldown not to exceed 100°F in any one-hour period. Then, the crew will perform the Critical Task of identifying and isolating 11 S/G within 1 hour of the reactor trip.

Event 7 – In EOP-6 after the RCS cooldown has been commenced, TBV-3946 will fail shut. The BOP will perform the Manual Control Action of taking manual control of the TBV controller to continue the cooldown or swap to an ADV cooldown.

Event 8 – After 11 Steam Generator is isolated, a significant LOCA will occur. The crew will implement EOP-8 due to the second event in progress. PIC-4 and CE-2/3 will be the first safety function success paths to be implemented. The ATC will perform the final Critical Task of securing the running RCPs based on CIS actuation.

Instructor Scenario Information

_____ 1. Reset to IC-34 or a previously saved 100% IC.

_____ 2. Place simulator in RUN.

_____ 3. Clear PPC Screen trend lines if necessary.

_____ 4. Place simulator in FREEZE.

_____ 5. Enter Triggers:

- _____ a. Reactor Trip: CEA_ROD_POSITION(1)<5 to Trigger Event 6.

_____ 6. Enter Malfunctions:

- _____ a. PT-100Y Fails Low: rcs023_02 to 2_LOW on Event 1.
- _____ b. 12 SRW Pump trips: srw003_02 on Event 2.
- _____ c. rcs027_02, PORV-404 Leakage from 1% to 3%, 20 second ramp, on Event 3.
- _____ d. 11 SGFP Trips: fw004_01 on Event 4.
- _____ e. 12 SGFP Trips: fw004_02 on Event 5.
- _____ f. 11 SGTR after 4 minutes: ms002_01 to 0.75 after 240 on Event 6.
- _____ g. 1-MS-3946 TBV 3946 POS LG, P1C03_1CV3946_LTGREE after 60 to ON on event 7.
- _____ h. 1-MS-3946 TBV 3946 POS LR, P1C03_1CV3946_LTRED after 60 to OFF on event 7.
- _____ i. LOCA: rcs002 to 2000 on Event 8.

_____ 7. Enter Remote Functions:

_____ 8. Insert Remote 1-MS-114 to 0 on event 7.

_____ 9. Enter Panel Overrides:

- _____ a. None.

_____ 10. Administrative:

- _____ a. None.

_____ 11. Independently verify correct completion of the following:

- _____ a. Event Triggers, Malfunctions, Remote Functions, and Overrides are correctly entered.
- _____ b. Administrative actions correctly performed.

_____ 12. Place simulator in RUN.

_____ 13. Ensure schedule files are in RUN.

_____ 14. Ensure Trigger files are in RUN.

_____ 15. Ensure SBT Report is running with the SBT Insight file open, if necessary.

_____ 16. Reset/Acknowledge panel and PPC alarms.

_____ 17. Ensure all PPC screens selected to Main Menu, Alarms, or SPDS Operating Summary page.

_____ 18. Select "Clock" and ensure "Horn On" for annunciators.

_____ 19. Brief the Crew:

1. Present plant conditions:	Unit-1 is at 100% power, MOC. Unit-2 is at 100% power.
2. Power history:	Unit-1 has been 100% power for previous 60 days.
3. Equipment out of service:	None.
4. Abnormal conditions:	None.
5. Surveillances due:	None.
6. Instructions for shift:	Maintain reactor power 100% per OP-3.

_____ 20. Allow crew 1-2 minutes to acclimate themselves with their positions.

_____ 21. Instructions for the Booth Operator:

_____ a. **Event 1:** Activate Event 1, PT-100Y Fails Low, when directed by the Lead Examiner.

_____ b. **Event 2:** Activate Event 2, 12 SRW Pump trip, when directed by the Lead Examiner.

_____ c. **Event 3:** Activate Event 3, PORV-404 Leakage, when directed by the Lead Examiner.

_____ d. **Event 4:** Activate Event 4, 11 SGFP Trip, when directed by the Lead Examiner.

_____ e. **Event 5:** Activate Event 5, 12 SGFP Trip, when directed by the Lead Examiner.

_____ f. **Event 6:** Ensure Event 6, 11 SGTR, activates automatically 4 minutes after the reactor trip.

_____ g. **Event 7:** Activate Event 7, TBV-3946 Fails Shut after the RCS cooldown has been commenced in EOP-6 and when directed by the Lead Examiner.

_____ h. **Event 8:** Activate Event 8, LOCA, after 11 SG has been isolated and when directed by the Lead Examiner.

Responses to Crew Requests

If a request and response is not listed, delay the response until reviewed with the examiner. If one request is dependent upon completion of another, then subsequent actions should not be responded to until the appropriate time delay has been observed. Responses to routine requests, which have no effect the scenario, do not require examiner clearance.

Allow 2-3 minutes to perform requests from or to give reports to the Control Room unless otherwise specified.

REQUEST	RESPONSE
Event 1 – PT-100Y Fails Low	
1. WEC informed of issue	Acknowledge report. No further actions are required.
Event 2 – 12 Service Water Pump Trip	
1. TBO investigate 12 SRW Pump and its breaker.	After 2 minutes, report no issues with the pump but the breaker tripped on overload.
2. TSO notified of reducing MVars to zero on Unit-1.	Acknowledge report.
3. TBO verify 13 SRW Pump is running SAT.	After 1 minute, report 13 SRW Pump is running SAT.
4. WEC informed of 12 SRW Pump trip.	Acknowledge request. No further actions required.
Event 3 – PORV-404 Leakage	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
2. Radiation Protection - Quench Tank Venting.	Acknowledge report. No further actions are required.
Event 4 – 11 SGFP Trip	
1. WEC informed of issue.	Acknowledge report. No further actions are required.
2. Status of 11 SGFP.	After 1 minute, report “11 SGFP tripped on low lube oil pressure.”
Event 5 – 12 SGFP Trip	
1. WEC informed of issue.	Acknowledge report. No further actions are required.
2. Status of 12 SGFP.	After 2 minutes, report “12 SGFP tripped on high casing water level.”
Event 6 – 11 SGTR	
1. WEC informed of the issue.	Acknowledge request. No further actions are required.
2. Chemistry directed to sample Steam Generators for activity.	Acknowledge request. After 5 minutes, report “There is RCS activity in 11 SG, none in 12 SG.”
3. TBO – standby in the SWGR Room.	Acknowledge request. No further actions are required.

4. TBO - Align 11 ADV control to 1C43, in manual, with a 0% output.	Acknowledge request. After 2 minutes, use **remote 1-MS-3938-HV to 1C43** and report "11 ADV control has been shifted to 1C43, in manual, with a 0% output."
5. ABO/OSO - Evaluate Safety Valves on Aux Building roof.	After 2 minutes, report "there are no leaking Safety Valves."
Event 7 – TBV-3946 Fails Shut	
1. WEC informed of the issue.	Acknowledge request. No further actions are required.
2. Investigate status of TBV-3946.	After 2 minutes, report "Valve is shut unsure why. Will have maintenance investigate further."
Event 8 – LOCA	
1. Chemistry directed to sample Steam Generators for activity.	Acknowledge request. After 5 minutes, report "There is RCS activity in 11 SG, none in 12 SG."
2. Chemistry directed to place Hydrogen Monitors in service.	Acknowledge request. No further actions are required.
3. WEC informed of the issue.	Acknowledge request. No further actions are required.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #2**	OP-Test # **2023**

Event #1	**PT-100Y Fails Low**	**I-ATC/SRO, MC-ATC**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC	Notes PZR CH PRESS alarm on 1C06. Informs the SRO.
	ATC	Refers to the 1C06 Alarm Manual and determines that PT-100Y has failed low.
	ATC	Performs the Manual Control Action of shifting PRZR PRESS CH SEL to Channel X using HS-100.
	ATC	Verifies that RCS pressure is returning to normal. Checks that the PZR spray valves are opening (if pressure is above 2300 PSIA) and that all Backup PZR heaters are off.
	SRO	Notifies the WEC of plant conditions. Requests support.

Examiner notes:

Event concludes when 12 Service Water Pump trips.

NOTE TO EXAMINER
Cue Booth Operator to initiate Event #2, 12 SRW Pump Trip.

Event #2	**12 SRW Pump Trip**	**C-BOP/SRO, T-SRO**

Time	Position	Applicant's Actions or Behavior
	ATC/BOP	May recognize and call multiple alarms and reports to SRO.
	ATC/BOP	Determines 12 SRW Pump has tripped, reports to SRO.
	ATC/BOP	Directs TBO to investigate 12 SRW Pump.
	SRO	Directs implementation of AOP-7B, Loss of Service Water.
	SRO	May inform WEC/Maintenance of the issue.
	BOP	May contact TSO and lower Unit-1 Main Generator MVARS to zero.
	BOP	May place 12 SRW Pump handswitch in Pull To Lock.
	BOP	Starts 13 SRW Pump.
	SRO	Determines most limiting TS LCO 3.7.6.B applies with a required action to restore the SRW subsystem to operable status within 72 hours.

Examiner notes:

Event concludes when the PORV-404 Leakage occurs. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #3, PORV-404 Leakage, when desired.

Event #3	**PORV-404 Leakage**	**C-ATC/SRO, T-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC	Responds to Acoustic Monitor Alarm per the Alarm Manual.
	ATC	Determines RCS pressure is lowering or Quench Tank parameters are rising. Informs the SRO taking alternate actions for lowering pressure.
	ATC	Notes elevated PRESSURIZER RV FLOW MONITOR indications for both PORV-404 and RV-201.
	ATC	May Shut PORV 404 Block Valve, RC-405-MOV or places PORV 404 OVERRIDE, HS-1404, in Override to Close.
	BOP	May monitor computer points 1T106, 1T107 and 1T108 for leak-off Temperatures.
	ATC	Determines: • RCS pressure is rising • Quench Tank parameters are no longer rising • PRESSURIZER RV FLOW MONITOR indications return to zero
	ATC	May restore Quench Tank parameters by cycling RC-401-CV per OI-1B.
	SRO	Evaluates the Tech Specs and Determines Tech Spec 3.4.11.A for PORV-404 being declared inoperable with a required action to close and maintain power to associated block valve with a completion time of 1 hour.

Examiner notes:

Event concludes when the 11 SGFP Trip occurs. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #4, 11 SGFP Trip, when desired.

Event #4	**11 SGFP Trip / AOP-3G**	**R-ATC/BOP, C-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	BOP	Notes 11 SGFP TRIP alarm. Determines 11 SGFP has tripped.
	SRO	Implements AOP-3G, Malfunction of Main Feedwater System.
	SRO	May direct the crew to perform a rapid downpower to less than 88%.
	ATC	Lowers Reactor power by: • Inserting CEAs as necessary
	BOP	Adjusts turbine load, as necessary, to maintain TCOLD on program.
	BOP	Maximizes SGFP suction pressure: • Places CNDSR HOTWELL CONTR, LIC-4405, in manual at 50% • Places PRECOAT SYS BYP, CD-5818-CV, in open
	BOP	May Secure 11 SGFP Main Oil Pumps: • Places 11 SGFP MAIN OIL A PUMP in STOP

Examiner notes:

Event concludes when the 12 SGFP Trip occurs.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #5, 12 SGFP Trip, when desired.

Event #5	**12 SGFP Trip / EOP-0**	**C-ALL**

Time	Position	Applicant's Actions or Behavior
	BOP	Determines that 12 SGFP is tripped, and an active trip is present preventing a reset of 12 SGFP. Informs the SRO.
	SRO	Directs manual trip of Reactor.
	ATC	Manually trips Reactor prior to reaching the automatic trip setpoint on low SG level.
	SRO	Implements EOP-0, Post-Trip Immediate Actions.
	ATC	Assesses Reactivity Safety Function and determines Reactivity is Complete.
	BOP	Reports Turbine Trip Complete.
	BOP	Reports Vital Auxiliaries Safety Function Complete.
	BOP	Establishes AFW flow to the Steam Generators due to the loss of main feedwater. Starts 11 or 13 AFW Pump.
	BOP	Determines Core and RCS Heat Removal Safety Function is Complete.

Examiner notes:

Event continues into the implementation of EOP-0 and in parallel with the 11 SGTR malfunction.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #6, 11 SGTR, when desired.

Events #6/7	**11 SGTR / EOP-6 / TBV-3946 Fails Shut**	**6: M-ALL** **7: C-BOP/SRO, MC-BOP**

Time	Position	Applicant's Actions or Behavior
	ATC	Notes the change in PZR level trend. Isolates the Letdown CVs.
	ATC	Determines Pressure and Inventory Control Safety Function is not met due to PZR level and pressure and informs the SRO.
	BOP	May note SG level mismatch. May take manual control of 11 SG level and lower the feed rate to 11 SG.
	ATC/BOP	Determines Containment Environment Safety Function is met. Informs the SRO that Containment Environment is complete.
	ATC/BOP	Determines Radiation Levels External to Containment Safety Function is met.
	SRO	Evaluates the EOP-0 flowchart and recommends the implementation of EOP-6. Directs implementation of EOP-6.
	ATC	Verifies SIAS.
	ATC	Trips 11A & 12B RCPs or 11B & 12A RCPs when RCS pressure decreases to <1725 PSIA.
	ATC	Commences/Verifies RCS Boration in progress.
	BOP	Commences a rapid cooldown to lower THOT to <515°F. Shifts Controller PIC-4056 to Manual. Raises output on controller to open TBVs. Blocks SGIS.
	BOP	**CRITICAL TASK** Initiates RCS cooldown not to exceed 100°F in any one-hour period.
	BOP	Determines that an issue with TBV-3946. Performs the Manual Control Action to raise the output signal to use the 2nd TBV or transitions to using the ADVs for the RCS cooldown.

	BOP	**CRITICAL TASK** Identifies 11 S/G as the ruptured SG and isolates 11 S/G within 1 hour of the reactor trip. • **Directs TBO to Align 11 ADV to 1C43 with a 0% output** • **Shuts 11 MSIV** • Verifies shut 11 MSIV BYP valve, MS-4045. • Verifies shut 11 SG FW ISOL valve, FW-4516-MOV • **Shuts 11 SG AFW STM SUPP & BYPASS valves, MS-4070-CV and MS-4070A-CV** • **Shuts the 11 S/G AFW BLOCK valves, AFW-4520-CV, AFW-4521-CV, AFW-4522-CV, AFW-4523-CV** • Verifies shut 11 SG B/D valves, BD-4010-CV and BD-4011-CV. • **Shuts the MS UPSTREAM DRN ISOL VLVS with HS-6622 in CLOSE.** • Directs ABO/OSO – Evaluate for leaking safety valves on 11 SG
	BOP	May lower the RCS cooldown rate by throttling 12 ADV further closed.

Examiner notes:
Event concludes after the Critical Task of isolating 11 SG is complete and when the LOCA occurs.
NOTE TO EXAMINER Cue Booth Operator to initiate Event #8, LOCA, when desired.

Event #8	**Large Break LOCA / EOP-8**	**M-ALL**

Time	**Position**	**Applicant's Actions or Behavior**
	ALL	May recognize the change in plant conditions and alarms and announce that a second event has occurred.
	SRO	Directs the implementation of EOP-8.
	BOP	Directs Chemistry to perform samples on both S/Gs and place the Hydrogen Monitors in service.
	ATC/BOP	Evaluates Resource Assessment Table. Determines that RC-1 Met, VA-1 Met, PIC-4 Met, HR-2 Met, CE-2 Met (could be CE-3 depending on time), and RLEC-2 Met. Informs the SRO of assessment results.
	SRO	Directs the implementation of PIC-4 and CE-2/3 determines the overall priority of EOP-8 success paths is PIC-4, CE-2/3, RLEC-2, RC-1, VA-1, HR-2.
	ATC	Stops the operating LPSI Pumps.
	ATC	Shuts the LPSI Header MOVs.
	ATC	**CRITICAL TASK** Trips all RCPs within 15 minutes of CIS.

Examiner notes:

The scenario will terminate after the Critical Task of securing the remaining RCPs has been completed.

After scenario ends, if desired by Examiner, ask SRO follow-up Tech Spec questions.

SHIFT TURNOVER INFORMATION SHEET [B0459]

Date: Today			
Station: Calvert Cliffs			
Unit: 1	**Mode:** Online	**% Rx Power:** 100%	**MWE:** 925
Days On-Line (or Outage): 60		**On-Line (or Outage) Risk Level:** Green	
Off Normal Trends:			
Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow			
Unit: 2	**Mode:** Online	**% Rx Power:** 100	**MWE:** 941
Days On-Line (or Outage): 230		**On-Line (or Outage) Risk Level:** Green	
Off Normal Trends:			
Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow			
Station Event-Free Days: 691 Reactivity Management Event-Free Days: 197 Configuration Control Event-Free Days: 206 Critical Component Failure Clock Days: 103 Clearance & Tagging Event-Free Days: 691		**Significant Event Reporting:** (on the first business day following a weekend or holiday include the events since the last business day): No Significant Events	
Station Duty Manager: Heath Crockett			

SHIFT TURNOVER INFORMATION SHEET [B0459]

MISCELLANEOUS	UNIT 1	UNIT 2
S/G Blowdown Status	100 gpm to CW OI-8A Sect 6.7	100 gpm to CW OI-8A Sect 6.7
VCT Pressure Band	35 – 41 psig **H2**	33 – 39 psig **H2**

SPENT FUEL EQUIPMENT CHECKOUTS:		
SFHM PE 0-081-01-O-Q	New Fuel Elevator OI-25B App A	SF Insp. Elev. OI-25B App B
Last done Two Months Ago **{C93668376}** **PMC-18-107842 extended to semi -annually (DDD Next Year)**	**6 Months Ago**	**9 Months Ago**

COMMON

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. None.

SHIFT TURNOVER INFORMATION SHEET [B0459]

UNIT 1					
Max Header Pressure PE 1-12-21-O-M SW PUMP		OI-29 Value	STP O-73A Quarterly Value (Rolling past 3 quarters) (Date Format – MM/DD/YY)		
	11	32.9 psig Yesterday Sec 6.39	32.8 Yesterday	32.9 psig 3 Months Ago	33.2 psig 6 Months Ago
	12	30.7 psig Yesterday Sec 6.46	30.7 psig Yesterday	30.8 psig 3 Months Ago	30.6 psig 6 Months Ago
	13 (11 Hdr)	32.0 psig 2 Weeks Ago Sec 6.39			
	13 (12 Hdr)	30.2 psig Yesterday Sec 6.46	29.6 psig Yesterday	30.4 psig 3 Months Ago	30.6 psig 6 Months Ago

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. None.

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #3**	OP-Test # **2023**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit-1 is at 75% power, MOC. Unit-2 is at 100% power.

Turnover: Unit-1 power was lowered to 75% for repairs to 11 SGFP. 4-hour confidence run started 1 hour ago. Prior to the downpower power was 100% for the last 60 days. 12 EHC Pump is out of service for emergent repairs.

Instructions to the crew: Maintain 75% power.

Critical Tasks:

1. Trips all RCPs within 15 minutes after receiving CIS actuation.
2. Identifies 12 Steam Generator as faulted and isolates 12 S/G within 1 hour.
3. Establishes at least one train of Containment Spray flow to Containment within 30 minutes of reaching 4.25 psig Containment Pressure.

Event #	Malfunction #	Event Type*	Event Description
1	ni008_07	I-BOP/SRO TS-SRO	RPS Ch D Lower Detector Fails Low
2	ceds012_35	C-ATC/SRO TS-SRO	Misaligned CEA by >15”
3	cw002_02 cw002_03	R-ATC/BOP C-SRO	12/13 Circ Water Pumps High D/P
4	cw001_01	C-ALL	11 CW Pump Trip / EOP-0
5	552-22 552-23	MC-BOP C-BOP/SRO	Generator Bus Breakers Fail to Open
6	ms010_02	M-ALL	Steam Line Rupture in Containment / EOP-4
7	esfa004_01 esfa004_02	MC-ATC I-ATC/SRO	CSAS Auto Failure

* (N)ormal (R)eactivity (I)nstrument (C)omponent (M)ajor (TS)Tech Spec (MC)Manual Control

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #3**	OP-Test # **2023**

Scenario Overview

Initial Conditions:
Unit-1 is at 75% power, MOC, Unit-2 at 100% power.
Equipment OOS: 12 EHC Pump is out of service for emergent repairs.
Abnormal Conditions: None.

Event 1 – The first event will be RPS Channel D LRNI lower detector Fails Low. The crew will bypass RPS Trip Units 1,2,7,8, and 10. TS LCOs 3.3.1.A and 3.3.1.D will be entered by the crew.

Event 2 – CEA 35 in Group 5 will move into the core greater than 15 inches requiring the crew to enter AOP-1B, CEA Malfunction. The crew may lower turbine load to maintain TCOLD on program. The crew will commence the actions required to realign the CEA. Determines TS LCO 3.1.4.B is applicable with a required action to restore CEA alignment within 2 hours.

Event 3 – High Screen D/P on the traveling screens requiring entry into AOP-7L. D/P on 12A&B and 13A&B screens will reach CW Pump trip criteria requiring the trip of 12&13 Circ Water Pumps. A rapid downpower to 300MWe will commence based on the loss of two CW pumps.

Event 4 – A trip of 11 Circulating Water Pump will occur (trip criteria per AOP-7L). The crew will trip the reactor and implement EOP-0

Event 5 – In EOP-0, the Generator Bus breakers will fail as-is requiring the BOP to perform actions to open breakers 552-22 and 552-23.

Event 6 – The major event will be a 12 SG Steam Line Rupture inside Containment that will occur 4 minutes after the reactor trip. In EOP-0, the crew will perform the Critical Task of securing all RCPs after the CIS actuation. In EOP-4, the crew will perform the Critical Task of identifying 12 SG as being faulted and isolating 12 SG.

Event 7 – Both CSAS channels will fail to automatically actuate. The crew will perform the Critical Task of manually initiating the CSAS actuation or taking the actions necessary to ensure proper Containment Spray flow to containment.

Instructor Scenario Information

_____ 1. Reset to IC-29 or a previously saved IC.

_____ 2. Place simulator in RUN.

_____ 3. Clear PPC Screen trend lines if necessary.

_____ 4. Place simulator in FREEZE.

_____ 5. Enter Triggers:

- _____ a. Reactor Trip, CEA_ROD_POSITION (1) < 5, to trigger Event 6.
- _____ b. Breaker 552-22 to trip, P1C01_KD22_SWTRIP, to trigger Event 13.
- _____ c. Breaker 552-23 to trip, P1C01_KD23_SWTRIP, to trigger Event 14.

_____ 6. Enter Malfunctions:

- _____ a. esfa004_01, CSAS Channel A Auto Failure, at time zero.
- _____ b. esfa004_02, CSAS Channel B Auto Failure, at time zero.
- _____ c. ni008_07, RPS Ch D Lower Detector Fails Low, on Event 1.
- _____ d. ceds012_35 delete in 1, CEA #35 drops for 1 second, on Event 2.
- _____ e. cw002_02 to 83 in 45 seconds, 12 CW Pump Traveling Screen DP high, on Event 3.
- _____ f. cw002_03 after 90 to 83 in 90 seconds, 13 CW Pump Traveling Screen DP high, on Event 3.
- _____ g. cw001_01, 11 Circulating Water Pump Trips, on Event 4.
- _____ h. ms010_02 after 240 to 50, 12 SG Steam Line Rupture in Containment to 50% after a 4-minute delay, on Event 6.

_____ 7. Enter Remote Functions:

- _____ a. TRAV_SCRN, to HAND, Traveling Screens in Hand, on Event 10.
- _____ b. 1-CAR-102, 11B Condenser Shell Stop, to close: to 0 on Event 11.
- _____ c. 1-CAR-103, 12A Condenser Shell Stop, to close: to 0 on Event 12.

_____ 8. Enter Panel Overrides:

- _____ a. P1C01_KD22_LTRED, to ON at time zero.
- _____ b. P1C01_KD22_LTGREEN, to OFF at time zero.
- _____ c. P1C01_KD23_LTRED, to ON at time zero.
- _____ d. P1C01_KD23_LTGREEN, to OFF at time zero.
- _____ e. P1C01_KD22_LTRED, to OFF on Event 13.
- _____ f. P1C01_KD22_LTGREEN, to ON on Event 13.
- _____ g. P1C01_KD23_LTRED, to OFF on Event 14.
- _____ h. P1C01_KD23_LTGREEN, to ON on Event 14.

_____ i. P1C02_1HS4653 to PTL, at time zero.

_____ j. P1C02_1HS4653_LTGREE to Off, at time zero.

_____ k. P1C10_1HS2080 to Open, at time zero.

_____ l. P1C10_1HS2080A to OVRRDE, at time zero.

_____ m. P1C10_1MOV2080_LTAMB to Off, at time zero.

_____ n. P1C10_1MOV2080_LTBLU to On, at time zero.

_____ o. P1C09_H52_LTON to Off, at time zero.

_____ p. P1C17_L19_LTON to On, on Event 4.

_____ 9. Administrative:

_____ a. Place INFO tag on 12 EHC Pump handswitch in the PTL position.

_____ b. Verify ovation screens are reset and working.

_____ 10. Independently verify correct completion of the following:

_____ a. Event Triggers, Malfunctions, Remote Functions, and Overrides are correctly entered.

_____ b. Administrative actions correctly performed.

_____ 11. Place simulator in RUN.

_____ 12. Ensure schedule files are in RUN.

_____ 13. Ensure Trigger files are in RUN.

_____ 14. Ensure SBT Report is running with the SBT Insight file open, if necessary.

_____ 15. Reset/Acknowledge panel and PPC alarms.

_____ 16. Ensure all PPC screens selected to Main Menu, Alarms, or SPDS Operating Summary page.

_____ 17. Select “Clock” and ensure “Horn On” for annunciators.

_____ 18. Brief the Crew:

1. Present plant conditions:	Unit-1 is at 75% power, MOC. Unit-2 is at 100% power.
2. Power history:	Power lowered to 75% yesterday to support 11 SGFP. Before that, 100% power for previous 60 days.
3. Equipment out of service:	12 EHC Pump is out of service for emergent repairs.
4. Abnormal conditions:	Repairs on 11 SGFP lube oil system completed. Power being maintained at 75% until 11 SGFP confidence run complete. Run completed in 4 more hours.
5. Surveillances due:	None.
6. Instructions for shift:	Maintain 75% power per OP-3.

_____ 19. Allow crew 1-2 minutes to acclimate themselves with their positions.

_____ 20. Instructions for the Booth Operator:

_____ a. **Event 1:** Activate Event 1, RPS Channel D LRNI HV Power Supply fails low, on Lead Evaluator's cue.

_____ b. **Event 2:** Activate Event 2, CEA misalignment, when directed by the Lead Examiner.

_____ c. **Event 3:** Activate Event 3, CW Pump High D/P, when directed by the Lead Examiner.

i. If crew is slow to perform downpower: Call as the SOS and Direct a downpower to 300MWe based on 2 CW Pumps not running.

_____ d. **Event 4:** Activate Event 4, 11 CW Pump trip, when directed by the Lead Examiner.

_____ e. **Event 5:** Generator Bus Breaker failure actuated at time zero

_____ f. **Event 6:** Ensure Event 6, 12 SG Steam Line Rupture in Containment, activates automatically upon the reactor trip with a 4-minute delay.

_____ g. **Event 7:** CSAS Failure actuated at time zero.

Responses to Crew Requests

If a request and response is not listed, delay the response until reviewed with the examiner. If one request is dependent upon completion of another, then subsequent actions should not be responded to until the appropriate time delay has been observed. Responses to routine requests, which have no effect the scenario, do not require examiner clearance.

Allow 2-3 minutes to perform requests from or to give reports to the Control Room unless otherwise specified.

REQUEST	RESPONSE
Event 1 – RPS Channel D LRNI Power Supply Fails Low	
1. WEC/IM informed of status.	Acknowledge request/information.
Event 2 – Misaligned CEA	
1. WEC/IM informed of issue/status.	Acknowledge request. No further actions are required.
2. WEC report current F_r^T.	F_r^T was 1.50 and logged last shift.
3. Electrical Maintenance to investigate and connect equipment to troubleshoot dropped CEA.	Acknowledge request. After 2 minutes, report equipment is connected to perform a rod trace of CEA #35. There are no obvious issues that will prevent CEA realignment.
Event 3 – 12/13 CW Pump High D/P	
1. OSO investigate the waterfront.	After 2 minutes report sea grass is collecting on all of the Traveling Screens with 12/13 A/B screens having the worst accumulation. Activate **Event 10** (traveling screens in hand) if requested to place the traveling screens in "HAND".
2. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
3. OSO directed to secure all Amertaps.	Acknowledge request.
4. TSO notified of a downpower.	Acknowledge report.
5. TBO directed to operate the Panel Loader CVs.	Acknowledge request. No further actions are required.
6. TBO shut 1-CAR-102.	Activate **Event 11** and report completion.
7. TBO shut 1-CAR-103.	Activate **Event 12** and report completion.
Event 4 – 11 CW Pump Trip	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
Event 5 – Generator Bus Breaker Failure	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.

Event 6 – ESDE in Containment	
1. WEC/Maintenance informed of the issue.	Acknowledge request. No further actions are required.
2. TBO align 12 ADV to 1C43 with a 0% output signal.	After 1 minute, use **Remote 1-MS-3939-HV** to align to 1C43, then report completion.
3. ABO verify no SG safeties leaking.	After 1 minute, report no SG safety valves are leaking.
4. WEC pull alarm card F07.	After 1 minute, use remote to pull alarm card for F07.
Event 7 – CSAS Auto Failure	
1. WEC/Maintenance informed to the issue.	Acknowledge request. No further actions are required.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #3**	OP-Test # **2023**

Event #1	**RPS Ch D LRNI Power Supply Fails Low**	**C-BOP/SRO, T-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	ALL	Notes alarms. Determines RPS Ch D LRNI indications have failed low. Notifies the US. Crew may take the Multiple Alarms actions.
	ATC	Refers to Alarm Manual.
	SRO	Refers to OP-CA-103-102-100, Tech Spec Implementation Matrix and Common Tap Analysis.
	SRO	Evaluates Tech Specs 3.3.1 RPS for applicability. Determines entry into LCOs 3.3.1.A and 3.3.1.D is appropriate.
	CRO	Bypasses RPS Channel D 1-VOPT, 2-SUR, 7-TM/LP, 8-LOL, and 10-APD trip units.
	ALL	The crew may discuss comp actions if a transient brief is held.

Examiner notes:

Event concludes when CEA alarms occur. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #2, Misaligned CEA.

Event #2	**Misaligned CEA**	**C-ATC/SRO, T-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC/BOP	Recognizes multiple alarms and notifies the Unit Supervisor.
	ATC	Determines alarms are due to a CEA malfunction or monitors Primary parameters for changing conditions. Determines a CEA is misaligned.
	BOP	If multiple alarms are announced, determines that RPS is not calling for a trip.
	SRO	Implements AOP-1B, CEA Malfunctions. Distributes trip criteria on CEA status.
	ATC	Verifies only one CEA is misaligned.
	BOP	May lower turbine load to maintain T_{COLD} to program.
	SRO	May contact WEC/Instrument Maintenance to investigate failure and to gain F_r^T number.
	ATC/BOP	May perform an RCS boration to control reactor power.
	ATC	Commences withdrawal of the misaligned CEA to realign it with its group.
	SRO	Determines TS LCO 3.1.4.B is applicable with a required action to restore CEA alignment within 2 hours.

Examiner notes:

Event concludes when CW High D/P alarms are received for the travelling screens. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #3, 12/13 CW High D/P, when desired.

Event #3	**12/13 Circ Water Pump High D/P**	**R-ATC/BOP, C-SRO**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC/BOP	Notes traveling screen alarms on 1C13. Refers to the Alarm Manual.
	SRO	Implements AOP-7L, Circulating Water / Intake Malfunctions Sec VI.
	BOP	Directs the OSO/PPO to the screens to investigate.
	BOP	May direct placing the traveling screens in HAND.
	BOP	May direct securing all Amertaps.
	BOP	Places Condenser Hotwell Controller, 1-LIC-4405, in Manual.
	BOP	Determines CW Pump Trip criteria is met for 12 and 13 CW Pumps.
	SRO	Directs a downpower to 300 MWe per OI-14A/AOP-7L.
	ATC	Performs a rapid downpower per OP-3: • Performs RCS Boration: ○ Opens CVC-514-MOV ○ Starts a second Charging Pump ○ Starts a Boric Acid Pump ○ Stops the Boric Acid Pump ○ Shuts CVC-514-MOV ○ Opens CVC-504-MOV ○ Shuts CVC-501-MOV • Inserts CEAs as necessary to lower reactor power.
	SRO	May declare TS 3.5.4.B if RWT low level alarm is received.
	BOP	Lowers Turbine Load to maintain T_{COLD} within 5°F of program.
	BOP	Directs TBO to shut 1-CAR-102 and 103, 11B and 12A Condenser Shell Stops.
	BOP	May break waterbox vacuum by opening 11B and 12A Waterbox Vacuum Breaker Valves, 1-CW-5232 and 5236.

Examiner notes:

Event concludes when 11 CW Pump Trips.

NOTE TO EXAMINER Cue Booth Operator to initiate Event #4, 11 CW Pump Trip, when desired.

Event #4/5	**11 CW Pump Trip / EOP-0 / Breaker Failure**	**C-ALL, MC-BOP**

Time	Position	Applicant's Actions or Behavior
	ATC/BOP	Notes Non-ESF 4KV Breaker alarm. Determines 11 Circulating Water Pump tripped.
	ATC/BOP	Determines AOP-7L trip criteria is met based on two Circulating Water Pumps in the same condenser has tripped. Notifies the US.
	SRO	Directs the RO to trip the reactor and the crew to implement EOP-0.
	ATC	Trips the reactor. Verifies the reactor is tripped. Informs the US.
	SRO	Directs the crew to implement EOP-0.
	ATC	Determines Reactivity Safety Function is met. Informs the Unit Supervisor that Reactivity Control is complete.

Examiner notes:

Event #4/5 continues on next page.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #3**	OP-Test # **2023**

Event #4/5	**11 CW Pump Trip / EOP-0 / Breaker Failure**	**C-ALL, MC-BOP**

Time	Position	Applicant's Actions or Behavior
	BOP	Commences the Turbine Trip Safety Function of EOP-0. Determines that the Generator Bus Breakers failed to open. Opens Breakers 552-22 and 552-23. Notifies the US that Turbine Trip is complete.
	BOP	Commences the Vital Auxiliaries Safety Function. Notifies the US that Vital Auxiliaries is complete.
	ATC	Commences the Pressure and Inventory Control Safety Function. Notifies that PIC Safety Function is complete.
	BOP	Commences the Core and RCS Heat Removal Safety Function. Notifies the US that Core and RCS Heat Removal is complete
	ATC	Commences the Containment Environment Safety Function. Depending on timing may report that Containment Environment is complete.
	BOP	Commences the Radiation Levels External to Containment Safety Function. Notifies the US that Radiation Levels External to Containment is complete.

Examiner notes:

Event concludes when the 12 SG Steam Line Rupture inside Containment occurs.

NOTE TO EXAMINER

Four minutes after the reactor trip, Event #7 will initiate automatically to initiate a 12 SG Steam Line Rupture inside Containment.

Event #6/7	**ESDE / EOP-4 / CSAS Auto Failure**	**6: M-ALL** **7: I-ATC/SRO, MC-ATC**

Time	Position	Applicant's Actions or Behavior
	ATC/BOP	Determines an additional transient is occurring based on RCS temperatures, PZR level and pressure, and Containment parameters.
	SRO	May direct the re-assessment of EOP-0 Safety Functions.
	ATC	Verifies the SIAS and CIS actuations.
	ATC	**CRITICAL TASK** Trips all RCPs within 15 minutes after receiving CIS actuation.
	ATC	Determines that Containment pressure is greater than the CSAS setpoint and that the automatic CSAS actuations failed. May determine the validity of the CSAS by observing alternate channels of indication for the same parameter.
	ATC	May push CSAS Manual Initiation pushbuttons and recognize/report CSAS manually initiated.
	ATC	May utilize ESFAS action placard OR Alarm manual actions to manually perform CSAS actuation: VERIFY CSAS actuation by performing the following: • CHECK CS HDR ISOL CVs open. • CHECK Condensate Booster Pumps tripped.
	ATC	**CRITICAL TASK** Establishes at least one train of Containment Spray flow to Containment within 30 minutes of reaching 4.25 psig Containment Pressure.
	ATC	Determines Pressure and Inventory Control Safety Function is not met. Informs the SRO that Pressure and Inventory Control is not met due to low PZR level and pressure.
	BOP	Determines Core and RCS Heat Removal Safety Function is not met. Informs the SRO that Core and RCS Heat Removal is not met due to no RCPs running and low 12 SG pressure and T_{COLD}.

Examiner notes:

Event #6/7 continues on next page.

Event #6/7	**ESDE / EOP-4 / CSAS Auto Failure**	**6: M-ALL** **7: I-ATC/SRO, MC-ATC**

Time	Position	Applicant's Actions or Behavior
	BOP	May lower the AFW flow to 12 SG based on the Steam Line Rupture event.
	ATC/BOP	Determines Containment Environment Safety Function is not met. Informs the SRO that Containment Environment is not met due to high Containment temperature and pressure.
	SRO	Evaluates the EOP-0 flowchart and recommends the implementation of EOP-4. Directs implementation of EOP-4.
	SRO	May direct Block Step D to verify proper operation of ECCS Pumps upon the SIAS actuation.
	ATC	Verifies all available HPSI, LPSI, and Charging Pumps are in operation.
	BOP/SRO	Identifies 12 SG as the most affected SG.
	BOP	**CRITICAL TASK** Isolates 12 SG within 1 hour: • **Directs TBO to Align 12 ADV to 1C43 with a 0% output** • Verifies shut 12 SG FW ISOL valve, 1-FW-4517-MOV • Verifies shut 12 MSIV BYP valve, 1-MS-4052-MOV • **Shuts 12 SG Blowdown valves, BD-4012-CV and BD-4013-CV** • **Shuts 12 SG AFW STM SUPP & BYPASS valves, MS-4071-CV and MS-4071A-CV** • **Shuts 12 S/G AFW BLOCK valves, AFW-4530-CV, AFW-4531-CV, AFW-4532-CV, AFW-4533-CV** • **Shuts the MS UPSTREAM DRN ISOL VLVS with 1-HS-6622 in CLOSE** • Directs ABO/OSO to evaluate for leaking safety valves on 12 SG

Examiner notes:

The scenario will terminate after the Critical Task of Isolating 12 Steam Generator is complete.

After scenario ends, if desired by Examiner, ask SRO follow-up Tech Spec questions.

SHIFT TURNOVER INFORMATION SHEET [B0459]

Date: Today

Station: Calvert Cliffs

Unit: 1	**Mode:** Online	**% Rx Power:** 75%	**MWE:** 674
Days On-Line (or Outage): 60		**On-Line (or Outage) Risk Level:** Green	

Off Normal Trends:

Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow

12 EHC Pump

Unit: 2	**Mode:** Online	**% Rx Power:** 100	**MWE:** 941
Days On-Line (or Outage): 230		**On-Line (or Outage) Risk Level:** Green	

Off Normal Trends:

Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow

Station Event-Free Days: 691
Reactivity Management Event-Free Days: 197
Configuration Control Event-Free Days: 206
Critical Component Failure Clock Days: 103
Clearance & Tagging Event-Free Days: 691

Station Duty Manager: Heath Crockett

Significant Event Reporting: (on the first business day following a weekend or holiday include the events since the last business day):

No Significant Events

SHIFT TURNOVER INFORMATION SHEET [B0459]

MISCELLANEOUS	UNIT 1	UNIT 2
S/G Blowdown Status	100 gpm to CW OI-8A Sect 6.7	100 gpm to CW OI-8A Sect 6.7
VCT Pressure Band	35 – 41 psig **H2**	33 – 39 psig **H2**

SPENT FUEL EQUIPMENT CHECKOUTS:		
SFHM PE 0-081-01-O-Q	New Fuel Elevator OI-25B App A	SF Insp. Elev. OI-25B App B
Last done Two Months Ago **{C93668376}** **PMC-18-107842 extended to semi -annually (DDD Next Year)**	**6 Months Ago**	**9 Months Ago**

COMMON

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. None.

SHIFT TURNOVER INFORMATION SHEET [B0459]

UNIT 1					
Max Header Pressure PE 1-12-21-O-M SW PUMP		OI-29 Value	STP O-73A Quarterly Value (Rolling past 3 quarters) (Date Format – MM/DD/YY)		
	11	32.9 psig Yesterday Sec 6.39	32.8 Yesterday	32.9 psig 3 Months Ago	33.2 psig 6 Months Ago
	12	30.7 psig Yesterday Sec 6.46	30.7 psig Yesterday	30.8 psig 3 Months Ago	30.6 psig 6 Months Ago
	13 (11 Hdr)	32.0 psig 2 Weeks Ago Sec 6.39			
	13 (12 Hdr)	30.2 psig Yesterday Sec 6.46	29.6 psig Yesterday	30.4 psig 3 Months Ago	30.6 psig 6 Months Ago

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. Repairs on 11 SGFP lube oil system completed. Power being maintained at 75% until 11 SGFP confidence run complete. Run completed in 4 more hours.
2. 12 EHC Pump is out of service for emergent repairs.

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #4**	OP-Test # **2023**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit-1 is at 100% power, MOC. Unit-2 is at 100% power.

Turnover: 23 AFW Pump is OOS.

Instructions to the crew: Maintain 100% power.

Critical Tasks:

1. Trips the reactor within 1 minute of the PROT CH TRIP alarm.
2. Trips 11A & 12B or 11B & 12A RCPs when RCS pressure decreases to <1725 PSIA prior to RCS pressure reaching 1300 PSIA.
3. Commences OTCC when both S/G levels are below (-)350 inches and prior to CET temperatures reaching 560°F after Heat Removal capability has been lost.

Event #	Malfunction #	Event Type*	Event Description
1	cd002	C-BOP/SRO MC-BOP	Hotwell Level Transmitter Fails Low / AOP-3G
2	cntm004_03	C-BOP/SRO TS-SRO	1-PT-5313C, Containment Pressure Transmitter, Fails High
3	tg024_01	R-ATC C-BOP/SRO TS-SRO	MTCV Fails Partially Closed / AOP-7E / AOP-7F
4	esfa013	C-ALL	Spurious SGIS / EOP-0
5	rps005 rps006	C-ATC/SRO MC-ATC	ATWS
6	rcs002	C-ALL	LOCA (500 gpm)
7	1-AFW-161	M-ALL	AFW Suction Line Blockage / EOP-8

* (N)ormal (R)eactivity (I)nstrument (C)omponent (M)ajor (TS)Tech Spec (MC)Manual Control

Scenario Outline		Form 3.3-1
Calvert Cliffs Nuclear Power Plant	**Scenario #4**	OP-Test # **2023**

Scenario Overview

Initial Conditions:
Unit-1 is at 100% power, MOC, Unit-2 at 100% power.
Equipment OOS: 23 AFW Pump.
Abnormal Conditions: None.

Event 1 – A Level Transmitter input to the Hotwell Level Controller will fail low. The crew will respond using AOP-3G. The crew will shift Hotwell Level Control to manual to restore Hotwell levels.

Event 2 – Containment pressure transmitter to RPS/SIAS, 1-PT-5313C, fails high. The crew will bypass RPS Channel C trip unit #9 Cntmt Pressure and ESFAS ZF sensor module for SIAS CP. Tech Spec LCOs 3.3.1.A and 3.3.4.A will be entered for this condition.

Event 3 – Next, a Main Turbine Control Valve #1 that fails partially shut. The crew will implement AOP-7E and AOP-7F and performs actions to restore the high PZR pressure and high RCS temperatures to normal. The Unit Supervisor will enter Tech Spec LCO 3.4.1.A for RCS Temperature in DNB. The ATC will insert CEAs and/or borate the RCS to exit the DNB conditions. The BOP will lower the TBV controller setpoint to just above the steam header pressure.

Event 4 – A Spurious SGIS occurs, resulting in the plant reaching Reactor Trip criteria. The performance of EOP-0, Post-Trip Immediate Actions, will be directed.

Event 5 – ATWS occurs when RPS fails to automatically trip the reactor. The ATC Operator is expected to recognize the malfunction, determine the reactor trip push buttons also fail, and take manual actions to perform the Critical Task of tripping the reactor within 1 minute of the PROT CH TRIP alarm by deenergizing the CEDM MG set electrical buses.

Event 6 – After the reactor trip, a 500 gpm RCS LOCA inside of containment of will occur. The ATC operator will perform alternate actions for the Pressure and Inventory control safety function to isolate Letdown due to lowering Pressurizer level.

Event 7 – Six minutes after the reactor trip a total suction line blockage in the AFW common suction header renders all three AFW Pumps inoperable. The crew will implement EOP-8 based on two different events occurring. The crew should identify the success paths in EOP-8 (RC-1 Met, VA-1 Met, PIC-4 Met, HR-2 Not Met, CE-2 Met, RLEC-1 Met) and priority (HR-2, and then PIC-4, CE-2, RC-1, VA-1, RLEC-1). Crew will commence HR-2 and PIC-4. As part of HR-2, the crew will be directed to transition to HR-4 and pursue the critical task of initiation of OTCC. The scenario will end once OTCC has been established.

Instructor Scenario Information

_____ 1. Reset to IC-34 or a previously saved IC.

_____ 2. Place simulator in RUN.

_____ 3. Clear PPC Screen trend lines if necessary.

_____ 4. Place simulator in FREEZE.

_____ 5. Enter Triggers:

- _____ a. Reactor trip, CEA_ROD_POSITION(1) < 5, to trigger Event 6.
- _____ b. Reactor trip, CEA_ROD_POSITION(1) < 5, to trigger Event 7.

_____ 6. Enter Malfunctions:

- _____ a. rps005, ATWS RPS K1 and K2 Relays Fail, at time zero.
- _____ b. rps006, ATWS Manual Reactor Trip Failure, at time zero.
- _____ c. cd002, Hotwell Level Failure, to 2_LOW on Event 1.
- _____ d. cntm004_03, 1-PT-5313C Failure, on Event 2.
- _____ e. tg024_01, MTCV #1 Fails Partially Shut, to 35 in 180, on Event 3.
- _____ f. esfa013, Spurious Actuation of SGIS, on Event 4.
- _____ g. rcs002, LOCA, after 30 to 500 gpm, on Event 6.

_____ 7. Enter Remote Functions:

- _____ a. 1-AFW-161, AFW Common Suction Blockage, to 0 after 360 on Event 7
- _____ b. B_SIAS_CP_ZF, Bypass ESFAS ZF SIAS CP, to BYPASS on Event 11.
- _____ c. SIAS-A6(B6) to TRIP, on Event 12.

_____ 8. Enter Panel Overrides:

- _____ a. P1C04_1CV161_LTRED to ON, at time zero.
- _____ b. P1C04_1CV161_LTGREEN to OFF, at time zero.

_____ 9. Administrative:

- _____ a. Place protected equipment tags next to 11 and 13 AFW Pumps.
- _____ b. Verify ovation screens are reset and working.

_____ 10. Independently verify correct completion of the following:

- _____ a. Event Triggers, Malfunctions, Remote Functions, and Overrides are correctly entered.
- _____ b. Administrative actions correctly performed.

_____ 11. Place simulator in RUN.

_____ 12. Ensure schedule files are in RUN.

_____ 13. Ensure Trigger files are in RUN.

_____ 14. Ensure SBT Report is running with the SBT Insight file open, if necessary.

_____ 15. Reset/Acknowledge panel and PPC alarms.

_____ 16. Ensure all PPC screens selected to Main Menu, Alarms, or SPDS Operating Summary page.

_____ 17. Select "Clock" and ensure "Horn On" for annunciators.

_____ 18. Brief the Crew:

1. Present plant conditions:	Unit-1 is at 100% power, MOC. Unit-2 is at 100% power.
2. Power history:	100% for the last 60 days.
3. Equipment out of service:	23 AFW Pump is OOS for bearing replacement, back in 16 hours.
4. Abnormal conditions:	None.
5. Surveillances due:	None.
6. Instructions for shift:	Maintain 100% power.

_____ 19. Allow crew 1-2 minutes to acclimate themselves with their positions.

_____ 20. Instructions for the Booth Operator:

_____ a. **Event 1:** Activate Hotwell Level Transmitter LT-4405 Fails Low when directed by the Lead Examiner.

_____ b. **Event 2:** Activate Event 2, 1PT5313C Containment Pressure Transmitter, on Lead Evaluator's cue.

_____ c. **Event 3:** Activate Event 3, MTCV-1 Fails Partially Shut, on Lead Evaluator's cue.

_____ d. **Event 4:** Activate Event 4, Spurious SGIS, on Lead Evaluator's cue.

_____ e. **Event 5:** ATWS, is set at time zero and will occur automatically.

_____ f. **Event 6:** Ensure Event 6, LOCA, automatically activates on the reactor trip.

_____ g. **Event 7:** Ensure Event 7, AFW Common Suction Failure, activates 6 minutes after the reactor trip.

Responses to Crew Requests

If a request and response is not listed, delay the response until reviewed with the examiner. If one request is dependent upon completion of another, then subsequent actions should not be responded to until the appropriate time delay has been observed. Responses to routine requests, which have no effect the scenario, do not require examiner clearance.

Allow 2-3 minutes to perform requests from or to give reports to the Control Room unless otherwise specified.

REQUEST	RESPONSE
Event 1 – Hotwell Level Transmitter Failure	
1. Status of hotwell indications locally.	Acknowledge request. After 2 minutes, report there is no indication of a hotwell leak and hotwell levels are all higher than normal.
2. Verify the Hotwell to CST Dump Control Valve, CD-4405-CV, is open.	Acknowledge request. After 1 minute, report • If Hotwell Controller is in Auto, the Hotwell to CST Dump Control Valve is shut. • If Hotwell Controller is in Manual, Dump Valve reflects position on Controller (<50% Valve is shut, >50% Dump Valve is partially open.)
3. Verify the CST to Hotwell Makeup Control Valve, CD-4406-CV, is shut.	Acknowledge request. After 1 minute, report • If Hotwell Controller is in Auto, the CST to Hotwell Makeup Control Valve is open. • If Hotwell Controller is in Manual, Dump Valve reflects position on Controller (<50% Valve is partially open, >50% Valve is shut.)
4. WEC informed of Hotwell control issue.	Acknowledge request. No further actions required.
Event 2 – 1PT5313C Fails High	
1. Investigate ESFAS ZF sensor cabinet to determine which sensor tripped.	Report alarm is due to SIAS CP sensor module on ESFAS ZF cabinet.
2. Bypass ESFAS ZF SIAS CP sensor module.	After 1 minute, activate **Event 11** to bypass ESFAS ZF SIAS CP.
Event 3 – MTCV Fails Partially Closed	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
2. TSO notified of a downpower.	Acknowledge report.
3. TBO directed to operate the Panel Loader CVs.	Acknowledge request. No further actions are required.
Event 4 – Spurious SGIS	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.

Event 5 – ATWS	
1. WEC/Maintenance informed of issue.	Acknowledge report. No further actions are required.
Event 6 – LOCA / EOP-0	
1. WEC/Radiation Protection notified of an RCS LOCA in containment.	Acknowledge request. No further actions are required.
2. FASW investigate Fire Panel	Alarm is Main Steam Pen Room due to the safeties lifting on the reactor trip.
Event 7 – AFW Common Suction Failure / EOP-8	
1. TBO investigate AFW Pumps.	After 1 minute, report running AFW Pump sounds like it is cavitating and suction pressure is very low.
2. Investigate low suction pressure to AFW Pumps.	After 2 minutes, report 12 CST is properly aligned. There are no valve lineup problems and the suction pressure on all 3 AFW pumps indicates low.
3. Lineup 12 AFW Pump.	After 2 minutes, use remote function **1-MS-3988** to open 12 AFPT STOP VALVE 1SV3988.
4. Line up 11 CST to AFW pump suction.	After 2 minutes, report inability to operate handwheel to open 1-AFW-131.
5. Report availability of 23 AFW Pump.	Report 23 AFW Pump motor is OOS for bearing replacement.
6. Align fire main to suction of 13 AFW Pump.	After 3 minutes, report that hose has burst and threads are galled at connection to 13 AFW Pump. Hose connection cannot be removed.
7. Chemistry sample Steam Generators per CP-436 and place Hydrogen Monitors in service.	Acknowledge request. After 5 minutes, report no activity in either Steam Generator.
8. TBO directed to manually isolate the Main Steam Upstream Drain MOVs.	Acknowledge request. No further actions are required.
9. WEC directed to initiate SIAS A6 and B6.	After 1 minute, activate **Event 12** to initiate SIAS A6 and B6.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #4**	OP-Test # **2023**

Event #1	**Hotwell Level Transmitter Failure**	**C-BOP/SRO, MC-BOP**

Time	Position	Applicant's Actions or Behavior
	BOP	Notes CNDSR HOTWELL LVL alarm on 1C03. Informs the SRO.
	BOP	Refers to 1C03 Alarm Manual. Determines actual Hotwell level is high and the Hotwell Level Controller indicates low.
	SRO	May implement AOP-3G, Malfunction of Main Feedwater System. Directs BOP to respond to a Hotwell Level Controller Malfunction.
	BOP	May direct TBO to evaluate hotwell conditions locally for indications of leakage.
	BOP	Places CNDSR HOTWELL MAKEUP & DUMP CONTR, LIC-4405, in Manual with a 50-100% output to lower hotwell level.
	BOP	May direct TBO to verify the Hotwell to CST Dump Control Valve, CD-4405-CV, is open.
	BOP	May direct TBO to verify the Hotwell to CST Makeup Control Valve, CD-4406-CV, is shut.
	BOP	Adjusts manual output signal on CNDSR HOTWELL MAKEUP & DUMP CONTR, LIC-4405, to restore Hotwell level to normal level of ~50".
	SRO	Notifies the WEC of plant conditions. Requests support.

Examiner notes:

Event concludes when PT-5313C Fails High.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #2, PT-5313C Fails High.

Event #2	**Containment Pressure Transmitter 1PT5313C Fails High**	**C-BOP/SRO, T-SRO**

Time	Position	Applicant's Actions or Behavior
	ATC/BOP	Notes alarm, determines RPS is not calling for a trip, informs the US, and refers to the Alarm Manual.
	BOP	Directs PPO to check ESFAS Sensor Channel ZF. Determines Containment Pressure input to SIAS has failed.
	SRO	Evaluates the Tech Spec Matrix and determines Tech Spec LCO 3.3.1.A and 3.3.4.A are applicable to this condition.
	SRO	Directs bypassing ESFAS ZF SIAS CP sensor module.
	BOP	Bypasses RPS Channel C trip unit #9, High Containment Pressure.
	SRO	May inform WEC/Maintenance of the issue.
	ALL	May discuss Comp Actions due to the hanging alarms.

Examiner notes:

Event concludes when MTCV-1 Fails Shut. If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #3, MTCV-1 Fails Shut, when desired.

Event #3	**MTCV-1 Fails Shut / AOP-7E / AOP-7F**	**R-ATC/BOP, C-SRO, T-SRO**

Time	Position	Applicant's Actions or Behavior
	ATC/BOP	Acknowledges alarms. Notes rising T_{COLD} and lowering MWe.
	BOP	Determines MTCV-1 has failed partially shut to the 35% position.
	SRO	Implements AOP-7E, Main Turbine Malfunction. May also implement AOP-7F, Loss of Load.
	BOP	Lowers the TBV controller setpoint to just above steam header pressure but not less than 830 PSIA.
	SRO	May inform WEC/Maintenance of the issue.
	SRO	Directs the ATC to insert CEAs and/or borate the RCS.
	SRO	May inform TSO/Generation Dispatch of Downpower.
	ATC	Uses a combination of CEA insertion and RCS boration to lower reactor power and restore T_{COLD} to less than 548°F.
	ATC	May equalize Boron per OP-3.
	SRO	Determines Tech Spec LCO 3.4.1A is applicable until RCS Temperature is restored to less than 548°F and LCO 3.4.9.A until Pressurizer Level is restored to less than 225".

Examiner notes:

Event concludes when a spurious SGIS occurs If SRO's understanding of Technical Specification applicability is not clearly observable, follow-up questioning may be required upon completion of the scenario.

NOTE TO EXAMINER

Cue Booth Operator to initiate Event #4, Spurious SGIS, when desired.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #4**	OP-Test # **2023**

Event #4	**Spurious SGIS / EOP-0**	**C-ALL**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC/BOP	Recognizes multiple alarms and notifies the Unit Supervisor.
	BOP	If multiple alarms are reported, determines RPS is calling for a trip.
	ATC	Attempts to trip the reactor.

Examiner notes:

Event concludes when the RO determines that an ATWS has occurred.

NOTE TO EXAMINER
Event #5, ATWS, is set to activate at time zero and will occur automatically.

Event #5	**ATWS**	**C-ATC/SRO, MC-ATC**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC	Determines RPS has failed to automatically trip the reactor and an ATWS condition exists.
	SRO	Directs the ATC to trip the reactor.
	ATC	Depresses the reactor trip pushbuttons on 1C05 and determines the reactor has still failed to trip. Performs the EOP-0 alternate actions to trip the reactor by opening the 12A and 13A 480V Bus Feeder Breakers to de-energize the CEDM MG Sets.
	ATC	**CRITICAL TASK** Trips the reactor within 1 minutes of the PROT CH TRIP alarm.
	ATC/BOP	Verifies the reactor is tripped and notifies the Unit Supervisor.
	SRO	Directs the crew to implement EOP-0.

Examiner notes:

Event concludes when the reactor is tripped, and EOP-0 is implemented.

NOTE TO EXAMINER
Event 6, LOCA, is set to automatically insert on the reactor trip.

Event #6	**LOCA**	**C-ALL**

Time	Position	Applicant's Actions or Behavior
	ATC	Determines Reactivity Control Safety Function is complete.
	BOP	Determines Turbine Trip Safety Function is complete.
	BOP	Determines Vital Auxiliaries Safety Function is complete.
	ATC	Performs alternate actions to isolate Letdown due to lowering Pressurizer level. Informs the SRO that Pressure and Inventory Control is not met due to low PZR level and Pressure.
	ATC	Verifies the SIAS actuation.
	ATC	**CRITICAL TASK** Trips 11A & 12B or 11B & 12A RCPs when RCS pressure decreases to <1725 PSIA prior to RCS pressure reaching 1300 PSIA.
	BOP	Initiates AFW flow due to the Spurious SGIS. Depending on timing reports Core and RCS Heat Removal met.
	ATC/BOP	Performs the alternate actions to start the idle Containment Air Cooler and open all CAC SRW emergency outlet valves. Informs the SRO that Containment Environment is not met.
	ATC/BOP	Determines Radiation Levels External to Containment is complete.
	BOP	Determines that low suction pressure alarm is in and/or AFW flow is not indicated, and the AFW Pump may be cavitating. Reports Core and RCS Heat Removal Safety Function Cannot Be Met due to no Main or Aux Feedwater.
	SRO	Evaluates the EOP-0 flowchart and recommends the implementation of EOP-8. Directs implementation of EOP-8.

Examiner notes:

Event concludes when an AFW Suction Line Blockage occurs.

NOTE TO EXAMINER

Event #7, AFW Suction Blockage, is set to automatically insert 6 minutes after the reactor trip.

Event #7	**AFW Common Suction Failure / EOP-8**	**M-ALL**

Time	**Position**	**Applicant's Actions or Behavior**
	SRO	Directs Chemistry to perform samples on both S/Gs and place the Hydrogen Monitors in service.
	ATC/BOP	Evaluates Resource Assessment Table. Determines RC-1 Met, VA-1 Met, PIC-4 Met, HR-2 Not Met, CE-1 Met, RLEC-1 Met (Based on WRNGM indications could call RLEC-2 Not Met). Informs the SRO of assessment results.
	SRO	Determines EOP-8 priority is HR-2, and then PIC-4, CE-1, RC-1, VA-1, RLEC-1, Crew will commence HR-2 and PIC-4.
	ATC	Secures the remaining RCPs.
	BOP	Minimizes S/G inventory loss by securing S/G Blowdown.
	BOP	Commences a rapid RCS cooldown, not to exceed 100°F in any one-hour period, to meet OTCC initiation condition.
	BOP	Continues to pursue any source of AFW. May direct aligning the fire main system to 13 AFW Pump.
	BOP	When SGIS A BLOCK PERMITTED and SGIS B BLOCK PERMITTED alarms on 1C03: • Blocks 11 S/G SGIS by placing HS-4042 to BLOCK • Verifies SGIS A BLOCKED alarms on 1C03 • Blocks 12 S/G SGIS by placing HS-4047 to BLOCK • Verifies SGIS B BLOCKED alarms on 1C03

Examiner notes:

Event #7 continues on next page.

Required Operator Actions		Form 3.3-2
Calvert Cliffs Nuclear Power Plant	**Scenario #4**	OP-Test # **2023**

Event #7	**AFW Common Suction Failure / EOP-8**	**M-ALL**

Time	**Position**	**Applicant's Actions or Behavior**
	ATC	May prepare for OTCC prior to S/G levels reaching -350". • Turns all Pressurizer heaters to OFF • Verifies letdown isolated by shutting CVC-515-CV and CVC-516-CV • Starts 12 HPSI Pump
	BOP	Places the Main Steam Upstream Drain MOV handswitch, 1-HS-6622, in Close. May direct an Equipment Operator to manually isolate the MOVs.
	ATC	May direct WEC to locally initiate SIAS A6 and B6 signals.
	SRO	Notes S/G levels below -350". Directs the crew to initiate OTCC.
	SRO	May direct the implementation of HR-4 for OTCC.
	ATC	Verifies both PORV Block MOVs are open.
	ATC	Opens both PORVs using HS-1402 and HS-1404.
	ATC/BOP	**CRITICAL TASK** Initiates OTCC when both S/G levels are < (-)350" prior to CET temperatures reaching 560°F after Heat Removal capability is lost.

Examiner notes:

The scenario will terminate after the Critical Task of initiating OTCC has been completed.
After scenario ends, if desired by Examiner, ask SRO follow-up Tech Spec questions.

SHIFT TURNOVER INFORMATION SHEET [B0459]

Date: Today

Station: Calvert Cliffs

Unit: 1	**Mode:** Online	**% Rx Power:** 100	**MWE:** 921
Days On-Line (or Outage): 60		**On-Line (or Outage) Risk Level:** Green	
Off Normal Trends:			
Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow			

Unit: 2	**Mode:** Online	**% Rx Power:** 100	**MWE:** 941
Days On-Line (or Outage): 230		**On-Line (or Outage) Risk Level:** Green	
Off Normal Trends:			
Production: (include activities through 0900 hrs of next non-holiday business day, start and end times with dates (if not the current day), LCO if applicable, Identifier of step 4.2.4.2 if applicable, On-Line Risk if not Green. Example of desired format is: 'A' Isolation Condenser sensor calibration, 11/01 0700 -11/02 1500, 7 day LCO, (HT), OLR Yellow 23 AFW PUMP			

Station Event-Free Days: 691 Reactivity Management Event-Free Days: 197 Configuration Control Event-Free Days: 206 Critical Component Failure Clock Days: 103 Clearance & Tagging Event-Free Days: 691	**Significant Event Reporting:** (on the first business day following a weekend or holiday include the events since the last business day): No Significant Events
Station Duty Manager: Heath Crockett	

SHIFT TURNOVER INFORMATION SHEET [B0459]

MISCELLANEOUS	UNIT 1	UNIT 2
S/G Blowdown Status	100 gpm to CW OI-8A Sect 6.7	100 gpm to CW OI-8A Sect 6.7
VCT Pressure Band	35 – 41 psig **H2**	33 – 39 psig **H2**

SPENT FUEL EQUIPMENT CHECKOUTS:		
SFHM PE 0-081-01-O-Q	New Fuel Elevator OI-25B App A	SF Insp. Elev. OI-25B App B
Last done Two Months Ago **{C93668376}** **PMC-18-107842 extended to semi -annually (DDD Next Year)**	**6 Months Ago**	**9 Months Ago**

COMMON

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. 23 AFW Pump is OOS for bearing replacement, back in 16 hours.

SHIFT TURNOVER INFORMATION SHEET [B0459]

UNIT 1					
Max Header Pressure PE 1-12-21-O-M SW PUMP		OI-29 Value	STP O-73A Quarterly Value (Rolling past 3 quarters) (Date Format – MM/DD/YY)		
	11	32.9 psig Yesterday Sec 6.39	32.8 Yesterday	32.9 psig 3 Months Ago	33.2 psig 6 Months Ago
	12	30.7 psig Yesterday Sec 6.46	30.7 psig Yesterday	30.8 psig 3 Months Ago	30.6 psig 6 Months Ago
	13 (11 Hdr)	32.0 psig 2 Weeks Ago Sec 6.39			
	13 (12 Hdr)	30.2 psig Yesterday Sec 6.46	29.6 psig Yesterday	30.4 psig 3 Months Ago	30.6 psig 6 Months Ago

LONG TERM NOTES:

1. None.

SHORT TERM NOTES:

1. None.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-SRO Admin1

Facility: Calvert Cliffs 1 & 2 **JPM Number:** SRO Admin1

Alternate Path: No

Task Number: 204.034

Task Title: Demonstrate the ability to manage the operating crew's qualifications, requalifications, and training.

Task Standard: Candidate circles NO and documents that the licensee failed to meet the Active License hour requirements per calendar quarter and that the required Plant Tour was not signed off as complete on the Examinee's Cue Sheet.

K/A Reference: 2.1.4 (3.8) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

Method of Testing: Actual Performance-Classroom

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. OP-AA-105-102, NRC Active License Maintenance, Rev 17

JPM Setup Instructions:

1. Consumable copy of OP-AA-105-102, NRC Active License Maintenance, Rev 17
2. Fill out OP-AA-105-102, Attachment 2 up to, but not including, Shift Manager's Approval for a fictitious SRO License holder.
3. In "Hours on Shift" table, section 5.0
   - Enter 1st shift of 12 hrs. as Unit Supervisor in quarter 3
   - Enter 2nd shift of 12 hrs. as Unit Supervisor in quarter 4
   - Enter 3rd shift of 12 hrs. as Reactor Operator in quarter 4
   - Enter 4th shift of 12 hrs. as Unit Supervisor in quarter 4
   - Enter 5th shift of 12 hrs. as Unit Supervisor in quarter 4
   - Do not sign for the plant tour.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. You are the Shift Manager
2. An SRO is in the process of license reactivation
3. OP-AA-105-102, Attachment 2, Reactivation of License Log, is filled out up to the point of Shift manager review for the licensee.

Initiating Cue:

1. The Shift Operation Superintendent directs you to perform a Shift Manager review of OP-AA-105-102, Attachment 2 for the SRO licensee and document the results on this Cue Sheet.
2. Are there any questions? You may begin.

Can Attachment 2 be signed? (Circle one)

YES NO

If No, List the reason(s) why.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
CUE	Provide the Examinee the provided marked up copy of OP-AA-105-102.			
	Review OP-AA-105-102, Attachment 2	Reviews OP-AA-105-102, Attachment 2	—	—
Evaluator Comment				
4.2.1	Check that hours on shift are in the same calendar quarter.	Notes 12.0 hours listed for first shift are in Q3 and cannot be counted towards license re-activation.	—	—
Evaluator Comment				
4.2.1	Check that hours on shift are completed in the position to which the individual will be assigned.	Notes 12.0 hours listed for third shift are in the RO position and cannot be counted towards license re-activation.	—	—
Evaluator Comment				
* 4.2.1	Check that licensee has the required 40 hours.	**CRITICAL STEP*** Determines that licensee does NOT have adequate hours to meet the 40 hour requirement. **Circles NO and writes that licensee does not meet the 40 hour requirement (or similar wording) on the Examinee's Cue Sheet.**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 4.2.1	Verifies Plant Tour completed per step 4.b.	**CRITICAL STEP*** Determines that Plant Tour date and signature are not completed. **May circle NO if not already circled and writes that plant tour is not signed off (or similar wording) as complete on the Examinee's Cue Sheet.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when candidate circles NO and documents that the licensee does not meet the 40-hour watch requirement and that the required Plant Tour was not signed off as complete on the Examinee's Cue Sheet. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: SRO Admin1

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

_____

_____

_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. You are the Shift Manager
2. An SRO is in the process of license reactivation
3. OP-AA-105-102, Attachment 2, Reactivation of License Log, is filled out up to the point of Shift manager review for the licensee.

Initiating Cue:

1. The Shift Operation Superintendent directs you to perform a Shift Manager review of OP-AA-105-102, Attachment 2 for the SRO licensee and document the results on this Cue Sheet.
2. Are there any questions? You may begin.

Can Attachment 2 be signed? (Circle one)

YES NO

If No, List the reason(s) why.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-SRO Admin2

Facility: Calvert Cliffs 1 & 2 **JPM Number:** SRO Admin2

Alternate Path: No

Task Number: 204.025

Task Title: Determine whether a reportable event has occurred.

Task Standard: This JPM is complete when LS-AA-1150 Form is filled out through the description block for a 4-hour Non-Emergency RPS Actuation report.

K/A Reference: 2.1.38 (3.8) Knowledge of the station's requirements for verbal communications when implementing procedures.

Method of Testing: Actual Performance-Classroom

Validation Time: 25 minutes

Time Critical Task: No

References and Tools Required:

1. LS-AA-1010, Rev 037, Table of Contents Exelon Reportability Reference Manual.
2. LS-AA-1020, Rev 034, Reportability Tables and Decision Trees.
3. LS-AA-1110, Rev 033, Safety (SAF).
4. LS-AA-1150, Rev 003, Reactor Plant Event Notification Worksheet.

JPM Setup Instructions:

1. Use procedure binders from the simulator and replace pages as needed.
2. Consumable copy of LS-AA-1020, pages 5, 91-94.
3. Consumable copy of LS-AA-1110, pages 20-22.
4. Consumable copy of LS-AA-1150, pages 1-3.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit 2 holding at 10% power due to a chemistry hold following reactor startup.
2. At 0800 this morning an IM tech was performing an STP on Channel C RPS when he inadvertently manipulated a switch on Channel B and caused an automatic reactor trip.
3. This error has been determined to be an HU error with no Fitness for Duty concerns.
4. You are performing the duties of the Shift Manager.

Initiating Cue:

1. Time is currently 0830 and you are to determine if this event is reportable.
2. If determined to be reportable then determine earliest time requirements and fill out any forms required.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES				
Step	LS-AA-1020, Operations Decision Tree, page 91	Determines YES for SAF 1.5, 1.6, and 1.7. All other blocks are NO in the flow chart.	—	—
Evaluator Comment				
* Step	LS-AA-1020, Reportability Tables, page 5	**CRITICAL STEP*** **Determines required under 10CFR50.72(b)(2)(iv).** **Checks 50.72 NON-EMERGENCY on LS-AA-1150.**	—	—
Evaluator Comment				
* Step	LS-AA-1020, Reportability Tables, page 5	**CRITICAL STEP*** **Determines NRC Operations Center as Recipient of ENS report within 4 hours.** **Checks RPS Actuation on LS-AA-1150.**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* Step	LS-AA-1150	**CRITICAL STEP*** Notification Time - prior to 1200 Facility - **CCNPP** Unit - **2** Name of Caller - Trainee Name Call Back - 410-495-5201 Event Time - **0800 EST** Event Date - **Today's Date** Power/Mode (at time of event)-**10% Mode 1** Power/Mode (at time of Notification) – **0% Mode 3** Checkboxes – • **4-Hr. Non-Emergency 10 CFR 50.72.(b)(2)** • **(iv)(B)RPS Actuation (scram)** Description - Brief description of event.	__	__
Evaluator Comment				
TERMINATING CUE: This JPM is complete when LS-AA-1150 Form is filled out through the description block for a 4-hour Non-Emergency RPS Actuation report. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: SRO Admin2

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

_____

_____

_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit 2 holding at 10% power due to a chemistry hold following reactor startup.
2. At 0800 this morning an IM tech was performing an STP on Channel C RPS when he inadvertently manipulated a switch on Channel B and caused an automatic reactor trip.
3. This error has been determined to be an HU error with no Fitness for Duty concerns.
4. You are performing the duties of the Shift Manager.

Initiating Cue:

1. Time is currently 0830 and you are to determine if this event is reportable.
2. If determined to be reportable then determine earliest time requirements and fill out any forms required.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-SRO Admin3

Facility: Calvert Cliffs 1 & 2 **JPM Number:** SRO Admin3

Alternate Path: No

Task Number: 210.003

Task Title: Perform the initial review of a completed STP.

Task Standard: This JPM is complete when STP O-73H-2 Acceptance Criteria for Step 6.2 is completed, and any required actions are identified.

K/A Reference: 2.2.12 (4.1) Knowledge of surveillance procedures.

Method of Testing: Actual Performance-Classroom

Validation Time: 14 minutes

Time Critical Task: Yes

References and Tools Required:

1. STP O-73H-2 (Rev 01500)
2. Tech Spec 3.7.3

JPM Setup Instructions:

1. STP O-73H-2 placekeeping marks for Steps 4.0 and 5.0 completed.
2. Tables and data in Step 6.2 completed per the attached.
3. STP O-73H-2 placekeeping marks for Step 6.2 completed up to 6.2.BF.
4. WC-AA-111 requirements in Step 6.2.BF removed.
5. Attachment 1 of STP O-73H-2 included.

CAUTION
This Section operates **BOTH** Unit One **AND** Unit Two AFW components. Use good STAR techniques to identify and ensure the correct component is operated.

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117]** **INITIALS**

Date: TODAY Time: NOW

A. **VERIFY** Reactor Power level, as follows: **[B0848]**

1. **IF** maximum allowable Reactor Thermal Power is 2737 MWth,
THEN CHECK Q power is less than 95% power using CH A-D % PWR, 2-JI-005, 2-JI-006, 2-JI-007, 2-JI-008 on 2C05,
AND NOT trending towards 95%. O

N/A **IF** maximum allowable Reactor Thermal Power is 2700 MWth,
THEN CHECK Q power is less than 93.5% power using CH A-D % PWR, 2-JI-005, 2-JI-006, 2-JI-007, 2-JI-008 on 2C05,
AND NOT trending towards 93.5%. N/A

NOTE
Computer Server Group 5 contains Powertrax values.

B. **OBTAIN AND VERIFY** acceptable, latest T_q, per the following:
(N/A if **NOT** in Mode 1) **[B0848]** O

1. **CHECK** time and date on the following Plant Computer points are within last 6 minutes: O

a. POWERTRAX LAST INPAX EXECUTION TIME, 2PTTIMEP O

b. POWERTRAX LAST INPAX EXECUTION DATE, 2PTDATEP O

2. **CHECK BOTH** T_q UPPER **AND** T_q LOWER values are less than 0.015. O

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

C. **CALCULATE** F_rT test limit, as follows: (N/A if **NOT** in Mode 1) **[B0848]** O

1. 1.65 (Current COLR F_rT limit) ÷ 1.002 = 1.6467 (F_rT test limit) O

(Example 1.65 ÷ 1.002 = 1.6467)

NOTE
Plant Computer point 2PTFR is used in the following step.

2. **CHECK** current F_rT value in the POWERTRAX VALUES display from step B, is less than F_rT test limit. 1.53 O

D. **PERFORM** an Independent Licensed Operator Verification of steps A through C, as applicable.

Brian Tuttle (Independent Verifier), TODAY (Date)

E. **ENSURE** Component Engineering (CE) is ready for testing. (N/A if Component Engineering (CE) is unavailable or no testing required) O

F. **OPEN** 23 AFW PUMP SUCTION PI-4542 ISOLATION VALVE, 2-AFW-1067. O

G. **OPEN** 4544-PI ROOT. 2-AFW-1068 O

H. **VERIFY** 21 S/G Flow Controller, 2-FIC-4525A, set at 150 GPM. O

I. **VERIFY** 22 S/G Flow Controller, 2-FIC-4535A, set at 150 GPM. O

J. **RECORD** 23 AFW Pump suction pressure: O

TEST GAUGE: 32.5 PSIG
(20 PSIG MIN)

N/A **IF** pressure is < 20 PSIG
THEN notify Control Room Supervisor.
(N/A **IF** pressure is > 20 PSIG) N/A

K. **ENSURE** the following sightglasses indicate an oil level as follows for 23 AFW Pump:

1. Pump inboard and outboard bearings within white band. O
2. Motor inboard and outboard bearings at least 50%. O

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

ENSURE an ER-AA-470, Fatigue and Transient Monitoring Program, entry is made due to initiation of AFW flow to S/G's. O

CAUTION
Initiation of AFW flow to the S/G's will affect core reactivity and Q power should be monitored closely.

START 23 AFW Pump by momentarily placing handswitch 2-HS-4540 to START. O

CAUTION
23 AFW Pump must have at least 160 GPM flow to the Steam Generators prior to isolating the recirc back to the suction valve, 2-AFW-185.

[PC] ENSURE 23 AFW Pump flow to Steam Generators is greater than or equal to 160 GPM,
THEN UNLOCK AND SHUT 23 AFW PP RECIRC TO PP SUCT, 2-AFW-185. O

CHECK S/G levels are being properly maintained between ±10 inches. O

NOTE
Flow rates will indicate approximately 140 GPM greater on ultra sonic flow meter than FICs, 2-FIC-4525A/4535A, due to recirc to 12 CST with 23 AFW PP RECIRC TO PP SUCT ISOL, 2-AFW-185 shut.

Flows should be balanced between controllers to feed equal amounts of AFW to the Steam Generators.

ADJUST BOTH 21 S/G Flow Controller 2-FIC-4525A **AND** 22 S/G Flow Controller 2-FIC-4535A to obtain an average suction flowrate of 420 (410-425) GPM.
(5 minute average as read on Ultrasonic Flowmeter.) O

RECORD 23 AFW Pump dynamic suction pressure: O

TEST GAUGE: 21.75 PSIG
(20 PSIG MIN)

N/A **IF** pressure is < 20 PSIG
THEN notify Control Room Supervisor.
(N/A **IF** pressure is > 20 PSIG) N/A

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

(7) **CHECK** S/G levels are being properly maintained between ±10 inches. O

NOTE
Throttling of gauge isolation valves to dampen gauge needle oscillations is permissible.

(8.) **WHEN** 23 AFW Pump has been running for at least 5 minutes with an average flowrate of 420 (410-425) GPM (5 minute average as read on the Ultrasonic Flowmeter), **THEN RECORD** the following data: O

PARAMETER	ACCEPTABLE RANGE	READING
Suction Pressure (TEST GAUGE)	N/A	21.75 PSIG
Discharge Pressure (TEST GAUGE)	N/A	1081.9 PSIG
Pump Suction Pipe Temperature	N/A	60.5 °F
Pump Suct Flowrate (5 minute average)	420 GPM (410-425)	419.9 GPM
21 S/G Flow Controller output signal (2-FIC-4525A)	N/A	70 %
22 S/G Flow Controller output signal (2-FIC-4535A)	N/A	67.5 %
21 Steam Generator Pressure (2-PI-1013A)	N/A	880 PSIA
22 Steam Generator Pressure (2-PI-1023A)	N/A	880 PSIA
23 AFW PP Recirc flowrate (5 minute average)	N/A	129.3 GPM

6.2.S 23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued) INITIALS

NOTE
Vibration readings shall be taken in in/sec peak.

(S) **RECORD** vibration accelerometer readings. O

PARAMETER	ACTION RANGE	ALERT RANGE	NORMAL RANGE	READING
Pump inboard horizontal vibration (PIH) REF VALUE 0.04	>0.240	>0.100 and ≤0.240	≤0.100	.045 IPS
Pump inboard vertical vibration (PIV) REF VALUE 0.04	>0.240	>0.100 and ≤0.240	≤0.100	.039 IPS
Pump outboard horizontal vibration (POH) REF VALUE 0.04	>0.240	>0.100 and ≤0.240	≤0.100	.041 IPS
Pump outboard vertical vibration (POV) REF VALUE 0.05	>0.300	>0.125 and ≤0.300	≤0.125	.044 IPS
Pump outboard axial vibration (POA) REF VALUE 0.045	>0.270	>0.110 and ≤0.270	≤0.110	.028 IPS

(T) **IF** thermography is required,
THEN DIRECT Component Specialist to perform thermography. O

(U) **CALCULATE** pump ΔP by subtracting pump suction pressure from pump discharge pressure: O

ΔP = 1081.9 (Disch Press) (Step R) - 21.75 (Suct Press) (Step R) = 1060.2 (D/P) PSID

(V) **DETERMINE** the ΔP multiplication factor from ATTACHMENT 1, D/P TO HEAD CONVERSION TABLE, using the suction temperature taken in step S. O

Multiplication Factor: 2.309

(W) **CALCULATE** 23 AFW Pump Total Developed Head Below: O

1060.2 (ΔP) (Step S) X 2.309 (mult factor) (Step T) = 2448 FT (TDH)
(Between ≥2468.3 and ≤2812.2 Feet)
(Alert range ≥2468.3 and ≤2539.2 Feet)

(X) Independently **CHECK** calculations **AND** Multiplication Factor determination in steps T through V. K

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

N/A **IF** Section Section 6.5, 23 AFW PUMP CURVE TEST, is to be performed,
THEN PROCEED to Step 6.5.O.
(N/A if not performing Section 6.5, 23 AFW PUMP CURVE TEST) N/A

Y. **ADJUST** 22 S/G Flow Controller 2-FIC-4535A to 100 GPM. O

CAUTION
Motor driven pump is limited to 575 GPM.

Z. **ADJUST** 21 SG Flow Control Valve, 2-FIC-4525A as necessary to ≥300 GPM **AND RECORD** Flow Rate indicated on 2-FIC-4525A: O

305 GPM
2-FIC-4525A
(Min ≥300 GPM)

AA **ADJUST** 21 S/G Flow Controller 2-FIC-4525A to 100 GPM. O

CAUTION
Motor driven pump is limited to 575 GPM.

AB **ADJUST** 22 SG Flow Controller, 2-FIC-4535A as necessary to ≥300 GPM **AND RECORD** Flow Rate indicated on 2-FIC-4535A: O

105 GPM
2-FIC-4535A
(Min ≥300 GPM)

AC. **ADJUST** 22 S/G Flow Controller 2-FIC-4535A to 100 GPM. O

AD. **LOCK OPEN** 23 AFW PP RECIRC TO PP SUCT, 2-AFW-185. O

CAUTION
Lowering of AFW flow to the S/G's will affect Core reactivity and Q power should be monitored closely.

AE. **STOP** 23 AFW Pump by momentarily placing handswitch 2-HS-4540 to STOP. O

AF. **ENSURE** Technical Specification 3.7.3 requirements are met for 13 AFW Pump being Out of Service to Unit One. MD
SRO

AFW PUMP LARGE FLOW TEST

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

AG. **SHUT** Unit 1 Motor Train Block Valves:

- 11 SG AFW BLOCK VLV, 1-AFW-4522-CV — O
- 11 SG AFW BLOCK VLV, 1-AFW-4523-CV — O
- 12 SG AFW BLOCK VLV, 1-AFW-4532-CV — O
- 12 SG AFW BLOCK VLV, 1-AFW-4533-CV — O

AH. **OPEN** U1 TO U2 AFW X-CONN VLV, 1-AFW-4550-CV. — O

AI. **CHECK OPEN** 4542-PS & PI ROOT, 1-AFW-1110. — O

AJ. **CHECK OPEN** 4542-PI ISOL, 1-AFW-1111. — O

AK. **ADJUST** 21 S/G Flow Controller, 2-FIC-4525A to 150 GPM. — O

AL. **ADJUST** 22 S/G Flow Controller, 2-FIC-4535A to 150 GPM. — O

AM. **RECORD** 13 AFW Pump suction pressure: — O

1-PI-4542: 32.5 PSIG
(20 PSIG MIN)

N/A **IF** pressure is < 20 PSIG
THEN notify Control Room Supervisor.
(N/A **IF** pressure is > 20 PSIG) — N/A

AN. **ENSURE** the following sightglasses indicate an oil level as follows for 13 AFW Pump:

- Pump inboard and outboard bearings within white band. — O
- Motor inboard and outboard bearings at least 50%. — O

AO. **ENSURE** an ER-AA-470, Fatigue and Transient Monitoring Program, entry is made due to initiation of AFW flow to S/G's. — O

CAUTION
Initiation of AFW flow to the S/G's will affect core reactivity and Q power should be monitored closely.

AP. **START** 13 AFW Pump by momentarily placing handswitch 1-HS-4540 to START. — O

6.2 **23 AND 13 AFW PUMP FLOW VERIFICATION [B2117] (Continued)** **INITIALS**

CAUTION
13 AFW Pump must have at least 160 GPM flow to the Steam Generators prior to isolating 13 AFW PP RECIRC TO PP SUCT ISOL, 1-AFW-185.

AQ. **[PC] ENSURE** 13 AFW Pump flow to Steam Generators is greater than or equal to 160 GPM, **THEN UNLOCK AND SHUT** 13 AFW PP RECIRC TO PP SUCT ISOL, 1-AFW-185. O

NOTE
Flows should be balanced between controllers to feed equal amounts of AFW to the Steam Generators.

CAUTION
Motor driven pump is limited to 575 GPM.

AR. **ADJUST BOTH** 21 S/G Flow Controller 2-FIC-4525A **AND** 22 S/G Flow Controller 2-FIC-4535A to obtain a total flowrate of ≥300 GPM **AND RECORD** Flow rates: O

150 GPM (2-FIC-4535A) + 150 GPM (2-FIC-4525A) = 300 MIN ≥ 300 GPM

AS. **CHECK** S/G levels are being properly maintained between ±10 inches. O

AT. **RECORD** 13 AFW Pump dynamic suction pressure: O

1-PI-4542: 25.5 PSIG
(20 PSIG MIN)

N/A **IF** pressure is < 20 PSIG **THEN** notify Control Room Supervisor. (N/A **IF** pressure is > 20 PSIG) N/A

AU. **LOCK OPEN** 13 AFW PP RECIRC TO PP SUCT ISOL, 1-AFW-185. O

AV. **IF** thermography is required, **THEN DIRECT** Component Specialist to perform thermography. O

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. You are performing the duties of the Unit-2 Unit Supervisor.
2. 21 AFW Pump is currently aligned for Automatic Operation and 22 AFW Pump is currently aligned for Standby Operation.
3. STP O-73H-2 is in progress. Only Section 6.2, 23 and 13 AFW Pump Flow Verification, is being performed.
4. Section 6.2 of STP O-73H-2 has been completed with exception of Acceptance Criteria review.

Initiating Cue:

1. You are to perform the Supervisory Review by completing Step 6.2.BF, Acceptance Criteria.
2. Document any further actions required, if any, as a result of the Supervisory Review below. Notifications, if required, are not to be made verbally. Notifications, if required, should be documented below as well.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
STP	STP O-73H-2, Step 6.2.BF, Acceptance Criteria.	Identifies next step to complete is Step 6.2.BF.	—	—
Evaluator Comment				
* BF.1	Were 23 AFW PP INBD AND OUTBD bearing vibration accelerometer readings less than ACTION RANGE limit as recorded in Step 6.2.S? (N/A if NOT tested in step 6.2.S)	**CRITICAL STEP*** Reviews vibration accelerometer readings in Step 6.2.S. Determines all readings were less than ACTION RANGE. ***Circles YES**	—	—
Evaluator Comment				
* BF.2	Did 23 AFW Pump develop a Total Developed Head (TDH) of at least 2468.3 Feet and no greater than 2812.2 Feet in Step 6.2.V? (Reference Value: 2730.3 Feet)	**CRITICAL STEP*** Reviews value calculated in Step 6.2.V. Determines TDH developed was 2448 Feet. ***Circles NO**	—	—
Evaluator Comment				
* BF.3	Did 23 AFW Pump feed 21 SG at ≥300 GPM in Step 6.2.Z?	**CRITICAL STEP*** Reviews value recorded in Step 6.2.Z. Determines 23 AFW Pump feed rate to 21 SG was 300 GPM. ***Circles YES**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* BF.4	Did 23 AFW Pump feed 22 SG at ≥300 GPM in Step 6.2.AB?	**CRITICAL STEP*** Reviews value recorded in Step 6.2.AB. Determines 23 AFW Pump feed rate to 22 SG was 105 GPM. ***Circles NO**	—	—
Evaluator Comment				
* BF.5	Did 13 AFW Pump feed a combined flowrate of ≥300 GPM in Step 6.2.AR?	**CRITICAL STEP*** Reviews value recorded in Step 6.2.AR. Determines 13 AFW Pump combined feed rate was 300 GPM. ***Circles YES**	—	—
Evaluator Comment				
* BF.6	Was closure of 2-AFW-190 verified in Step 6.2.AZ? (N/A if closure was verified PER Step 6.2.BA or test equipment not installed.)	**CRITICAL STEP*** Reviews indications received in Step 6.2.AZ. Determines 2-AFW-190 closed. ***Circles YES**	—	—
Evaluator Comment				
* BF.7	Was leakrate LESS THAN OR EQUAL TO 3 GPM in step 6.2.BA verifying closure of 2-AFW-190? (N/A if closure was verified PER Step 6.2.AZ or not required.)	**CRITICAL STEP*** Reviews indications received in Step 6.2.BA. Determines Step BA was not performed since Step AZ was performed. ***Circles N/A**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* BF.8	This test is considered satisfactory if YES OR N/A was answered in the steps above.	**CRITICAL STEP*** Reviews answers in BF.1-7. Determines Steps BF.2 and BF.4 were answered NO. ***Circles UNSAT**	—	—
Evaluator Comment				
BF.8.a	IF unsat, THEN:	Determines step is applicable.	—	—
Evaluator Comment				
CUE	If Examinee is attempting to notify the Shift Manager (SM), record any further actions required on Cue Sheet.			
* BF.8.a 1st Bullet	NOTIFY SM.	**CRITICAL STEP*** ***Marks/records action of notifying the Shift Manager, or similar wording.**	—	—
Evaluator Comment				
* BF.8.a 2nd Bullet	DECLARE affected equipment inoperable.	**CRITICAL STEP*** ***Marks/records action of declaring the 23 AFW Pump, the motor-driven pump, inoperable, or similar wording.**	—	—
Evaluator Comment				
CUE	After Examinee determines Tech Spec actions are required, provide Tech Spec 3.7.3.			

STEP	ELEMENT	STANDARD	SAT	UNSAT
* BF.8.a 3rd Bullet	TAKE action as required by Technical Specifications.	**CRITICAL STEP*** Determines TS 3.7.3 Condition B applies. *** Marks/records action of aligning the 22 AFW Pump, the standby steam-driven pump, for Automatic Operation within 72 hours, or similar wording.** ***Marks/records action of returning 23 AFW Pump, the motor-driven pump, to OPERABLE status within 7 days, or similar wording.**	—	—
Evaluator Comment				
* BF.8.b	INITIATE an Issue Report for all equipment deficiencies.	**CRITICAL STEP*** *** Marks/records action of initiating an Issue Report, or similar wording.**	—	—
Evaluator Comment				
BF.8.c	INITIATE an Issue Report for components tested in this section that exceeded ALERT RANGE to evaluate pump condition and include need to be placed in Supplemental Program for increased testing frequency. (N/A if NO component test in this section exceeded the Alert Range)	Reviews vibration accelerometer readings in Step 6.2.S. Determines all vibration readings were in Normal Range. Reviews Total Developed Head calculations in Step 6.2.V. Determines Total Developed Head is in the Alert Range. May mark/record initiate an Issue Report to identify 23 AFW Pump Total Developed Head in the Alert Range.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
BF 8.c.(1)	INFORM IST Engineer of any components that exceed Alert Range (Voice Mail is acceptable) (N/A if NO components in this section exceed the Alert Range)	Determines Total Developed Head is in the Alert range. May mark/record inform the IST Engineer of 23 AFW Pump Total Developed Head in the Alert Range.	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when STP O-73H-2 Acceptance Criteria for Step 6.2 is completed, and any required actions are identified. The Examiner is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: SRO Admin3

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. You are performing the duties of the Unit-2 Unit Supervisor.
2. 21 AFW Pump is currently aligned for Automatic Operation and 22 AFW Pump is currently aligned for Standby Operation.
3. STP O-73H-2 is in progress. Only Section 6.2, 23 and 13 AFW Pump Flow Verification, is being performed.
4. Section 6.2 of STP O-73H-2 has been completed with exception of Acceptance Criteria review.

Initiating Cue:

1. You are to perform the Supervisory Review by completing Step 6.2.BF, Acceptance Criteria.
2. Document any further actions required, if any, as a result of the Supervisory Review below. Notifications, if required, are not to be made verbally. Notifications, if required, should be documented below as well.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-SRO Admin4

Facility: Calvert Cliffs 1 & 2 **JPM Number:** SRO Admin4

Alternate Path: No

Task Number: 204.097

Task Title: Determine appropriate emergency response actions per the ERPIP while maintaining an overview of plant conditions.

Task Standard: This JPM is complete when the candidate has evaluated the plant radiological conditions and determined the conditions for issuing KI are not met for field monitoring teams and met for onsite workers and why per EP-AA-113.

K/A Reference: 2.3.14 (3.8) Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities, such as analysis and interpretation of radiation and activity readings as they pertain to administrative, normal, abnormal, and emergency procedures or to analysis and interpretation of coolant activity, including comparison to emergency plan or regulatory limits (SRO Only).

Method of Testing: Actual Performance-Classroom

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. EP-AA-113, Rev 016, Personnel Protective Actions
2. EP-AA-113-F-03, Rev G, Thyroid Blocking Agent Authorization Form
3. EP-AA-114-F-01, Rev E, PWR Release in Progress Determination Guidance
4. EP-AA-112-100-F-01, Rev AD, Shift Emergency Director Checklist
5. EP-AA-1011 Addendum 3, Rev 8, CCNPP Emergency Action Levels

JPM Setup Instructions:

1. None

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-2 was operating at 100% power.
2. A LOCA into Containment occurred causing an automatic SIAS actuation.
3. All lights are red on RVLMS.
4. Core Exit Thermocouple readings are 530°F.
5. Containment Radiation Monitors are reading 2000 R/hr.
6. The Shift Manager has correctly declared a Site Area Emergency.
7. Field Monitoring Teams have been mobilized by the Shift Dose Assessor.
8. Samples have been taken and total CDE Thyroid Dose is expected to be 30 Rem.
9. Radiation protection reports areas of the auxiliary building have high iodine concentrations.
10. There is no rise on any effluent radiation monitor to the environment.
11. You are the Shift Emergency Director.

Initiating Cue:

1. The Radiation Protection Manager is asking for authorization to administer KI per EP-AA-113, section 4.4, KI Assessment.
2. Using the above plant conditions:

1. Should KI be authorized for the field monitoring teams:	YES	NO
2. Why or Why not?		
3. Should KI be authorized for onsite workers:	YES	NO
4. Why or Why not?		

3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
CUE	Provide the Examinee with EP-AA-113.			
EP-AA-113, Section 4.4, KI Assessment				
1	ASSESS the potential of high thyroid exposure to emergency workers in, or projected to be sent into, areas where the possibility exists of exposure to radioactive iodine as follows:	Determines step is applicable.	—	—
Evaluator Comment				
* 1.A	For Field Monitoring Teams or other Exelon emergency workers working offsite, DETERMINE if either of the following conditions exist: Condition 1 □ There is an Offsite Release in Progress. And □ There has been a loss or potential loss of the Reactor Fuel Clad Barrier per the Emergency Action Levels (EALs). OR Condition 2 □ Dose Assessments project iodine thyroid exposure for emergency workers will be ≥ 50 Rem Committed Dose Equivalent (CDE).	**CRITICAL STEP*** **Determines and records that there has not been an offsite release in progress for Question 2 (Condition 1 not met).** **Determines and records that projected thyroid exposure is less than 50 Rem for Question 2 (Condition 2 not met).**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 1.B	For OSC Emergency Teams and other onsite workers, determine if either of the following conditions exist: Condition 1 Note: Loss or potential loss of the Reactor Fuel Clad barrier per the Emergency Action Levels (EALs) or damaged spent fuel cladding less than 80 days since last irradiated, are good indications of possible high iodine concentrations. Workers will be entering an unknown radiological atmosphere that is suspected to have a high iodine concentration. OR Condition 2 The calculated iodine thyroid exposure (actual or projected) for emergency workers, based on station Radiation Protection procedures or use of the dose assessment program, will be ≥ 50 Rem Committed Dose Equivalent (CDE).	**CRITICAL STEP*** **Determines and records that there has been a loss of the Fuel Clad Barrier for Question 4 (Condition 1).** **Determines and records that areas of the plant have high iodine concentrations for Question 4 (Condition 2).**	—	—
Evaluator Comment				
2	NMP/JAF/Ginna Only	Determines step is NA.	—	—
Evaluator Comment				
* 3	IF the condition A and/or B listed above are met then, RECOMMEND the issuance of one (1) 130 mg KI tablet to each emergency worker affected per day for 10 consecutive days or until directed that the risk no longer exists.	**CRITICAL STEP*** **Determines that condition A is not met and condition B is met.** **Circles NO on Question 1.** **Circles YES on Question 3.**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
TERMINATING CUE: This JPM is complete when the candidate has evaluated the plant radiological conditions and determined the conditions for issuing KI are not met for field monitoring teams and met for onsite workers and why per EP-AA-113. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: SRO Admin4

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-2 was operating at 100% power.
2. A LOCA into Containment occurred causing an automatic SIAS actuation.
3. All lights are red on RVLMS.
4. Core Exit Thermocouple readings are 530°F.
5. Containment Radiation Monitors are reading 2000 R/hr.
6. The Shift Manager has correctly declared a Site Area Emergency.
7. Field Monitoring Teams have been mobilized by the Shift Dose Assessor.
8. Samples have been taken and total CDE Thyroid Dose is expected to be 30 Rem.
9. Radiation protection reports areas of the auxiliary building have high iodine concentrations.
10. There is no rise on any effluent radiation monitor to the environment.
11. You are the Shift Emergency Director.

Initiating Cue:

1. The Radiation Protection Manager is asking for authorization to administer KI per EP-AA-113, section 4.4, KI Assessment.
2. Using the above plant conditions:

1. Should KI be authorized for the field monitoring teams:	YES NO
2. Why or Why not?	
3. Should KI be authorized for onsite workers:	YES NO
4. Why or Why not?	

3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-SRO Admin5

Facility: Calvert Cliffs 1 & 2 **JPM Number:** SRO Admin5

Alternate Path: No

Task Number: 204.097

Task Title: Determine appropriate emergency response actions per the Emergency Plan while maintaining an overview of plant conditions.

Task Standard: This JPM is complete when an EAL classification (SAE) is determined based on given plant conditions, the initial notification form is completed, and the CR Communicator has been requested to notify the ERO and to notify offsite agencies within the Time Critical limit.

K/A Reference: 2.4.41 (4.6) Knowledge of the emergency action level thresholds and classifications.

Method of Testing: Actual Performance-Classroom

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. EP-AA-111 Rev 23 Emergency Classification and PARs.
2. EP-AA-112-F-09 Rev K Emergency PA Announcements.
3. EP-AA-112-100-F-01 Rev AD Shift Emergency Director Checklist.
4. EP-AA-112-100-F-06 Rev Z ERO Notification Form.
5. EP-AA-111-F-12 Rev A Calvert Cliffs PAR Flowchart.
6. EP-MA-114-100 Rev 030 Mid-Atlantic State Local Notifications.
7. EP-MA-114-100-F-01 Rev U State Local Event Notification Form.
8. EP-AA-1011 Addendum 3, Rev 8 CCNPP Emergency Action Levels.

JPM Setup Instructions:

1. Ensure the references and tools required are available to the operator.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit 1 is at 100% power.
2. A feedline rupture in containment occurred and Unit 1 was tripped.
3. No feedwater was able to be established in EOP-0 and the appropriate EOP was implemented.
4. Containment pressure is 6 PSIG.
5. Containment Radiation Monitors (5317A/B) are reading 40 R/hr.
6. Both S/G's are at (-)350 inches and the RO just initiated One-Through-Core-Cooling per the EOP.
7. There are no changes to and no rise of the indicating trends of all effluent radiation monitors.
8. Wind Direction is from 90 degrees; Wind Speed is 5 miles per hours.
9. You are performing the duties of the Shift Manager.
10. **This JPM is Time Critical.**

Initiating Cue:

1. You have been called to the Control Room to review the Emergency Action Levels against the current plant conditions and implement EP-AA-112-100-F-01, Shift Emergency Director Checklist, as necessary.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
EVALUATOR NOTE 1. Steps from the Shift Manager's checklist may be performed in any order other than listed or they may be omitted if not applicable. The steps of this JPM follow the SM checklist in numerical order. 2. The "EAL CLOCK" starts after candidate reads "Initial Conditions" CUE sheet.				
EAL CLOCK TIME START: _____				
EP-AA-112-100-F-01 SHIFT EMERGENCY DIRECTOR CHECKLIST				
1.3	If the event is classified as a Site Area Emergency, then PERFORM the following:	Determines step is applicable.	__	__
Evaluator Comment				
* 1.3.A	RECORD the EAL and declaration time.	**CRITICAL STEP*** ***Writes down FS1** and **the time declared.**	__	__
Evaluator Comment				
* 1.3.B	ANNOUNCE the event classification, possible escalation paths, and declaration time to the Control Room staff.	**CRITICAL STEP*** ***Announces declaration of a Site Area Emergency.** Announces per FS1 at (time declared) for (the reason) and assumes role of Shift Emergency Director. Provides Upgrade Criteria. ***Time declared _____ minus EAL Clock Start Time _____ = ≤ 15 minutes**	__	__
Evaluator Comment				
1.3.C	CALL the Shift Communicator to the Control Room.	Simulates calling the Shift Communicator to respond.	__	__

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Comment				
CUE	Inform operator the Shift Dose Assessor and the Shift RP Tech have been notified.			
1.3.D	If not previously performed and if radiological assessment is required as a result of the emergency condition, then PERFORM the following: CALL the Shift Dose Assessor and the Shift RP Tech to the Control Room.	Simulates calling the Shift Dose Assessor and the Shift RP Tech to respond.	—	—
Evaluator Comment				
1.3.F	Security Related Events, Go to Step 4.1 Security Related Events.	Determines step is not applicable.	—	—
Evaluator Comment				
CUE	If asked: The ERO has NOT already been activated.			
* 1.3.G	If the ERO has not been activated, then DIRECT notification of the ERO using 1, "Actual Event Respond to Facility," or 3, "Actual Event Alternative Facility Response," as appropriate, per EP-AA-112-100-F-06.	**CRITICAL STEP*** Selects ERO Notification Form. **Circles "Calvert Cliffs" and "01A" or "03A" for Simulator Actual Event.** Directs Shift Communicator to activate the ERO Notification system.	—	—
Evaluator Comment				
CUE	Inform operator an extra SRO will perform the Emergency Public Address Announcements, as necessary.			
1.3.H	Select the Emergency Public Address Announcements from the form and DIRECT performance of the public address announcement within 15 minutes of event classification.	Determines step is not applicable based on the cue given.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
1.3.I	DIRECT performance of State/Local notifications within 15 minutes of the event classification as required per the Notifications procedure.	Fills out Notification Form as shown in the following steps, and direct Shift Communicator to transmit.	—	—
Evaluator Comment				
EP-MA-114-100-F-01 STATE/LOCAL EVENT NOTIFICATION FORM				
* 1	CALL STATUS	**CRITICAL STEP*** ***Checks "This is a DRILL"**	—	—
Evaluator Comment				
* 2	AFFECTED STATION	**CRITICAL STEP*** ***Checks "C - CCNPP"**	—	—
Evaluator Comment				
3	AFFECTED UNIT(S)	Checks "A - ONE"	—	—
Evaluator Comment				
* 4	CLASSIFICATION	**CRITICAL STEP*** *** Checks "C - SITE AREA EMERGENCY"**	—	—
Evaluator Comment				
* 5	DECLARED AT	**CRITICAL STEP*** ***Time entered is time Site Area Emergency declared, not current time.** Date is current date.	—	—
Evaluator Comment				
6	THIS REPRESENTS A/AN	Checks "A-INITIAL DECLARATION"	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
7	EMERGENCY ACTION LEVEL (EAL) NUMBER	Records FS1	—	—
Evaluator Comment				
8	A BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT	Checks "B-Fission Product Barrier Degradation"	—	—
Evaluator Comment				
* 9	RADIOLOGICAL RELEASE STATUS	**CRITICAL STEP*** ***Checks "A - NO radiological release in-progress"**	—	—
Evaluator Comment				
10	METEOROLOGICAL DATA: WIND DIRECTION IS FROM: WIND SPEED IS:	Records 90 for Wind Direction and 5 mph for Wind Speed	—	—
Evaluator Comment				
* 11	PROTECTIVE ACTION RECOMMENDATION	**CRITICAL STEP*** ***Checks A - NONE"**	—	—
Evaluator Comment				
* Step	PROVIDE completed form to Shift Communicator and DIRECT him/her to notify State and Local.	**CRITICAL STEP*** Hands completed form to Shift Communicator and directs to notify State and Local agencies. ***Time to Shift Communicator _____ minus time EAL declared _____ = _____ (≤ 15 minutes)**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
TERMINATING CUE: This JPM is complete when an EAL classification (SAE) is determined based on given plant conditions, the initial notification form is completed, and the CR Communicator has been requested to notify the ERO and to notify offsite agencies within the Time Critical limit. No further actions are required. The evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: SRO Admin5

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit 1 is at 100% power.
2. A feedline rupture in containment occurred and Unit 1 was tripped.
3. No feedwater was able to be established in EOP-0 and the appropriate EOP was implemented.
4. Containment pressure is 6 PSIG.
5. Containment Radiation Monitors (5317A/B) are reading 40 R/hr.
6. Both S/G's are at (-)350 inches and the RO just initiated One-Through-Core-Cooling per the EOP.
7. There are no changes to and no rise of the indicating trends of all effluent radiation monitors.
8. Wind Direction is from 90 degrees; Wind Speed is 5 miles per hours.
9. You are performing the duties of the Shift Manager.
10. **This JPM is Time Critical.**

Initiating Cue:

1. You have been called to the Control Room to review the Emergency Action Levels against the current plant conditions and implement EP-AA-112-100-F-01, Shift Emergency Director Checklist, as necessary.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-RO Admin1

Facility: Calvert Cliffs 1 & 2 **JPM Number:** RO Admin1

Alternate Path: No

Task Number: 058.005

Task Title: Obtain instrument readings from RPS Channels

Task Standard: This JPM is complete when the operator determines RPS channel D Instrument readings and determines the channel checks are UNSAT for S/G Pressure and SAT for S/G Level, Pressurizer Pressure and Containment Pressure.

K/A Reference: 2.1.19 (3.9) Ability to use available indications to evaluate system or component status.

Method of Testing: Actual Performance-Classroom

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. OI-6, Rev 02100, Reactor Protection System

JPM Setup Instructions:

1. Consumable copy of OI-6, pages 12-13.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 RCS is at 100%.
2. Due to an issue with the transmitter outputs from RPS Channel D, readings must be obtained using the portable calibration cable.
3. The CRO has obtained the voltage readings from RPS Channel D.
4. S/G Pressure = 4.1 Volts
5. S/G Level = (-)3.72 Volts
6. Pressurizer pressure = (-)4.06 Volts
7. Containment pressure = 1.05 Volts
8. You are performing the duties of an extra Operator.

Initiating Cue:

1. The Shift Manager directs you to calculate RPS Channel D Steam Generator Pressure, Steam Generator Level, Pressurizer Pressure, and Containment Pressure per OI-6, Section 6.6, step 9.
2. Record the values in the table provided.
3. Perform channel checks on the 4 readings and record the results in the table provided.
4. Are there any questions? You may begin.

Indication	Channel D	Channel A	Max Deviation	Channel Check SAT – Circle one
Steam Generator Pressure		880 PSIA	40 PSIA	YES / NO
Steam Generator Level		3 INCHES	6 INCHES	YES / NO
Pressurizer Pressure		2250	60 PSIA	YES / NO
Containment Pressure		0.4 PSIG	2 PSIG	YES / NO

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-6, SECTION 6.6, OBTAIN INSTRUMENT READINGS FROM RPS CHANNELS				
* 9 1st Bullet	Convert the voltage reading to applicable units as follows: S/G pressure = (|VOLTAGE| - 1)x300 = PSIA	**CRITICAL STEP*** **Calculates and records S/G Pressure of 930 PSIA (+/- 10 PSIA). Circles NO for Channel Check.**	—	—
Evaluator Comment				
* 9 2nd Bullet	Convert the voltage reading to applicable units as follows: S/G level = ((|VOLTAGE| - 1)x45)-116.5 = INCHES	**CRITICAL STEP*** **Calculates and records S/G Level of 5.9 Inches (+/- 2 Inches). Circles YES for Channel Check.**	—	—
Evaluator Comment				
* 9 3rd Bullet	Convert the voltage reading to applicable units as follows: Pressurizer pressure = ((|VOLTAGE| - 1)x250)+1500 = PSIA	**CRITICAL STEP*** **Calculates and records Pressurizer Pressure of 2265 PSIA (+/- 15 PSIA). Circles YES for Channel Check.**	—	—
Evaluator Comment				
* 9 4th Bullet	Convert the voltage reading to applicable units as follows: Containment pressure = (VOLTAGE-1)x3.75 = PSIG	**CRITICAL STEP*** **Calculates and records Containment Pressure of .18 PSIG (+/- 1 PSIG). Circles YES for Channel Check.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the operator determines RPS channel D Instrument readings and determines the channel checks are UNSAT for S/G Pressure and SAT for S/G Level, Pressurizer Pressure and Containment Pressure. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: RO Admin1

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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_____

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_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 RCS is at 100%.
2. Due to an issue with the transmitter outputs from RPS Channel D, readings must be obtained using the portable calibration cable.
3. The CRO has obtained the voltage readings from RPS Channel D.
4. S/G Pressure = 4.1 Volts
5. S/G Level = (-)3.72 Volts
6. Pressurizer pressure = (-)4.06 Volts
7. Containment pressure = 1.05 Volts
8. You are performing the duties of an extra Operator.

Initiating Cue:

1. The Shift Manager directs you to calculate RPS Channel D Steam Generator Pressure, Steam Generator Level, Pressurizer Pressure, and Containment Pressure per OI-6, Section 6.6, step 9.
2. Record the values in the table provided.
3. Perform channel checks on the 4 readings and record the results in the table provided.
4. Are there any questions? You may begin.

Indication	Channel D	Channel A	Max Deviation	Channel Check SAT – Circle one
Steam Generator Pressure		880 PSIA	40 PSIA	YES / NO
Steam Generator Level		3 INCHES	6 INCHES	YES / NO
Pressurizer Pressure		2250	60 PSIA	YES / NO
Containment Pressure		0.4 PSIG	2 PSIG	YES / NO

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-RO Admin2

Facility: Calvert Cliffs 1 & 2 **JPM Number:** RO Admin2

Alternate Path: No

Task Number: 098.015

Task Title: PE 1-98-4-O-M Calculate Unit 1 Generator gas leak rate

Task Standard: This JPM is complete when the operator calculates the Main Generator Hydrogen Leak Rate per PE 1-098-04-O-M, within the band specified.

K/A Reference: 2.1.25 (3.9) Ability to interpret reference materials, such as graphs, curves, tables, etc.

Method of Testing: Actual Performance-Classroom

Validation Time: 20 minutes

Time Critical Task: No

References and Tools Required:

1. PE 1-098-04-O-M Rev 00702.
2. Embedded pictures of the Control Room indications for Hydrogen Pressure and Temperature used in the PE.

JPM Setup Instructions:

1. Consumable copy of PE 1-098-04-O-M Rev 00702. Placekeep steps 1 and 2 as complete.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. The performance of a regularly scheduled Main Generator Hydrogen Leak Rate determination per PE 1-098-04-O-M is in progress.
3. The initial data is as follows: Hydrogen Pressure and Temperature are show below; Barometric Pressure = 30.0 INHg; Time = 1400; Date = June 1, 2023.
4. The final data is as follows: Hydrogen Pressure and Temperature are show below; Barometric Pressure = 29.5 INHg; Time = 1400; Date = June 2, 2023.
5. The Plant Computer and OpsCalc are not available.
6. You are performing the duties of an extra CRO.

Initiating Cue:

1. The Unit Supervisor directs you to calculate the Main Generator Hydrogen Leak Rate per PE 1-098-04-O-M.
2. The Unit Supervisor will perform the independent verification of the calculation when the PE is turned in.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
EVALUATOR NOTE Completion of this JPM requires interpreting graphs that have the potential to induce minor variations in calculated results. For that reason, calculated results are given an “acceptable” band.				
PE 1-098-04-O-M Main Generator Hydrogen Leak Rate Determination				
* 3	RECORD the following initial data: (P1) Hydrogen Pressure __ PSIG (T1) Hydrogen Temperature __ C (B1) Barometric Pressure __ INHg Time _____ Date _____	**CRITICAL STEP*** **Determines:** **Hydrogen Pressure is 60 PSIG** **Hydrogen Temperature is 38 C** Barometric Pressure is 30.0 INHg Time is 1400 Date is June 1, 2023	—	—
Evaluator Comment				
* 4	WHEN 24 hours (6 hours if reduced duration Air Drop test performed) have elapsed, THEN RECORD the following final data: (P1) Hydrogen Pressure __ PSIG (T1) Hydrogen Temperature __ C (B1) Barometric Pressure __ INHg Time _____ Date _____	**CRITICAL STEP*** **Determines:** **Hydrogen Pressure is 58 PSIG** **Hydrogen Temperature is 40 C** Barometric Pressure is 29.5 INHg Time is 1400 Date is June 2, 2023	—	—
Evaluator Comment				
5	Calculate the hydrogen leakage by using OPS CALC calculation OR the following formula:	Performs the required manual calculation.	—	—
Evaluator Comment				
* 6	Unit 1 leakage _____ CFD Maximum hydrogen gas leakage per day for Unit 1 is 1100 cfd.	**CRITICAL STEP*** **Determines leakage is 949.6 CFD, (± 100 CFD)**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
TERMINATING CUE: This JPM is complete when the operator calculates the Main Generator Hydrogen Leak Rate per PE 1-098-04-O-M, within the band specified. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: RO Admin2

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

_____

_____

_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

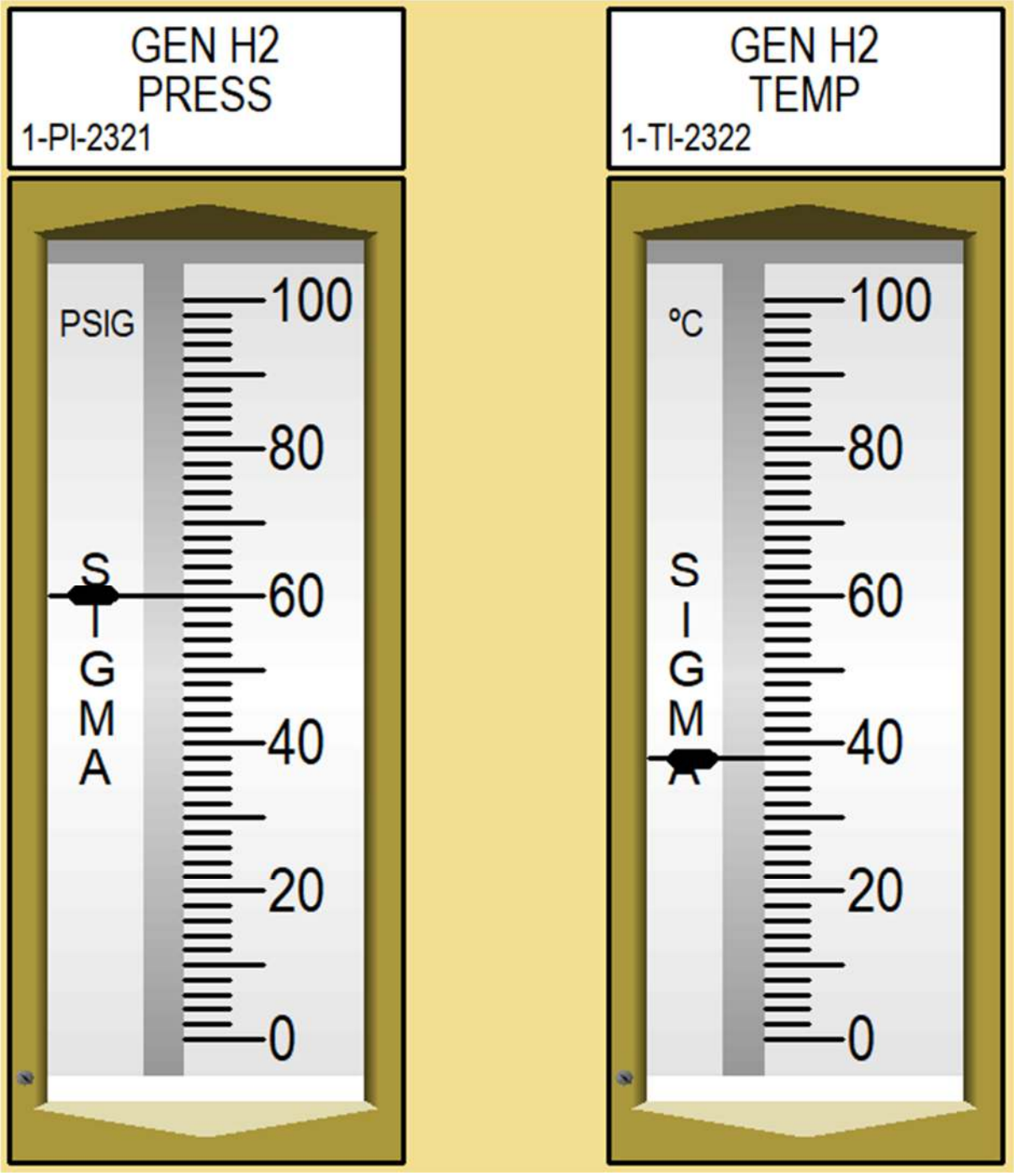
Initial Conditions:

1. Unit-1 is at 100% power.
2. The performance of a regularly scheduled Main Generator Hydrogen Leak Rate determination per PE 1-098-04-O-M is in progress.
3. The initial data is as follows: Hydrogen Pressure and Temperature are show below; Barometric Pressure = 30.0 INHg; Time = 1400; Date = June 1, 2023.
4. The final data is as follows: Hydrogen Pressure and Temperature are show below; Barometric Pressure = 29.5 INHg; Time = 1400; Date = June 2, 2023.
5. The Plant Computer and OpsCalc are not available.
6. You are performing the duties of an extra CRO.

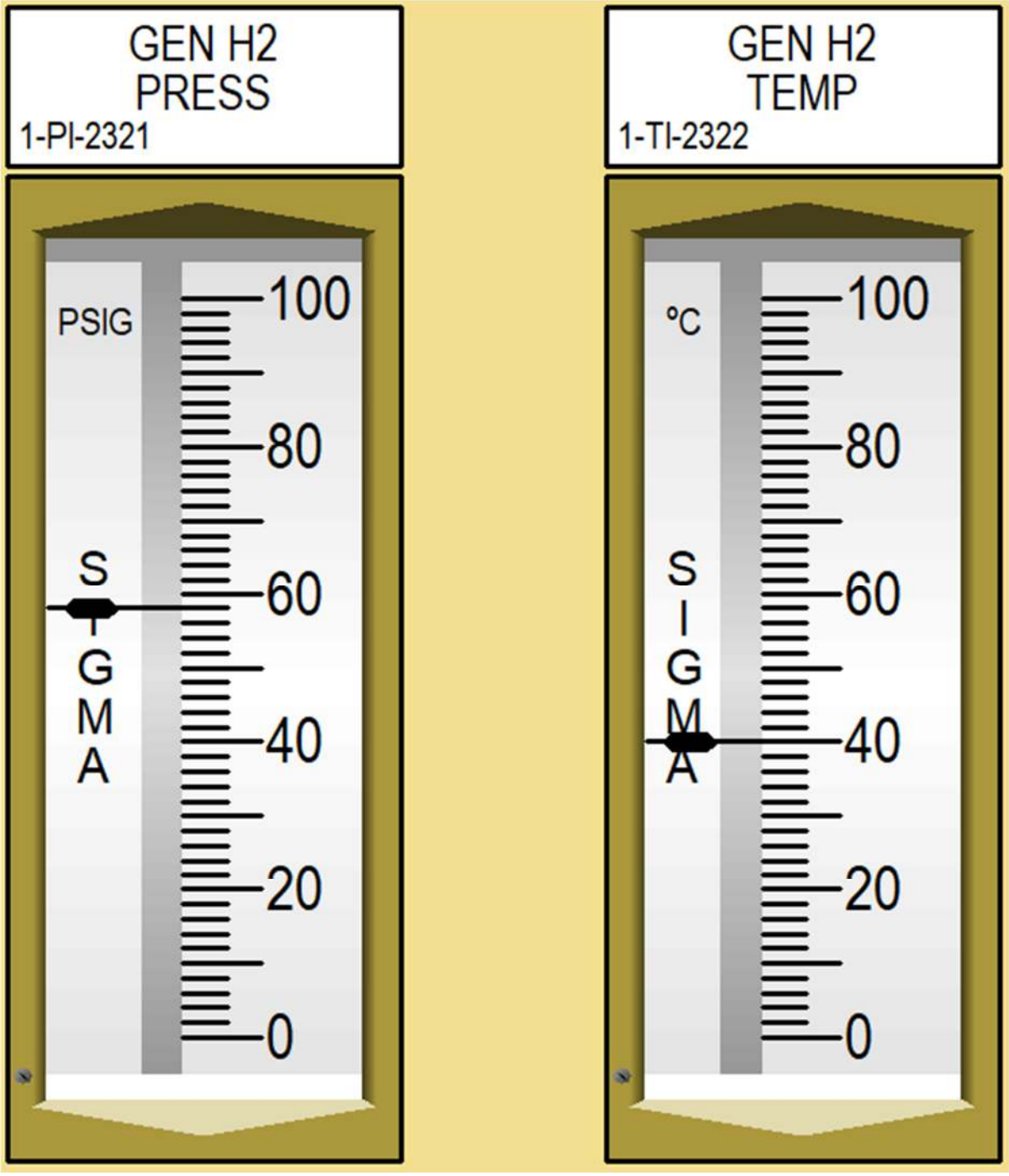
Initiating Cue:

1. The Unit Supervisor directs you to calculate the Main Generator Hydrogen Leak Rate per PE 1-098-04-O-M.
2. The Unit Supervisor will perform the independent verification of the calculation when the PE is turned in.
3. Are there any questions? You may begin.

INITIAL: 1400 on June 1, 2023



FINAL: 1400 on June 2, 2023



Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-RO Admin3

Facility: Calvert Cliffs 1 & 2 **JPM Number:** RO Admin3

Alternate Path: No

Task Number: 036.009

Task Title: AFW Pump Large Flow Test

Task Standard: This JPM is complete when 11 AFW Pump Curve Test data for Step 6.3.P is calculated and pump data for Step 6.3.Q is independently verified.

K/A Reference: 2.2.12 (3.7) Knowledge of surveillance procedures.

Method of Testing: Actual Performance-Classroom

Validation Time: 8 minutes

References and Tools Required:

1. STP O-73H-1, AFW Pump Large Flow Test, Rev 01200
2. Calculator

JPM Setup Instructions:

1. STP O-73H-1 placekeeping marks for steps 6.3.P.1-4 completed (print pages 1, 66-70, and 116).
2. Table in in 6.3.P.4 completed with the following values
   - Pump/Turbine Speed-3996 RPM
   - Suction pressure-23.5 PSIG
   - Discharge Pressure-1270 PSIG
   - Suction Pipe Temperature-53.5°F
   - Suction Flowrate-311 GPM
   - FIC-4511A output-65%
   - FIC-4512A output-68%
   - 11 SG Pressure-880 PSIA
   - 12 SG Pressure-880 PSA
   - Recirc Flowrate-88.93 GPM
3. STP O-73H-1 placekeeping marks for steps 6.3.Q.1-7 completed.
4. Table in in 6.3.Q.3 completed with the following values
   - Pump/Turbine Speed-3993 RPM
   - Suction pressure-26.0 PSIG
   - Discharge Pressure-1280 PSIG
   - Suction Pipe Tempeatrue-57.8°F
   - Suction Flowrate-253 GPM

- FIC-4511A outpur-73%
- FIC-4512A outpur-76%
- 11 SG Pressure-880 PSIA
- 12 SG Pressure-880 PSA
- Recirc Flowrate-89.5 GPM

5. Step 6.3.Q.4 completed with 1280 and 1280.64 PSID as recorded values.
6. Step 6.3.Q.5 completed with 1280.64, 26.0, and 1254.64 PSID as recorded values.
7. Step 6.3.Q.6 completed with 2.309 as recorded value.
8. Step 6.3.Q.7 completed with 1254.64, 2.309, and 2896.96 FT as recorded values.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. You are performing the duties of the Unit-1 CRO.
2. STP O-73H-1 is in progress.
3. 11 AFW Pump Curve Test is currently being performed.

Initiating Cue:

1. The Unit Supervisor directs you to first complete Steps 6.3.P.5 through 6.3.P.8.
2. Once Steps 6.3.P.5-8 are completed, the Unit Supervisor directs you to perform an independent verification for 6.3.Q.8. If any errors are identified during the independent verification, circle the errors in the STP.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
CUE	After Examinee reviews Cue Sheet, provide a calculator and the partially completed STP O-73H-1.			
STP	STP O-73H-1, Step 6.3.P, 11 AFW Pump Curve Test.	Identifies next step to complete is Step 6.3.P.5.	—	—
Evaluator Comment				
* P.5	CALCULATE 11 AFW Pump corrected discharge pressure: _____ + 0.64 = _____ PSID (1-PI-4501) (Step P.4) (Corrected Press)	**CRITICAL STEP*** Refers to Step 6.3.P.4 for data. ***Records 1270 for 1-PI-4501/Step P.4.** ***Calculates and records value between 1270-1271 for Corrected Press.**	—	—
Evaluator Comment				
* P.6	CALCULATE pump ΔP by subtracting pump suction pressure from corrected pump discharge pressure: ΔP=_____ - _____ (Corr Disch Press) (Step P.5) (Suct Press) (Step P.4) = _____ PSID	**CRITICAL STEP*** Refers to Step 6.3.P.4 for data. ***Records value between 1270-1271 for Corrected Disch Press/Step P.5.** ***Records 23.5 for Suct Press/Step P.4.** ***Calculates and records value between 1246-1248 for Pump ΔP**	—	—
Evaluator Comment				
* P.7	DETERMINE the ΔP Multiplication factor from ATACHMENT 1, D/P TO HEAD CONVERSION TABLE, using the suction temperature taken in step P.4. Multiplication Factor:_____	**CRITICAL STEP*** Refers to Step 6.3.P.4 for data and Attachment 1. ***Records 2.307 for Multiplication Factor.**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* P.8	CALCULATE 11 AFW Pump Total Developed Head Below: _____(ΔP) X _____ (mult factor) (Step P.6) (Step P.7) = _____FT (TDH)	**CRITICAL STEP*** Refers to Step 6.3.P.4 for data. ***Records value between 1246-1248 for Step P.6.** ***Records 2.307 for Step P.7.** ***Calculates and records value between 2874-2879 for Total Developed Head.**	—	—
Evaluator Comment				
STP	STP O-73H-1, Step 6.3.Q, 11 AFW Pump Curve Test.	Identifies next step to complete is Step 6.3.Q.8 based on Examinee Cue Sheet.	—	—
Evaluator Comment				
* Q.8	Independently CHECK calculations and Multiplication Factor determination in steps Q.4, Q.5, Q.6, and Q.7.	**CRITICAL STEP*** Refers to Step 6.3.Q.4 for data and evaluates calculations in steps Q.4, Q.5, Q.6, and Q.7. Determines Multiplication Factor from Attachment 1 in Step Q.6 is incorrect. ***Circles/identifies that Multiplication Factor from Attachment 1 in Step Q.6 is incorrect.** Determines Calculation for Total Developed Head in Step Q.7 is incorrect. ***Circles/identifies that calculation for Total Developed Head in Step Q.7 is incorrect.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when 11 AFW Pump Curve Test data for Step 6.3.P is calculated and pump data for Step 6.3.Q is independently verified. The Examinee is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: RO Admin3

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

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_____

_____

_____

Examinee Response:

_____

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_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. You are performing the duties of the Unit-1 CRO.
2. STP O-73H-1 is in progress.
3. 11 AFW Pump Curve Test is currently being performed.

Initiating Cue:

1. The Unit Supervisor directs you to first complete Steps 6.3.P.5 through 6.3.P.8.
2. Once Steps 6.3.P.5-8 are completed, the Unit Supervisor directs you to perform an independent verification for 6.3.Q.8. If any errors are identified during the independent verification, circle the errors in the STP.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-RO Admin4

The details of this JPM have been redacted for containing sensitive security information. TCS 6-14-23

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-Simulator1

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator1

Alternate Path: Yes

Task Number: 055.012

Task Title: Exercise Regulating CEAs

Task Standard: This JPM is complete when raising reactor power is commenced with a SUR <1dpm, and then the full insertion of all Regulating CEAs has been initiated in response to a dropped CEA per AOP-1B.

K/A Reference: 001 A4.17 (4.3) Ability to manually operate and/or monitor in the control room: Rod Position

Method of Testing: Actual Performance - Simulator

Validation Time: 25 minutes

Time Critical Task: No

References and Tools Required:

1. OP-2-1 Rev 05400, Section 6.7, pages 49-50.
2. AOP-1B, CEA Malfunction, Revision 03005, pages 7-8.
3. OI-42 Rev 02600, Section 6.7, pages 28-30 and Section 6.8, page 31.

JPM Setup Instructions:

1. Reset simulator to U-1 critical approximately 1x10E-1% Power MOC.
2. Ensure CEDS is Off.
3. CEAPDS selected to display all CEAs.
4. CEA 6 drop ceds012_06 on Event 1.
5. Obtain Independent Verification for completion of steps 1 through 5.
6. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
7. Select “Clock” time.
8. Place simulator in FREEZE.
9. If desired, Save conditions into available Exam IC slot for continued use.
10. The Operator is allowed to prepare for this JPM prior to its administration.
11. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is currently performing a startup IAW OP-2 Section 6.7.
2. Unit-1 has been called critical a few minutes ago.
3. Critical data, including a Critical Rod height of 90 inches, was taken with power at approximately $1x10^{-4}$%.
4. Current reactor power level is $1x10^{-1}$% and stable.
5. You are performing the duties of the Reactor Operator.

Initiating Cue:

1. You have been directed to raise reactor power to approximately 1% power by Linear Range NIs per OP-2 Step 6.7.S.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OP-2 Section 6.7 TAKE THE REACTOR CRITICAL				
CAUTION Do **NOT** exceed a sustained one DPM startup rate.				
S	RAISE Reactor power to approximately 1% by LRNI AND PERFORM the following: 1. CHECK ALL WRNI channels indicating less than 2%.	When raising power by withdrawing Regulating CEAs sustained startup rate does not exceed 1 DPM.	__	__
Evaluator Comment				
OI-42 Section 6.7 REGULATING CEA OPERATION				
Evaluator Note CCNPP procedures allow operation of equipment based on the OP or AOP step, therefore the operator may not reference OI-42, but all critical steps must be performed to accomplish the objective.				
CUE:	If asked by operator if Chemistry has been informed, tell them this notification has already been completed.			
1	IF CEAs are inserted less than 130 inches, THEN INFORM Chemistry to ensure requirements of CY-CA-120-204, SPECIFICATION AND SURVEILLANCE - PRIMARY SYSTEMS, related to CO-58 are met.	Either asks US (Unit Supervisor) if this has already been done or calls Chemistry directly.	__	__
Evaluator Comment				
NOTE If any CEA is moved greater than 7.5 inches in modes 1 or 2, then within one hour TS SR 3.1.4.1 should be performed.				
2	ENSURE desired regulating group (1,2,3,4,5) is selected.	Ensures Group 4 is selected.	__	__
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
3	ENSURE the desired CEA in the group is selected.	Any CEA in Group 4 can be selected.	__	__
Evaluator Comment				
NOTE To prevent challenging CEA interlocks, Manual Sequential should not be used for CEA withdrawal if the CEAs are in an abnormal alignment for ASI control PER Section 6.16, ASI CONTROL USING REGULATING CEAs (i.e. groups 1, 2 and/or 3 partially inserted), until the associated groups are at the upper computer stop.				
CUE:	If operator asks US (Unit Supervisor) if Manual Sequential or Manual Group should be used, ask the applicant his recommendation, then direct operator to perform step as recommended.			
* 4	SELECT AND DEPRESS one of the following mode control pushbuttons: • MANUAL SEQUENTIAL • MANUAL GROUP • MANUAL INDIVIDUAL	***Critical Step** ***Depresses either the Manual Sequential or Manual Group pushbuttons.** (If operator depresses Manual Group, then Step B.2 {GP 4 selected} becomes critical as well)	__	__
Evaluator Comment				
5	IF necessary to bypass CMI, THEN REFER to Section 6.8, USE OF CEA MOTION INHIBIT BYPASS.	Determines step is NOT Applicable	__	__
Evaluator Comment				
NOTE • Group sequencing must be accomplished by the Reactor Operator when Plant Computer, OR DAS B is OOS….OR when Manual Group is selected. • Unit-1 CEA-18 will NOT move while jumpered PER ECP-15-000409.				
CAUTION • RAISE/HOLD/LOWER switch operation should be accomplished with … • Withdraw and insert CEAs only in a deliberate and carefully controlled … • Primary plant anomalies caused by secondary plant transients are rarely, if ever …				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 6	INSERT OR WITHDRAW selected CEA(s) using the RAISE/HOLD/LOWER switch while observing the following limits:	***Critical Step** ***Takes RAISE/HOLD/LOWER switch to RAISE while observing SUR. Returns switch to HOLD when desired SUR is achieved (<1 DPM sustained).**	—	—
Evaluator Comment				
6.a	IF withdrawing CEA(s) in Manual Group OR Manual Sequential Mode, THEN STOP withdrawal at Upper Computer Stop OR a maximum height of 130.5 inches when computer is NOT available.	Determines step is NOT Applicable.	—	—
Evaluator Comment				
6.b	IF inserting CEA(s) in Manual Group OR Manual Sequential Mode, THEN STOP insertion at Lower Computer Stop or a minimum height of 6.0 inches when computer is NOT available.	Determines step is NOT Applicable.	—	—
Evaluator Comment				
7	ENSURE at least 5 seconds has elapsed once CEA motion is completed.	After stopping CEA motion, operator should ensure at least 5 seconds has elapsed before movement initiated again.	—	—
Evaluator Comment				
8	IF other CEA manipulations are desired, THEN REPEAT steps 1 through 7.	Operator may or may not use additional CEA movements to achieve desired SUR.	—	—
Evaluator Comment				
OP-2 Section 6.7 TAKE THE REACTOR CRITICAL				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* S	RAISE Reactor power to approximately 1% by LRNI AND PERFORM the following: 1. CHECK ALL WRNI channels indicating less than 2%.	***Critical Step** ***Establishes controllable power escalation with steady sustained startup rate not exceeding 1 DPM.**	—	—
Evaluator Comment				
BEGIN ALTERNATE PATH				
CUE:	Once a stable SUR is achieved and power is rising toward 1% the dropped CEA malfunction will be entered. Direct Driver to **insert Event 1**. Once the operator recognizes and announces the dropped CEA to Control Room, ask the operator to recommend a course of action and direct operator to perform action recommended.			
AOP-1B CEA MALFUNCTION; Section IV PRELIMINARY				
A.1	IF the CEAs are moving without operator action, THEN ensure the CEDS Control System is turned off.	Determines step is NOT Applicable. Operator may or may not turn off CEDS Control System.	—	—
Evaluator Comment				
CAUTION **If CEA misalignment causes power to be reduced, power shall not be raised until the CEA is within its alignment requirements or until Reactor Engineering is consulted.**				
CAUTION **Do NOT use CEAs to control RCS temperature.**				
CUE:	Inform operator that the CRO will perform this step.			
A.2	Maintain Tcold on programmed value by performing **ANY** of the following actions as applicable: • Adjust Turbine load • Adjust TBVs or ADVs • Initiate boration	Requests CRO to perform this step. (No change in temperature is expected since below POAH).	—	—

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Comment				
A.3	Verify Pressurizer pressure is between 2225 and 2275 PSIA, and trending toward 2250 PSIA.	Verifies RCS pressure is ≈2250 PSIA.	—	—
Evaluator Comment				
A.4	Verify position of ALL CEAs using reed switch position indication.	Verifies all CEAs using CEAPDS indication. Recognizes only 1 CEA is misaligned.	—	—
Evaluator Comment				
A.5	IF the CEA malfunction causes a critical reactor to become subcritical, THEN perform the following:	Recognizes that the reactor was critical and is now subcritical and step is applicable.	—	—
Evaluator Comment				
CAUTION **The affected CEA(s) should not be inserted/withdrawn until ALL unaffected Regulating CEAs are inserted.**				
A.5.a	Fully insert ALL unaffected Regulating CEAs.	Refers to OI-42 Section 6.7 REGULATING CEA OPERATION or properly performs all steps necessary to insert Regulating CEAs.	—	—
Evaluator Comment				
OI-42 Section 6.7 REGULATING CEA OPERATION				
CUE:	If asked by operator if Chemistry has been informed, tell them this notification has already been completed.			
1	IF CEAs are inserted less than 130 inches, THEN INFORM Chemistry to ensure requirements of CY-CA-120-204, SPECIFICATION AND SURVEILLANCE - PRIMARY SYSTEMS, related to CO-58 are met.	Either asks US (Unit Supervisor) if this has already been done or calls Chemistry directly.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
NOTE If any CEA is moved greater than 7.5 inches in modes 1 or 2, then within one hour TS SR 3.1.4.1 should be performed.				
2	ENSURE desired regulating group (1,2,3,4,5) is selected.	Ensures Group 4 is selected.	—	—
Evaluator Comment				
3	ENSURE the desired CEA in the group is selected.	Any CEA in Group 4 can be selected.	—	—
Evaluator Comment				
* 4	SELECT AND DEPRESS one of the following mode control pushbuttons: • MANUAL SEQUENTIAL • MANUAL GROUP • MANUAL INDIVIDUAL	***Critical Step** ***Depresses either the Manual Sequential or Manual Group pushbuttons.** (If operator depresses Manual Group, then Step B.2 {GP 4 selected} becomes critical as well)	—	—
Evaluator Comment				
5	IF necessary to bypass CMI, THEN REFER to Section 6.8, USE OF CEA MOTION INHIBIT BYPASS.	Determines step is applicable.	—	—
Evaluator Comment				
OI-42 Section 6.8 USE OF CEA MOTION INHIBIT (CMI) BYPASS				
NOTE • CMI MAY be bypassed to more than one CEA group at a time. • Steps 1 and 2 will bypass CMI to selected group and apply CMI to all other groups. • CEA MOTION INHIBIT BYPASS annunciator on 1(2)C05 will alarm.				
* 1	DEPRESS GROUP INHIBIT BYPASS pushbutton(s) on CEDS Control Panel for the CEA groups(s) needing alignment.	***Critical Step** ***Depresses Group Bypass Pushbuttons for Required Group(s).**	—	—

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Comment				
* 2	DEPRESS AND HOLD MOTION INHIBIT BYPASS pushbutton on CEDS Control Panel.	***Critical Step** ***Depresses and holds Motion Inhibit Bypass pushbutton.**	—	—
Evaluator Comment				
* 3	WHEN at least 5 seconds have elapsed, THEN INITIATE group OR Individual CEA Motion.	***Critical Step** Waits at least 5 seconds before inserting Regulating CEAs. ***Takes RAISE/HOLD/LOWER switch to LOWER. Continues to insert CEAs until JPM is terminated by evaluator or all Regulating CEAs are at lower computer stop.**	—	—
Evaluator Comment				
TERMINATING CUE: The JPM is complete when Regulating CEAs are being inserted to comply with AOP-1B. No further actions are required. The evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator1

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

_____

_____

_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is currently performing a startup IAW OP-2 Section 6.7.
2. Unit-1 has been called critical a few minutes ago.
3. Critical data, including a Critical Rod height of 90 inches, was taken with power at approximately $1x10^{-4}$%.
4. Current reactor power level is $1x10^{-1}$% and stable.
5. You are performing the duties of the Reactor Operator.

Initiating Cue:

1. You have been directed to raise reactor power to approximately 1% power by Linear Range NIs per OP-2 Step 6.7.S.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-Simulator2

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator2

Alternate Path: Yes

Task Number: 202.015

Task Title: Respond to RCS leakage exceeding one charging pump, Modes 1 and 2.

Task Standard: This JPM is complete when 12 charging pump has been secured and then after the RCS leak occurs, actions are taken to restore a charging flow path per AOP-2A.

K/A Reference: 002 A2.01 (4.4/4.5) Ability to predict the impacts of the following on the Reactor Coolant System and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Loss of Coolant Inventory.

Method of Testing: Actual Performance - Simulator

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. OI-2A, Chemical and Volume Control System, Rev 06500, pages 34-39.
2. AOP-2A, Excessive Reactor Coolant Leakage, Rev 02800, pages 36-43.
3. 1C07-ALM, Chemical and Volume Control Alarm Manual, Rev 03700, pages 76-77.

JPM Setup Instructions:

1. Reset to IC-34 or the previously saved Exam IC.
2. Insert the following overrides/malfunctions or open saved schedule file:
    a. Charging header leak outside containment: cvcs008 to 100%, on Event 1.
    b. Shut 1-CVC-182: Remote to shut 1-CVC-182 to zero, on Event 2.
    c. Remove the leak: Modify cvcs008 to 0%, on Event 2.
3. Raise charging and letdown per OI-2A.
    a. 1-PIC-201 to 300 PSIG.
    b. Place 1-CVC-520 in Bypass.
    c. Control level with the BIAS on 1-HIC-110.
    d. Start 12 Charging Pump.
    e. Place 13 Charging Pump in PTL.
    f. Place charging pump selector switch in 13&11.
    g. Adjust Bias to 32 GPM.
    h. Place 13 Charging Pump in normal.
    i. 1-PIC-201 to 460 and AUTO.

j. Control 1-TIC-223 to maintain less than 120°F.

k. Place 1-CVC-520 in AUTO.

4. Obtain Independent Verification for completion of steps 1 through 3.
5. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
6. Select “Clock” time.
7. Place simulator in FREEZE.
8. If desired, Save conditions into available Exam IC slot for continued use.
9. The Operator is allowed to prepare for this JPM prior to its administration.
10. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. 2 Charging Pumps are in service due to a chemistry request.
3. Chemistry has requested 1 charging pump in operation.
4. A pre-job brief was held, and all initial conditions are complete.
5. Radiation Protection and Chemistry have been notified.
6. The Unit Supervisor requires CVCS ion exchanger bypassed.
7. You are performing the duties of the Unit-1 Reactor Operator.

Initiating Cue:

1. The Unit Supervisor directs you to lower charging and letdown to 11 Charging Pump running per OI-2A, Section 6.4 Step 3.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-2A, SECTION 6.4.B, LOWERING CHARGING AND LETDOWN				
CUE	If asked, the Unit Supervisor requests the CVCS IX bypassed. An additional operator will record the stop time of the IX.			
* 3	If the CRS requires the CVCS ion Exchanger bypassed, then place IX BYPASS, 1-CVC-520-CV, in BYPASS and record stop time in the CVCS Ion Exchanger and Filter Log.	**CRITICAL STEP*** **Places 1-CVC-520 in Bypass.** Directs recording of the stop time in the IX log.	—	—
Evaluator Comment				
* 4	Place any idle Charging Pump handswitch in PULL TO LOCK.	**CRITICAL STEP*** **Places 1-HS-224Z (13 CHG PUMP) in PTL.**	—	—
Evaluator Comment				
* 5	If only two Charging Pumps are in operation, THEN PLACE the BACKUP CHARGING PUMP SELECT switch, 1-HS-224 in the position which will select the pump to remain in operation as the running pump: To run 11 Charging Pump, PLACE switch in 12&13	**CRITICAL STEP*** **Places 1-HS-224 in the 12&13 position.**	—	—
Evaluator Comment				
6	If three charging pumps…	Determines step is not applicable.	—	—
Evaluator Comment				
CAUTION A reactivity change could occur or the rate of change of reactivity could be affected when starting or stopping a charging pump.				

STEP	ELEMENT	STANDARD	SAT	UNSAT
BEGIN ALTERNATE PATH				
EVALUATOR NOTE When the operator stops 12 Charging Pump, direct the booth operator to insert Event 1, charging header leak.				
* 7	Stop the desired Charging Pump.	**CRITICAL STEP*** **Places 1-HS-224Y in STOP.**	—	—
Evaluator Comment				
CUE	After RCS leak is reported OR ask “report status of the RCS and make an AOP recommendation”: Attention for Crew Update. Implementing AOP-2A, Excessive Reactor Coolant Leakage. Hand copy of AOP-2A to Examinee. Perform Section Six Block Step E, Attempt to Isolate the Leak.			
AOP-2A, BLOCK STEP VI.E, ATTEMPT TO ISOLATE THE LEAK.				
* 1	Verify the L/D CNTMT valves are shut: • 1-CVC-515-CV • 1-CVC-516-CV	**CRITICAL STEP*** **Places 1-HS-515 and 1-HS-516 in CLOSE.**	—	—
Evaluator Comment				
2	Check there is NO PORV leakage by the following indications: • Quench Tank Parameters • PORV discharge piping temperatures, computer points T107 and T108 • Acoustic Monitor indication	Determines PORV leakage does NOT exist	—	—
Evaluator Comment				
3	Verify that RCS SAMPLE ISOL valve, 1-PS-5464-CV, is shut.	Determines 1-PS-5464-CV is shut.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
4	Verify that the Reactor Vessel Vent valves are shut: • 1-RC-103- SV • 1-RC-104-SV	Determines that 1-RC-103 and 1-RC-104 are shut.	—	—
Evaluator Comment				
5	Verify that the PZR Vent valves are shut: • 1-RC-105- SV • 1-RC-106-SV	Determines that 1-RC-105 and 1-RC-106 are shut.	—	—
Evaluator Comment				
NOTE A leak on the Charging header which exceeds the capacity of the charging pumps can be identified by Charging header pressure indicating less than RCS pressure. Identification of the leak may be missed if more than one charging pump is running.				
* 6.a	Determine if the leak is on the Charging header by performing the following actions: Stop all but ONE CHG PP.	**CRITICAL STEP*** **Places all but 1 Charging Pump in Stop or PTL.** Depending on timing there might only be one charging pump running.	—	—
Evaluator Comment				
6.b	If Charging header pressure is less tan RCS Pressure, then assume the leak is on the Charging Header.	Determines that the leak is on the charging header.	—	—
Evaluator Comment				
6.c	If the leak is not on the charging header…	Determines step is not applicable.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 7.a	If the leak is on the Charging header, then perform the following actions: Place all CHG PPs in PULL TO LOCK.	**CRITICAL STEP*** **Places 1-HS-224X and 1-HS-224Y is PTL.**	—	—
Evaluator Comment				
CUE	ABO reports the leak is upstream of 1-CVC-182.			
7.b	Dispatch an operator to determine the location of the leak.	Dispatches the ABO to investigate for the location of the leak.	—	—
Evaluator Comment				
NOTE CHG PP HDR XCONN, 1-CVC-182, is located near 12 Charging Pump.				
CUE	After requested, Activate Event 2.			
* 7.c.1	Shut 1-CVC-182.	**CRITICAL STEP*** **Directs the ABO to shut 1-CVC-182.**	—	—
Evaluator Comment				
CUE	If requested, 12 Charging Pump is preferred.			
* 7.c.2	Start 12 or 13 CHG PP as required.	**CRITICAL STEP*** **Places 1-HS-224Y in START.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when 12 charging pump has been secured and then after the RCS leak occurs, actions are taken to restore a charging flow path per AOP-2A. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator2

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

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_____

_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is at 100% power.
2. 2 Charging Pumps are in service due to a chemistry request.
3. Chemistry has requested 1 charging pump in operation.
4. A pre-job brief was held, and all initial conditions are complete.
5. Radiation Protection and Chemistry have been notified.
6. The Unit Supervisor requires CVCS ion exchanger bypassed.
7. You are performing the duties of the Unit-1 Reactor Operator.

Initiating Cue:

1. The Unit Supervisor directs you to lower charging and letdown to 11 Charging Pump running per OI-2A, Section 6.4 Step 3.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-Simulator3

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator3

Alternate Path: Yes

Task Number: 201.061

Task Title: Ensure containment sump level is rising

Task Standard: This JPM is complete when cooling has been aligned to the ECCS Pump Room, and then the prepare for RAS actuation block step is complete with alternate actions taken for a LPSI pump failing to secure including shutting 3 LPSI Header MOVs, throttling 1 LPSI Header MOV, placing 13 HPSI Pump in PTL, and placing the SI Pump Recirc Lockout switches in On.

K/A Reference: 006 A4.01 (4.3) Ability to manually operate and/or monitor in the control room: ECCS pumps.

Method of Testing: Actual Performance - Simulator

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. EOP-5-1, Loss of Coolant Accident, Revision 03200, pages 9-11.

JPM Setup Instructions:

1. Reset to IC-34 with both units at 100%.
2. Insert the following overrides/malfunctions or open saved schedule:

   ____ rcs001 at time zero

   ____ P1C08_1HS302YA to OVRRDE at time zero

   ____ P1C08_1HS302Y to NORMAL_RED at time zero

   ____P1C09_H23_LTON to Off at time zero
3. Perform actions in EOP-0 (Trip RCPs, Initiate AFW using 13 AFW Pump).
4. Perform actions in EOP-5 (Step M, Secure Feedwater).
5. Run simulator until RWT lowers to 9'(108") (will take ~30 minutes) or run simulator for 10 minutes and insert the following or open saved schedule:

   ____ set thilevch=986

   ____ set thllevch=0.223

   ____ set CNT cells 690, 691, and 692 to 0.255
6. Verify RWT level is ≥7' (84").
7. Verify SFP mimic on 1C13 does not indicate that the RFP is being circulated using a SFP Pump.
8. Que the following or open saved schedule to control RWT level above RAS without initially inserting:

____ set thilevch=986

____ set thllevch=0.1

9. Obtain Independent Verification for completion of steps 1 through 8.
10. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
11. Select “Clock” time.
12. If desired, Save conditions into available EXAM IC slot for continued use.
13. When operator is ready to begin, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 tripped from 100% power due to a Large Break LOCA.
2. EOP-5 has been implemented.
3. RWT level has lowered to 9' and is continuing to lower.
4. You are performing the duties of the Unit-1 CRO.

Initiating Cue:

1. The Unit Supervisor directs you to perform Block Step R, Protect the ECCS Pumps from overheating, in accordance with EOP-5, Loss of Coolant Accident.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
EOP-5 BLOCK STEP R, PROTECT ECCS PUMPS FROM OVERHEATING				
* 1.a	IF ANY ECCS Pumps are operating, THEN protect the ECCS Pumps from overheating by commencing ECCS Pump Room cooling as follows: Place 11 ECCS AIR CLR INL/OUT VLVs, 1-HS-5172 in OPEN.	**Critical Step*** ***Places 11 ECCS AIR CLR INL/OUT VALVES, 1-HS-5172 in OPEN.**	—	—
Evaluator Comment				
* 1.b	Place 12 ECCS AIR CLR INL, 1-HS-5173 in OPEN.	**Critical Step*** ***Places 12 ECCS AIR CLR INL, 1-HS-5173 in OPEN.**	—	—
Evaluator Comment				
* 1.c	Start 11 EAST ECCS PP RM CLG FAN.	**Critical Step*** ***Starts RM CLG FAN, HS-5404 to start.**	—	—
Evaluator Comment				
* 1.d	Start 12 WEST ECCS PP RM CLG FAN.	**Critical Step*** ***Starts RM CLG FAN, HS-5404A to start.**	—	—
Evaluator Comment				
CUE	Once reported that Step R is complete, assign the Operator to perform EOP-5 Block Step S, Prepare for RAS Actuation, on Page 49.			
1	Notifies the Unit Supervisor that Step R is complete.	Informs the Unit Supervisor that Step R is complete.	—	—
Evaluator Comment				
EOP-5 BLOCK STEP S, PREPARE FOR RAS ACTUATION				

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Note The Operator is expected to verify the RWT has lowered to ≤63" prior to taking actions in Step S. If the RWT has not yet lowered to ≤63" and the Operator is asking for another step (while waiting for RWT level to lower), the Operator can be told to review Step T, Verify RAS Actuation, while waiting for RWT level to lower. Once RWT level has lowered to <63", direct Simulator Driver to monitor RWT level and **run RWT Level schedule as necessary to maintain RWT level above the RAS setpoint** until the Operator has completed Step S.				
1.a	**WHEN** RWT level drops to 63 inches, **THEN** perform the following actions: Place LPSI PP handswitches in PULL TO LOCK. • 11 LPSI PP, 1-HS-302X • 12 LPSI PP, 1-HS-302Y	Places following handswitches in Pull-To-Lock: • 11 LPSI Pump HS-302X • 12 LPSI Pump HS-302Y Determines 12 LPSI Pump has not stopped.	—	—
Evaluator Comment				
BEGIN ALTERNATE PATH				
CUE	After the Equipment Operator is directed to locally open the breaker, the Equipment Operator reports they are unable to locally open Breaker 152-1404.			
WARNING LPSI PP breaker must be opened locally within 8 hours of SIAS.				
1.a.1. (1)	IF LPSI PP continues to run with LPSI PP handswitch in PULL TO LOCK, THEN perform the following actions: Locally open LPSI breaker: • No. 11 LOW PRESS SAFETY INJ PUMP, 152-1104 • No. 12 LOW PRESS SAFETY INJ PUMP, 152-1404	Dispatches an Equipment Operator to open the 12 LPSI Pump breaker, 152-1404.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 1.a.1. (2)	IF the LPSI PP breaker CANNOT be opened locally immediately, THEN prior to RAS, throttle LPSI flow to 600 GPM as follows: (a) Shut THREE LPSI HDR valves: ● 1-SI-615-MOV ● 1-SI-625-MOV ● 1-SI-635-MOV ● 1-SI-645-MOV	**Critical Step*** ***Shuts 3 of the 4 LPSI Header MOVs using the following:** • **HS-3615 on 1C08** • **HS-3625 on 1C08** • **HS-3635 on 1C09** • **HS-3645 on 1C09**	—	—
Evaluator Comment				
* 1.a.1. (2)	(b) Throttle remaining LPSI HDR valve to 600 GPM.	**Critical Step*** ***Throttles the remaining open LPSI Header MOV until flow read on the operating LPSI loop is 450-600 GPM.** • **1-SI-615-MOV as read on 1-FI-312** • **1-SI-625-MOV as read on 1-FI-322** • **1-SI-635-MOV as read on 1-FI-332** • **1-SI-645-MOV as read on 1-FI-342**	—	—
Evaluator Comment				
* 1.a.1. (3)	IF LPSI PP Breaker can NOT be opened locally AND IF both HPSI PPs are running, THEN prior to RAS, place the HPSI PP in PULL TO LOCK that has the same suction header as running LPSI PP.	**Critical Step*** ***Places 13 HPSI Pump (1-HS-301Z) in PULL TO LOCK.**	—	—
Evaluator Comment				
END ALTERNATE PATH				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 1.b	Place the SI PP RECIRC LOCKOUT switches in ON.	**Critical Step*** ***Places both SI PP RECIRC LOCKOUT switches on 1C09 to ON:** • **HS-3659A** • **HS-3660A**	—	—
Evaluator Comment				
1.c	IF 11 RWT is being recirculated by a SFP CLG PP, THEN secure applicable pump.	Evaluates SFP Cooling mimic on 1C13. Determines step is not applicable.	—	—
Evaluator Comment				
1.d	IF CSAS has NOT actuated, THEN place BOTH CS PPs in PULL TO LOCK.	Determines CSAS has actuated. Determines that step is not applicable.	—	—
Evaluator Comment				
1.e	Check HPSI flow is greater than 90 GPM per pump, OR check the HPSI PPs have been secured.	Evaluates status of HPSI flow using any of the following flow indications: • Plant Computer • Individual HPSI Loop flow (FI-311/321/331/341) on 1C08/1C09 • Total HSPI flow (FI-351) on 1C09 Determines HPSI flow is > 90 GPM per pump and the pumps do not need to be secured.	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when prepare for RAS actuation block step is complete with alternate actions taken for a LPSI pump failing to secure. No further actions are required. The evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator3

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

_____

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_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 tripped from 100% power due to a Large Break LOCA.
2. EOP-5 has been implemented.
3. RWT level has lowered to 9' and is continuing to lower.
4. You are performing the duties of the Unit-1 CRO.

Initiating Cue:

1. The Unit Supervisor directs you to perform Block Step R, Protect the ECCS Pumps from overheating, in accordance with EOP-5, Loss of Coolant Accident.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-Simulator4

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator4

Alternate Path: Yes

Task Number: 202.026

Task Title: Attempt to correct the abnormal SDC condition.

Task Standard: This JPM is complete when 12 LPSI pump has been started to restore SDC flow with the LPSI header valves throttled to maintain 3000 GPM per AOP-3B.

K/A Reference: 005 A2.04 (3.9/3.7) Ability to predict the impacts of the following on the Residual Heat Removal System and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: RHR valve malfunction.

Method of Testing: Actual Performance - Simulator

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. AOP-3B, Abnormal Shutdown Cooling Conditions, Rev 03200, pages 15-18.

JPM Setup Instructions:

1. Reset to IC-03 with Unit-1 is Mode 5 with a PZR Manway removed with the RCS at 105°F and 14.7 PSIA, or the previously saved Exam IC.
2. Keys required: 25, 26, 27, 28, 29, 30, 35, 36, 37, 38, 39, 47, and 48
3. Ensure only 11 LPSI pump is in operation.
4. Insert remote functions, malfunctions and overrides or open saved schedule:
    a. 11 LPSI Pump Breaker Failure: si003_01 on Event 1.
    b. SDC FLOW CONTROL 1-SI-306-CV Fails Open: P1C08_1HS306 to OPEN on Event 2.
5. Place Simulator in RUN.
6. Bypass CVCS IXs by placing 1-HS-2520 in the BYP position.
7. Activate Event 1.
8. Place simulator in FREEZE.
9. Obtain Independent Verification for completion of steps 1 through 7.
10. Acknowledge all panel alarms and ensure “Horn Off” for annunciators.
11. Select “Clock” time.
12. If desired, Save conditions into available Exam IC slot for continued use.
13. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 has been shut down for 4 days for the refueling outage.
2. Shutdown cooling is in service with 11 LPSI Pump at 3000 GPM.
3. RCS Temperature is 105°F.
4. RCS pressure is 14.7 PSIA with the Pressurizer Manway removed.
5. 11 LPSI pump has just tripped due to a fault on the breaker.
6. AOP-3B, Abnormal Shutdown Cooling Conditions, has been implemented.
7. You are performing the duties of the Unit-1 Reactor Operator.

Initiating Cue:

1. The Unit Supervisor directs you to respond to the Loss of Shutdown Cooling per AOP-3B, Section IV.A.6, starting on page 15.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
AOP-3B, SECTION IV.A, PRELIMINARY				
6	IF SDC is lost due to failure of the operating LPSI PP, AND the cause will NOT result in a common mode failure, THEN complete the following actions:	Determines step is applicable. Determines 11 LPSI Pump failure will not result in a common mode failure.	—	—
Evaluator Comment				
6.a	Placed the failed PP handswitch in PULL TO LOCK.	Places 1-HS-302X (11 LPSI) in PTL.	—	—
Evaluator Comment				
6.b	IF RCS purification is in service, THEN place IX BYP valve handswitch 1-HS-2520 in the BYP position.	Determines step is not applicable. May verify 1-HS-2520 is in the BYP position.	—	—
Evaluator Comment				
* 6.c	Shut S/D COOLING TEMP CONTR valve, 1-SI-657-CV.	**CRITICAL STEP*** **Lowers output of 1-HIC-3657 on 1C09 to 0%** **and/or** **Places 1-HS-3657 keyswitch on 1C09 to CLOSE.**	—	—
Evaluator Comment				
* 6.d	Place the SHUTDOWN CLG FLOW CONTR, 1-FIC-306, in MANUAL.	**CRITICAL STEP*** **Depresses the A/M pushbutton until M is displayed to shift 1-FIC-306 on 1C08 to MANUAL (ML).**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 6.e	Adjust the output of the SHUTDOWN CLG FLOW CONTR, 1-FIC-306, to 95%.	**CRITICAL STEP*** **Adjusts output of 1-FIC-306 to between 93% and 97%.**	—	—
Evaluator Comment				
6.f	Verify BOTH RAS OVERRIDE switches in OVERRIDE: • 11 LPSI PP RAS OVERRIDE, 1-HS-302XA 12 LPSI PP RAS OVERRIDE, 1-HS-302YA	Verifies 1-HS-302XA and 1-HS-302YA keyswitches are in the OVERRIDE position.	—	—
Evaluator Comment				
CUE	If asked, report it has been evaluated and the failure is not a common mode failure.			
CAUTION Before starting the standby LPSI PP, the cause for the running LPSI PP failure should be determined to preclude a common mode failure.				
* 6.g	Start the standby LPSI PP.	**CRITICAL STEP*** **Rotates 1-HS-302Y (12 LPSI Pump) handswitch to the START position.**	—	—
Evaluator Comment				
* 6.h.1	If RCS level is above the 37.6 foot elevation, then complete the following actions: Slowly adjust the SDC FLOW CONTR, 1-FIC-306, to obtain the flowrate that SDC was at prior to the loss of flow	**CRITICAL STEP*** **Adjusts the output of 1-FIC-306 and raises SDC flow to 3000 GPM (+/- 50 GPM).**	—	—
Evaluator Comment				
CUE	The Unit Supervisor desires Shutdown Cooling Flow Controller, 1-FIC-306, be placed in auto.			

STEP	ELEMENT	STANDARD	SAT	UNSAT
6.h.2	Place the SDC FLOW CONTR, 1-FIC-306, in AUTO if desired.	Adjusts the setpoint of 1-FIC-306 to 3000 GPM (+/- 50 GPM) and depresses the A/M pushbutton to shift 1-FIC-306 to AUTO (AL).	—	—
Evaluator Comment				
CAUTION Do NOT exceed the following cooldown limits in any one hour: … Do NOT exceed a heatup rate of 14°F/MIN for the Shutdown Cooling Heat Exchanger as indicated on TI-303X and TI-303Y.				
6.i	Adjust the S/D COOLING TEMP CONTR VALVE, 1-SI-657-CV, as necessary to maintain the desired temperature.	Establishes SDC flow through the SDC Heat Exchangers by adjusting output of 1-HIC-3657 on 1C09 greater than 0% and taking 1-HS-3657 keyswitch on 1C09 to AUTO.	—	—
Evaluator Comment				
BEGIN ALTERNATE PATH				
EVALUATOR NOTE After adjustments are made on 1-SI-657, direct the booth operator to insert Event 2, 1-FIC-306 fails open.				
7	Check that SDC FLOW CONTR, 1-FIC-306, is controlling flow.	Determines 1-FIC-306 is not controlling flow.	—	—
Evaluator Comment				
7.1 1st bullet	If the SDC FLOW CONTR, 1-FIC-306, is not controlling flow, then take manual control by one of the following methods: Place the SDC FLOW CONTR, 1-FIC-306, in MANUAL and adjust flow.	Places 1-FIC-306 in Manual and attempts to lower flow.	—	—
Evaluator Comment				
CUE	If the operator asks, ABO reports that 1-SI-306 has failed open.			

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 7.1 2nd bullet a	If 1-SI-306-CV has failed open, then perform the following actions: Throttle the LPSI HDR valves to return SDC flow to the previous value, if required: • 1-SI-615-MOV • 1-SI-625-MOV • 1-SI-635-MOV • 1-SI-645-MOV	**CRITICAL STEP*** **Throttles the 4 LPSI HDR valves equally to achieve 3000 GPM (+/- 100 GPM).**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when 12 LPSI pump has been started to restore SDC flow with the LPSI header valves throttled to maintain 3000 GPM per AOP-3B. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator4

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

_____

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_____

_____

Examinee Response:

_____

_____

_____

_____

_____

_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 has been shut down for 4 days for the refueling outage.
2. Shutdown cooling is in service with 11 LPSI Pump at 3000 GPM.
3. RCS Temperature is 105°F.
4. RCS pressure is 14.7 PSIA with the Pressurizer Manway removed.
5. 11 LPSI pump has just tripped due to a fault on the breaker.
6. AOP-3B, Abnormal Shutdown Cooling Conditions, has been implemented.
7. You are performing the duties of the Unit-1 Reactor Operator.

Initiating Cue:

1. The Unit Supervisor directs you to respond to the Loss of Shutdown Cooling per AOP-3B, Section IV.A.6, starting on page 15.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

2023 NRC
Initial Licensed
Operator Exam

JPM-Simulator5

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator5

Alternate Path: No

Task Number: 202.035

Task Title: Respond to a condensate or feedwater rupture.

Task Standard: This JPM is complete when the condensate system has been secured and auxiliary feedwater initiated per AOP-3G Step VIII.B.

K/A Reference: 059 K3.01 (3.2) Knowledge of the effect that a loss or malfunction of the Main Feedwater System will have on the following systems or system parameters: CDS.

Method of Testing: Actual Performance - Simulator

Validation Time: 8 minutes

Time Critical Task: No

References and Tools Required:

1. AOP-3G, Malfunction of Main Feedwater System, Revision 01600, pages 52-57.

JPM Setup Instructions:

1. Reset to IC-34 with both Units at 100% power or the previously saved Exam IC.
2. Place Simulator in RUN.
3. Insert Malfunction CD/Cond Bstr Pp Common Disch Rupture: cd008 at 50% at time zero.
4. Insert overrides:
    a. P1C05_RXMAN2A, Reactor Trip PB to Trip on Event 1.
    b. P1C05_RXMAN2D, Reactor Trip PB to Trip on Event 1.
5. When panel 1C03 annunciator window C-16 “CNDSR HOTWELL LVL” alarms, Place Simulator in FREEZE.
6. Obtain Independent Verification for completion of steps 1 through 5.
7. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
8. If desired, Save conditions into available Exam IC slot for continued use.
9. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. Due to a large condensate leak, AOP-3G, Main Feedwater Malfunctions, has been implemented.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to perform AOP-3G, Section VIII.B, Response to a Condensate or Feedwater Rupture.
2. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
AOP-3G BLOCK STEP VIII.B, RESPONSE TO A CONDENSATE OR FEEDWATER RUPTURE				
1	IF a rapid unexplained reduction or loss of Condensate or Feedwater header pressure occurs simultaneously with a lowering of Hotwell level, OR other indications of a rupture are observed, THEN with the approval of the SM/CRS, perform the following actions:	Determines step is applicable and starts performing the actions for a condensate header rupture at power	—	—
Evaluator Comment				
CUE	Direct Booth Operator to insert Event 1 – Reactor Trip When Reactor is tripped report: RO reports the Reactor is tripped and has performed Reactivity Control per EOP-0.			
1.a	Trip the Reactor.	Determines this step is being performed by RO.	—	—
Evaluator Comment				
1.b	Perform the Reactivity control portion of EOP-0.	Determines this step is being performed by RO	—	—
Evaluator Comment				
* 1.c	Trip both SGFPs.	**CRITICAL STEP*** **Pushes the trip pushbuttons for 11 (1-HS-5010) and 12 SGFPs (1-HS-5057).**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 1.d	Secure the following pumps, and place their handswitches in PULL TO LOCK: • Condensate Booster Pumps • Condensate Pumps • Heater Drain Pumps	**CRITICAL STEP*** **Places HS for all Condensate Pumps in PTL** • **1-HS-4414** • **1-HS-4421** • **1-HS-4428** **and Condensate Booster Pumps in PTL** • **1-HS-4453** • **1-HS-4460** • **1-HS-4467** **And Heater Drain Pumps in PTL** • **1-HS-1467** • **1-HS-1464**	—	—
Evaluator Comment				
* 1.e	Shut the SG FW ISOL valves: • 1-FW-4516-MOV • 1-FW-4517-MOV	**CRITICAL STEP*** **Shuts FW ISOL Valves:** • **1-HS-4516 to close** • **1-HS-4517 to close**	—	—
Evaluator Comment				
* 1.f	Shut the S/G B/D valves: • 1-BD-4010-CV • 1-BD-4011-CV • 1-BD-4012-CV • 1-BD-4013-CV	**CRITICAL STEP*** **Shuts the S/G B/D valves:** • 1-BD-4010-CV to close • **1-BD-4011-CV to close** • 1-BD-4012-CV to close • **1-BD-4013-CV to close**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 1.g	Start an AFW PP.	**Critical Step*** **Starts 11 (Places 1-HS-4070 and 1-HS-4071 to open)** **or** **13 AFW Pump (1-HS-4540 to START)**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the condensate system has been secured and auxiliary feedwater initiated per AOP-3G Step VIII.B. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator5

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is at 100% power.
2. Due to a large condensate leak, AOP-3G, Main Feedwater Malfunctions, has been implemented.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to perform AOP-3G, Section VIII.B, Response to a Condensate or Feedwater Rupture.
2. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

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Operator Exam

JPM-Simulator6

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator6

Alternate Path: No

Task Number: 064.019

Task Title: Quench Tank in-leakage

Task Standard: This JPM is complete when the quench tank parameters are returned to normal by performing a bleed and feed per OI-1B.

K/A Reference: 007 A4.02 (2.8) Ability to manually operate and/or monitor in the control room: PRT/quench tank drain valve.

Method of Testing: Actual Performance - Simulator

Validation Time: 10 minutes

Time Critical Task: No

References and Tools Required:

1. OI-1B, Quench Tank Operations, Rev 01900, pages 22-27.

JPM Setup Instructions:

1. Reset to IC-34 with both Units at 100% power or the previously saved Exam IC.
2. Place Simulator in RUN.
3. Insert events:
    a. 1-HS-5460 to OPEN on Event 1.
4. Insert overrides:
    a. P1C06_1TIA116_MT to 122 @ time zero.
    b. P1C06_1TIA116_LTHIGH to on @ time zero.
    c. P1C06_E01_LTON to On at time zero.
    d. P1C06_1TIA116_MT to 115 over 30 seconds on Event 1.
    e. P1C06_1TIA116_LTHIGH to off after 10 seconds on Event 1.
    f. P1C06_E01_LTON to OFF after 30 seconds on Event 1.
5. Ensure Quench Tank Pressure is 5-7 psig.
6. Pump the RCDT.
7. Place Simulator in FREEZE.
8. Obtain Independent Verification for completion of steps 1 through 5.
9. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
10. The Operator is allowed to prepare for this JPM prior to its administration.
11. If desired, Save conditions into available Exam IC slot for continued use.
12. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. Alarm Window E-01, "QUENCH TANK TEMP LVL PRESS", has just come into alarm due to a long term slowly leaking safety valve.
3. The alarm is expected for the current condition every 8-10 hours.
4. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to perform and Bleed and Feed to cool the quench tank per OI-1B, Section 6.5.B.2.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-1B, SECTION 6.5.B, BLEED AND FEED TO COOL THE QUENCH TANK				
NOTE Steps 6.5.B.2 through 6.5.B.5 may be performed simultaneously and in any order to minimize the amount of liquid or gaseous waste OR to minimize Quench Tank pressure change. Use EST's per OP-AA-108-101 to designate the tygon installation if it will remain installed and unattended. A pyrometer may be used to measure DI Header temperature.				
CAUTION Do NOT attempt to adjust the Quench Tank parameters until after the relief or safety valve has completed lifting. The Sparger Nozzles will become uncovered at approximately 24 inches indicated level and the Quench Tank may experience a rapid increase in pressure if this occurs. The amount of time the Sparger Nozzles will be uncovered should be minimized.				
CUE	It is not desired to flush the DI header to lower header temperature prior to Quench Tank Fill.			
1	If desired to flush the DI header…	Determines step is not applicable.	__	__
Evaluator Comment				
CUE	The RO will handle draining the RCDT as necessary.			
2.a	Drain the Quench Tank as follows: Pump the RCDT PER OI-17C as necessary while draining the Quench Tank to maintain RCDT level below the HI level alarm setpoint (45 inches).	Observes 11 RCDT level at 1C33 and determines step is not necessary.	—	—
Evaluator Comment				
* 2.b	Open QUENCH TK DRN, 1-RC-401-CV.	**CRITICAL STEP*** **Opens 1-RC-401-CV.**	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
CAUTION Quench Tank pressure should be continuously monitored to ensure pressure does NOT exceed 10 psig Maintain Quench Tank pressure greater than 0 psig to prevent flashing in the discharge piping				
2.c	If a lowering pressure develops…	Determines step is not applicable.	__	__
Evaluator Comment				
NOTE Draining the Quench Tank below the low level alarm is acceptable during the bleed and feed due to the tank being refilled immediately.				
CUE	Unit Supervisor directs to NOT drain below 25 inches.			
2.d	Drain the Quench Tank to the desired level but not less than 15 inches.	Observes lowering level, maintains > 15 inches.	—	—
Evaluator Comment				
* 2.e	Shut QUENCH TK DRN, 1-RC-401-CV	**CRITICAL STEP*** **Shuts 1-RC-401-CV.**	—	—
Evaluator Comment				
CAUTION Quench Tank pressure should be continuously monitored to ensure pressure does NOT exceed 10 PSIG				
3	If needed to raise pressure…	Determines step is not applicable.	__	__
Evaluator Comment				
CAUTION Quench Tank pressure should be continuously monitored to ensure pressure does NOT exceed 10 psig Maintain Quench Tank pressure greater than 0 psig to prevent flashing in the discharge piping				
4	If opened in step 2 or 3….	Determines step is not applicable.	__	__
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
NOTE DW-5460-CV may be opened on an intermittent basis under administrative control PER T/S 3.6.3.1. This shall be controlled PER OP-AA-108-103.				
* 5.a	Fill the Quench Tank as follow: Open DI WTR CNTMT ISOL, 1-DW-5460-CV.	**CRITICAL STEP*** **Opens 1-DW-5460-CV.**	—	—
Evaluator Comment				
5.b	If Quench Tank pressure…	Determines step is not applicable.	—	—
Evaluator Comment				
CUE	Unit Supervisor directs desired level is between 26.5” and 30.5”			
5.c	Fill the Quench Tank to the desired level but NOT greater than 35 inches.	Observes level, maintains between 26.5 inches and 30.5 inches.	—	—
Evaluator Comment				
* 5.d	Shut DI WTR CNTMT ISOL, 1-DW-5460-CV	**CRITICAL STEP*** **Shuts 1-DW-5460-CV.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the quench tank parameters are returned to normal by performing a bleed and feed per OI-1B. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator6

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is at 100% power.
2. Alarm Window E-01, "QUENCH TANK TEMP LVL PRESS", has just come into alarm due to a long term slowly leaking safety valve.
3. The alarm is expected for the current condition every 8-10 hours.
4. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to perform and Bleed and Feed to cool the quench tank per OI-1B, Section 6.5.B.2.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
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JPM-Simulator7

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator7

Alternate Path: Yes

Task Number: 202.093

Task Title: Respond to the loss of a vital 4KV bus (sustained and intermittent).

Task Standard: This JPM is complete when 11 4KV bus has been transferred to the alternate feeder and then upon the loss of 11 4KV bus, actions per AOP-7I are completed.

K/A Reference: 062 A1.10 (3.4) Ability to predict and/or monitor changes in parameters associated with operation of the AC Electrical Distribution System, including: Lights and Alarms.

Method of Testing: Actual Performance - Simulator

Validation Time: 15 minutes

Time Critical Task: No

References and Tools Required:

1. OI-27C, 4.16 KV System, Rev 03500, pages 70-74.
2. AOP-7I, Loss of 4KV, 480 Volt or 208/120 Volt Instrument Bus Power, Rev 03700, pages 15-24.

JPM Setup Instructions:

1. Reset to IC-34 or the previously saved Exam IC.
2. Enter Triggers:
    a. Loss of Normal and Alternate Feeders: 1-CS-152-1115 to OPEN, on Event 1
    b. 1A EDG Start Pushbutton: P1C18A_1ADGFAST_SWSTART, on Event 2
3. Insert the following overrides/malfunctions/remotes or open saved schedule file:
    a. dg002_02, 1A EDG Start Failure, at time zero.
    b. 1-CS-152-1101, to TRIP after 2 seconds on Event 1.
    c. 1-CS-152-1115, to TRIP after 2 seconds on Event 1.
    d. Remove dg002_02, 1A EDG Start Failure, on Event 2.
    e. Remote RESET-J031 to RESET after 1 on Event 2.
4. Obtain Independent Verification for completion of steps 1 through 3.
5. Acknowledge all panel alarms and ensure “Horn On” for annunciators.
6. Place simulator in FREEZE.
7. If desired, Save conditions into available Exam IC slot for continued use.
8. The Operator is allowed to prepare for this JPM prior to its administration.
9. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. Maintenance is going to be performed on 11 4KV bus normal feeder breaker, 152-1115.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to transfer 11 4KV bus to the alternate feeder breaker per OI-27C, Section 6.14.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-27C, SECTION 6.14, TRANSFERRING 4KV UNIT BUS 11, 12, 13 AND 14				
CAUTION If transferring 13 and 14 OR 21 and 22 4KV buses to the same transformer that Unit will be in a CONDITIONALLY CRITICAL condition.				
1	If transfer will align 13 AND 14 Buses to the same transformer, THEN ENSURE 13 SGFP is in STOP/LOCKOUT PER OI-12A.	Determines step is not applicable.	—	—
Evaluator Comment				
2	If transfer will align 21 AND 22 Buses to the same transformer, THEN ENSURE 23 SGFP is in STOP/LOCKOUT PER OI-12A.	Determines step is not applicable.	—	—
Evaluator Comment				
NOTE Paralleling the SMECO power supply system with the BG&E grid through the 4KV buses is NOT permitted.				
3	Verify the associated service transformer supply breaker is CLOSED AND no transformer trouble alarms are present	Verifies that the U-4000-21 supply breaker is closed and no alarms are present.	—	—
Evaluator Comment				
* 4	Insert the sync stick in the sync jack at the control switch of the OPEN bus feeder breaker.	**CRITICAL STEP*** **Inserts the sync stick in the sync jack at breaker 152-1101.**	—	—
Evaluator Comment				
5	Verify frequency is in synchronization with bus frequency.	Determines frequency is in sync.	—	—
Evaluator Comment				

STEP	ELEMENT	STANDARD	SAT	UNSAT
6	Verify the following to minimize the occurrence of a voltage regulator tap change during the transfer: • Check that the grid has been stable for at least one minute. • Check that there have been NO significant load changes on the bus for at least one minute, such as 4 KV pump changes. • Check that there are NO expected significant load changes during the transfer while BOTH Feeder breakers are closed.	Determines that the grid has been stable and there are no expected load changes.	—	—
Evaluator Comment				
NOTE • Bus feeder voltage indication will be on the incoming synchronizer voltmeter (1-EI-4000A). • When shifting feeder breakers on a 4KV bus from a heavily loaded 13KV bus …				
7	Check Bus feeder voltage is within 7 volts of Bus voltage.	Determines that bus feed voltage is within 7 volts of bus voltage.	—	—
Evaluator Comment				
NOTE If the oncoming and running voltage regulators are in auto, the transfer should be completed within 18 seconds. Time limit is the time between steps for the Voltage Regulator, should a step setpoint be reached.				
CAUTION When transferring 4 KV busses to 13 KV service busses, observe phase amps to ensure breakers are shut prior to opening normal or alternate feeder breakers.				
WARNING Close attention must be given to paralleling sources of power. Improper paralleling could result in severe equipment damage and personnel injury.				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 8.a	If Transfer is on Unit-1 then perform the following: Close the desired OPEN bus feeder breaker.	**CRITICAL STEP*** **Places 1-CS-152-1101 to CLOSE.**	—	—
Evaluator Comment				
* 8.b	Open the desired bus feeder breaker.	**CRITICAL STEP*** **Places 1-CS-152-1115 to OPEN.**	—	—
Evaluator Comment				
BEGIN ALTERNATE PATH				
CUE	After stating/reporting that a loss of 11 4KV bus has occurred: Report implement AOP-7I for the loss of 11 4KV Bus, Section V. on page 15.			
	Multiple alarms in the control room	Determines that a loss of 11 4KV bus has occurred.	—	—
Evaluator Comment				
AOP-7I, SECTION V. RESPOND TO A LOSS OF 11 4KV BUS				
1	Check The following alarms and indications to verify a loss of 11 4KV Bus…	Determines Step is applicable.	—	—
Evaluator Comment				
CUE	If the operator states/recommends the need to adjust turbine load: The Reactor Operator will take care of turbine load adjustments.			
2	Adjust turbine load…	Determines the Reactor Operator will perform step.	—	—
Evaluator Comment				
* 3.a	Shut the L/D CNTMT ISOL valves: • 1-CVC-515-CV • 1-CVC-516-CV	**CRITICAL STEP*** **Places 1-CVC-515 to CLOSE.** **Places 1-CVC-516 to CLOSE.**	—	—

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Comment				
CUE	If the operator states/recommends the need to monitor pressure level: The Reactor Operator will monitor for pressurizer level.			
3.b	When pressurizer level reaches 15 inches…	Determines the Reactor Operator will perform step.	—	—
Evaluator Comment				
CAUTION Uncontrolled restoration of cooling to hot RCP seals may cause a water hammer and could result in thermal shock of the seal coolers.				
* 4	If all RCP lower seal temperatures are less than 280°F, and No CC pumps are running, then start 12 or 13 CC PP as necessary.	**CRITICAL STEP*** Determines that lower seal temperatures are less than 280°F. **Places 1-HS-3815 (12 CC PP) or 1-HS-3817 to START.**	—	—
Evaluator Comment				
5	If shutdown cooling is lost…	Determines step is not applicable.	—	—
Evaluator Comment				
6	If 1A DG starts, and automatically powers the 11 4KV Bus, Then proceed to step A.16	Determines the 1A EDG did not start.	—	—
Evaluator Comment				
CUE	11 4KV bus is not faulted.			
CAUTION Attempts should NOT be made to re-energize a bus if a fault is suspected				

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 6.1.a	If 1A DG did NOT start, AND NO fault exists on 11 4KV Bus, THEN attempt to start and load the 1A DG as follows: Start 1A DG by depressing the 1A DG EMERGENCY START pushbutton, 1-HS-1707.	**CRITICAL STEP*** **Depresses the 1A DG EMERGENCY START pushbutton, 1-HS-1707.**	—	—
Evaluator Comment				
6.1.b	Verify the 1A DG OUT BKR, 152-1703 is closed	Verifies 152-1703 is in the CLOSE position.	—	—
Evaluator Comment				
6.1.c	If 1A DG re-energized 11 4KV Bus, then proceed to step A.16	Determines step is applicable and proceeds to step A.16	—	—
Evaluator Comment				
CUE	If requested: State 11 IAC is running sat. 11 SWGR HVAC is running sat.			
16.a	If 1A DE re-energized 11 4KV Bus, then perform the following actions: Verify that the following loads are running as appropriate:	Verifies that 11 SRW, 11 SW, 11 IAC, 11 CR HVAC, 11 SWGR HVAC are running as expected.	—	—
Evaluator Comment				
NOTE The Shutdown Sequencer will NOT restart the CHG Pump, LPSI Pump or the CC Pumps.				
* 16.b	Start the following pumps as necessary: 11 CHG Pump	**CRITICAL STEP*** **Places 1-HS-224X (11 CHG PP) in START.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when 11 4KV bus has been transferred to the alternate feeder and then upon the loss of 11 4KV bus, actions per AOP-7I are completed. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator7

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is at 100% power.
2. Maintenance is going to be performed on 11 4KV bus normal feeder breaker, 152-1115.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to transfer 11 4KV bus to the alternate feeder breaker per OI-27C, Section 6.14.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

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JPM-Simulator8

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Simulator8

Alternate Path: No

Task Number: 032.013

Task Title: Startup Control Room/Cable Spreading Room Ventilation

Task Standard: This JPM is complete when 12 Control Room HVAC has been placed in service with chill water aligned per OI-22F.

K/A Reference: 050 A4.02 (3.3) Ability to manually operate and/or monitor in the control room: Fans.

Method of Testing: Actual Performance - Simulator

Validation Time: 8 minutes

Time Critical Task: No

References and Tools Required:

1. OI-22F, Control Room and Cable Spreading Rooms Ventilation, Rev 03200, pages 25-26.

JPM Setup Instructions:

1. Reset to IC-34 with both Units at 100% power or the previously saved Exam IC.
2. Place Simulator in RUN.
3. Place Simulator in FREEZE.
4. Obtain Independent Verification for completion of steps 1 through 3.
5. Acknowledge all panel alarms and ensure “Horn Off” for annunciators.
6. The Operator is allowed to prepare for this JPM prior to its administration.
7. If desired, Save conditions into available Exam IC slot for continued use.
8. When the JPM is ready to commence, place simulator in RUN.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. Unit-1 is at 100% power.
2. 11 Control Room HVAC is running per OI-22F with the chill water system in service.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to shift to 12 Control Room HVAC in service per OI-22F, Section 6.7.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-22F, SHIFTING VENTILATION UNITS				
* 1.a	If shifting to 12 Control Room HVAC, then perform the following steps: Place 11 CONTR RM H&V FAN handswitch, 0-HS-5340 at 1C34, to STOP.	**CRITICAL STEP*** **Places 0-HS-5340 to STOP.**	—	—
Evaluator Comment				
* 1.b	Place 12 CONTR RM H&V FAN handswitch, 0-HS-5341 at 1C34, to START.	**CRITICAL STEP*** **Places 0-HS-5341 to START.**	—	—
Evaluator Comment				
* 1.c.1	If the chill water system is in service, then: Place 11/12 CONTR RM CHILL WTR SUPP VLVS handswitch, 0-HS-5380 at 1C34, to CLOSE position.	**CRITICAL STEP*** **Places 0-HS-5380 to CLOSE.**	—	—
Evaluator Comment				
NOTE When CONTR RM CHILL WTR SUPP VLVS are shifted, the “CHILLED WATER SYSTEM” alarm may be received because chilled water flow is less than 525 GPM. The chiller may shutdown for up to 5 minutes, then restart.				
* 1.c.2	Place 11/12 CONTR RM CHILL WTR SUPP VLVS handswitch, 0-HS-5380 at 1C34, to 12 UNIT OPEN position.	**CRITICAL STEP*** **Places 0-HS-5380 to 12 UNIT OPEN.**	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when 12 Control Room HVAC has been placed in service with chill water aligned per OI-22F. The Evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Simulator8

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is at 100% power.
2. 11 Control Room HVAC is running per OI-22F with the chill water system in service.
3. You are performing the duties of the Unit-1 Control Room Operator.

Initiating Cue:

1. The Unit Supervisor directs you to shift to 12 Control Room HVAC in service per OI-22F, Section 6.7.
2. All initial conditions are complete.
3. Are there any questions? You may begin.

Examinee: _____

Calvert Cliffs
Nuclear Power Plant

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Initial Licensed
Operator Exam

JPM-Plant1

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Plant1

Alternate Path: No

Task Number: 048.007

Task Title: Bypass/Unbypass ESFAS Sensor Channel

Task Standard: This JPM is complete when the SIAS and SIAS Block Sensor Modules have been bypassed per OI-34.

Time Critical Task: No

K/A Reference: 013 K5.14 (3.7) Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Engineered Safety Features Actuation System: Placing a Channel bypass.

Method of Testing: Simulate/In-Plant

Validation Time: 15 minutes

References and Tools Required:

1. OI-34-1 Rev 00200 Engineered Safety Features Actuation System

JPM Setup Instructions:

1. Copy of OI-34-1, pages 38-39, all initial conditions marked as complete.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. A refueling outage on Unit-1.
2. You are performing the duties of an extra Operator.

Initiating Cue:

1. You have been directed by the Unit-1 Unit Supervisor to bypass the SIAS PP and SIAS PPB Sensor Maintenance Modules per OI-34, Section 6.10.
2. All Initial Conditions are complete.
3. You have the required keys.
4. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-34-1, SECTION 6.10, BYPASSING SIAS AND SIAS BLOCK SENSOR MODULES IN MODE 5, 6, OR DEFUELED.				
CUE	After each key switch is manipulated report the bypass light is lit.			
* 1	Ensure the following Sensor Maintenance Modules Bypass Key switches are in BYPASS: • ZD SIAS PP • ZE SIAS PP • ZF SIAS PP • ZG SIAS PP	**Critical Step*** ***Simulates placing a Key into ZD SIAS PP and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZE SIAS PP and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZF SIAS PP and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZG SIAS PP and rotating clockwise to place the sensor in Bypass**	__	__
Evaluator Comment				
CUE	If asked: inform operator that there are no SIAS Actuated Lamps illuminated.			
2	If any ZA OR ZB logic SIAS 1 through 10 Actuated lamps are illuminated, then inform Unit Supervisor.	Determines the step is NA based on Cue.	__	__
Evaluator Comment				
CUE	After each key switch is manipulated report the bypass light is lit.			

STEP	ELEMENT	STANDARD	SAT	UNSAT
* 3	Ensure the following Sensor Maintenance Modules Bypass Keyswitches are in BYPASS: • ZD SIAS PPB • ZE SIAS PPB • ZF SIAS PPB • ZG SIAS PPB	**Critical Step*** ***Simulates placing a Key into ZD SIAS PPB and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZE SIAS PPB and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZF SIAS PPB and rotating clockwise to place the sensor in Bypass** ***Simulates placing a Key into ZG SIAS PPB and rotating clockwise to place the sensor in Bypass**	—	—
Evaluator Comment				
CUE	As the control room, inform the operator that the alarm is clear.			
4	Check 1C08 “PZR PRESS BLOCK A” annunciator clears.	Determines step is complete based on cue.	—	—
Evaluator Comment				
CUE	As the control room, inform the operator that the alarm is clear.			
5	Check 1C08 “PZR PRESS BLOCK B” annunciator clears.	Determines step is complete based on cue.	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the SIAS and SIAS Block Sensor Modules have been bypassed per OI-34. No further actions are required. The evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Plant1

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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_____

Examinee Response:

_____

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_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. A refueling outage on Unit-1.
2. You are performing the duties of an extra Operator.

Initiating Cue:

1. You have been directed by the Unit-1 Unit Supervisor to bypass the SIAS PP and SIAS PPB Sensor Maintenance Modules per OI-34, Section 6.10.
2. All Initial Conditions are complete.
3. You have the required keys.
4. Are there any questions? You may begin.

Examinee: _____

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JPM-Plant2

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Plant2

Alternate Path: No

Task Number: 073.003

Task Title: Startup the Hydrogen Purge System – Post Accident.

Task Standard: This JPM is complete when the operator starts the Hydrogen Purge System (Post Accident) and establishes a 50 SCFM flow rate to lower hydrogen concentration and containment pressure per OI-41B.

Time Critical Task: No

K/A Reference: 028 A4.01 (3.7) Ability to manually operate and/or monitor in the control room: HRPS Controls.

Method of Testing: Simulate/In-Plant

Validation Time: 10 minutes

References and Tools Required:

1. OI-41B Rev 01400 Hydrogen Purge System Operation.

JPM Setup Instructions:

1. Copy of OI-41B, Section 6.1, pages 8-10.

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. A Large Break LOCA occurred on Unit-1 52 hours ago.
2. Containment High Range Rad Monitors, 1-RE-5317A&B read normally at 1R/hr.
3. Containment Pressure is currently 6.5 PSIG.
4. Chemistry has issued an approved Gaseous Waste Release Permit with a flow limit of 50 SCFM.
5. You are performing the duties of the Unit-1 ABO.

Initiating Cue:

1. You have been directed by the Unit-1 Unit Supervisor to operate the Hydrogen Purge System per OI-41B Section 6.1.B starting on page 8.
2. All General Precautions and Initial Conditions are met.
3. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
OI-41B, SECTION 6.1.B, UNIT 1 POST-ACCIDENT OPERATION				
CUE	Radiation Protection and Chemistry acknowledge that containment purge will be initiated.			
1	NOTIFY Radiation Protection Supervision AND Chemistry that plant will be initiating a containment purge.	Notifies RP Supervision and Chemistry that plant will be initiating a containment purge.	__	__
Evaluator Comment				
CUE	The Unit-1 CRO informs you that the Unit-1 Pen Room Ventilation System is in service with filter units in operation.			
2	START Unit 1 Penetration Room Ventilation System AND PLACE filter units in service PER OI-22G.	Simulates contacting Unit-1 Control Room to verify action complete.	__	__
Evaluator Comment				
NOTE Handswitch for Hydrogen Purge Flow Control Damper “spring returns” to AUTO when released. No automatic features are associated with this valve.				
3	SHUT Hydrogen Purge Flow Control Damper at panel 1C100 as follows:	Determines step is applicable.	__	__
Evaluator Comment				
CUE	The component you identified is in the position you described.			
* 3.a	PLACE H2 PURGE FLO CONTR DMPR 1-HP-6902-MOV handswitch in CLOSE, AND HOLD in that position.	**Critical Step*** ***Simulates placing 1-HP-6902-MOV handswitch in CLOSE and holds in that position.**	__	__
Evaluator Comment				
CUE	After several seconds: inform operator the red indicating light is extinguished and the green indicating light is illuminated. When released: The component you identified returns to the position you described.			

STEP	ELEMENT	STANDARD	SAT	UNSAT
3.b	WHEN valve indicates fully shut, THEN RELEASE handswitch AND ENSURE that it returns to AUTO.	Simulates releasing handswitch to return to the AUTO position.	—	—
Evaluator Comment				
NOTE Loss of power to 1-RE-5317A shuts 1-HP-6901-MOV. Loss of power to 1-RE-5317B shuts 1-HP-6900-MOV.				
CUE	When contacted: inform operator the Control Room determines steps 4 and 5 are N/A.			
4	IF one or more of the following conditions exists, THEN PLACE …	Determines step is not applicable based on the cue provided.	—	—
Evaluator Comment				
5	IF one or more of the following conditions exists, THEN PLACE …	Determines step is not applicable based on the cue provided.	—	—
Evaluator Comment				
CUE	When contacted: inform operation the Unit-1 CRO states that 1-HS-6900 and 1-HS-6901 are in OPEN on 1C10.			
6	PLACE the following handswitches in OPEN at panel 1C10: • H2 PURGE INBD ISOL 1-HP-6900-MOV ……. 1-HS-6900 • H2 PURGE OUTBD ISOL 1-HP-6901-MOV ……. 1-HS-6901	Simulates contacting Unit-1 Control Room to verify action complete.	—	—
Evaluator Comment				
CUE	The component you identified is in the position you described. After several seconds: inform operator the green indicating light is extinguished and the red indicating light is illuminated.			
* 7	PLACE H2 PURGE REPLACE AIR CNTMT ISOL 1-HP-6903-MOV keyswitch in OPEN at panel 1C100.	**Critical Step*** ***Simulates placing 1-HP-6903-MOV keyswitch in OPEN at panel 1C100.**	—	—

STEP	ELEMENT	STANDARD	SAT	UNSAT
Evaluator Comment				
CUE	The component you identified is in the position you described. Inform operator initial flow indicates 0 SCFM and raise indication as appropriate as valve 1-HP-6902-MOV is opened until 50 SCFM is indicated. (Flow is a digital readout)			
* 8	Slowly OPEN Hydrogen Purge Flow Control Damper 1-HP-6902-MOV at panel 1C100, AND ADJUST release rate as follows: a. MOMENTARILY PLACE H2 PURGE FLO CONTR DMPR 1-HP-6902-MOV handswitch in OPEN, AND RELEASE. b. OBSERVE release flowrate on 1-FI-6901. c. REPEAT Steps 8.a and 8.b as necessary until release rate is 50 SCFM.	**Critical Step*** ***Simulates opening 1-HP-6902-MOV and adjusts release rate to 50 SCFM (±10 SCFM).**	—	—
Evaluator Comment				
CUE	When integrator checked: inform operator the reading is steadily rising.			
9	ENSURE that Containment Hydrogen Purge Flow Integrator 1-FQI-6901 at panel 1C100 shows steadily rising total flow, to ensure the system is functioning as expected.	Simulates verifying 1-FQI-6901 at panel 1C100 shows steadily rising total flow.	—	—
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the operator starts the Hydrogen Purge System (Post Accident) and establishes a 50 SCFM flow rate to lower hydrogen concentration and containment pressure. No further actions are required. The evaluator is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Plant2

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. A Large Break LOCA occurred on Unit-1 52 hours ago.
2. Containment High Range Rad Monitors, 1-RE-5317A&B read normally at 1R/hr.
3. Containment Pressure is currently 6.5 PSIG.
4. Chemistry has issued an approved Gaseous Waste Release Permit with a flow limit of 50 SCFM.
5. You are performing the duties of the Unit-1 ABO.

Initiating Cue:

1. You have been directed by the Unit-1 Unit Supervisor to operate the Hydrogen Purge System per OI-41B Section 6.1.B starting on page 8.
2. All General Precautions and Initial Conditions are met.
3. Are there any questions? You may begin.

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JPM-Plant3

Facility: Calvert Cliffs 1 & 2 **JPM Number:** Plant3

Alternate Path: No

Task Number: 202.123

Task Title: Secure the MG Sets.

Task Standard: This JPM is complete when the MG sets have been shutdown locally, the Reactor is verified shutdown, and SG Blowdown/RCP Bleedoff/Letdown/RCS Sampling are all isolated to conserve SG and RCS inventory.

Time Critical Task: No

K/A Reference: 015 K4.10 (3.6) Knowledge of Nuclear Instrumentation System design features and/or interlocks that provide for the following: Redundant sources of information on power level.

Method of Testing: Simulated-Plant

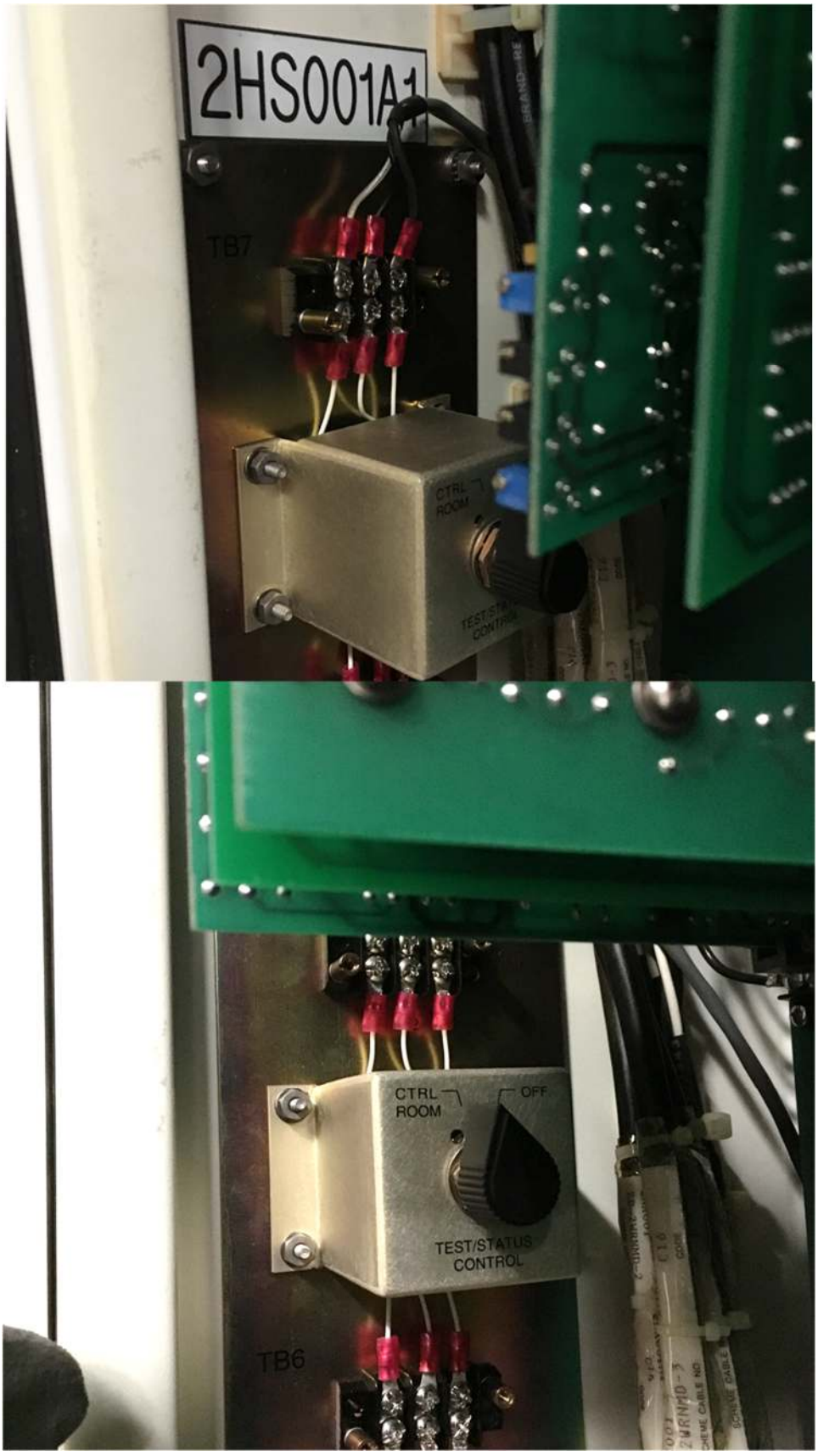
Validation Time: 15 minutes

References and Tools Required:

1. AOP-9B-2 Rev 02200 Safe Shutdown Due to a Severe Cable Spreading Room Fire.
2. Pictures of cabinet 2-NX-001A1 internals.

JPM Setup Instructions:

1. Consumable copy of AOP-9B-2 Block Steps I-M.
2. Pictures available for examinee of cabinet 2-NX-001A1 internals, per attached.


2HS001A1
TB7
CTRL
ROOM
CTRL
ROOM
OFF
TEST/STATUS
CONTROL
TB6

Directions to the Examinee:

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

Hand Examinee's Cue Sheet to Examinee at this time.

Initial Conditions:

1. You are performing the duties of the Unit-2 CRO.
2. A severe fire has started in the Unit-2 Cable Spreading Room.
3. AOP-9B-2, Safe Shutdown Due to a Severe Cable Spreading Room Fire, has been implemented.
4. All actions in the Unit-2 Control Room have been attempted.
5. Unit-2 personnel have evacuated the Control Room.
6. You have obtained your necessary key ring and equipment at the Safe Shutdown Panel in the Unit-2 45' SWGR Room per Step IV.H.

Initiating Cue:

1. The Unit Supervisor directs you to respond to the Unit-2 Cable Spreading Room fire using AOP-9B-2, Safe Shutdown Due to a Severe Cable Spreading Room Fire.
2. You are directed to perform Block Step I, Block Step J, and Block Step M.
3. All component actions will be simulated.
4. Are there any questions? You may begin.

STEP	ELEMENT	STANDARD	SAT	UNSAT
TIME START: _____				
CUE	After Examinee reviews Cue Sheet, provide a copy of AOP-9B-2 Steps IV.I-M.			
	Locates AOP-9B-2, Step IV.I-SHUTDOWN 21 AND 22 CEDM MG SETS	Determines that next step to be performed is IV.I, to shutdown 21 and 22 MG Sets	—	—
I.1	On CEDM MG Set Control Panel:	Locates panel 2C87 in U-2 45' Switchgear Room.	—	—
Evaluator Comment				
CUE	Initially, the Local LOAD ON light is lit. After Local LOAD OFF Pushbutton is depressed: Local LOAD ON light goes out and Local/22 MG Generator Amps read zero.			
* I.1.a	Depress Local LOAD OFF Pushbutton.	**CRITICAL STEP*** ***Depresses Local LOAD OFF button on 2C87.**	—	—
Evaluator Comment				
CUE	Initially, the Remote LOAD ON light is lit. After Remote LOAD OFF Pushbutton is depressed: Remote LOAD ON light goes out and Remote/21 MG Generator Amps read zero.			
* I.1.b	Depress Remote LOAD OFF Pushbutton.	**CRITICAL STEP*** ***Depresses Remote LOAD OFF button on 2C87.**	—	—
Evaluator Comment				
CUE	Initially, the Local MOTOR ON light is lit. After Local MOTOR OFF Pushbutton is depressed for several seconds: Local MOTOR ON light goes out and Local/22 MG Generator Volts and Exciter Field Amps ramp to zero. Noise level from 22 MG starts to lower.			

* I.1.c	Depress and hold Local MOTOR OFF Pushbutton until MOTOR ON light deenergizes.	**CRITICAL STEP*** ***Depresses and holds Local MOTOR OFF button on 2C87 until Local MOTOR ON light goes out.**	—	—
Evaluator Comment				
CUE	Initially, the Remote MOTOR ON light is lit. After Remote MOTOR OFF Pushbutton is depressed for several seconds: Remote MOTOR ON light goes out and Remote/21 MG Generator Volts and Exciter Field Amps ramp to zero.			
* I.1.d	Depress and hold Remote MOTOR OFF Pushbutton until MOTOR ON light deenergizes.	**CRITICAL STEP*** ***Depresses and holds Remote MOTOR OFF button on 2C87 until Remote MOTOR ON light goes out.**	—	—
Evaluator Comment				
CUE	If asked: continue with Block Step J.			
I.2	Perform Step J.	Determines that next step to be performed is IV.J, to verify the Reactor is shutdown.	—	—
Evaluator Comment				
J.1	Isolate Channel A WRNI from the Control Room:	Determines step is applicable.	—	—
CUE	After locating and simulating how to open cabinet 2-NX-001A1: The cabinet is open. Provide pictures of cabinet 2-NX-001A1 internals. Voltage in the cabinet is < 50 volts and no electrical PPE is required.			
J.1.a	Open OPT. ISOL, 2-NX-001A1 (behind 2C43).	Locates cabinet 2-NX-001A1 and simulates opening the cabinet by loosening screws on the right and moving the holding brackets.	—	—
Evaluator Comment				
CUE	Initially, 2HS001A1 is in the fully counter-clockwise/CTRL ROOM position. After the HS is manipulated: The component identified is in the position described.			

* J.1.b	Place 2-HS-001A1 in OFF.	**CRITICAL STEP*** ***Rotates 2HS001A1 fully clockwise to the OFF position.**	—	—
Evaluator Comment				
CUE	Initially, 2-HS-015B is in the fully clockwise/C position. After HS is manipulated: The component identified is in the position described.			
* J.1.c	On 2C43, verify 2-HS-015B selected to A.	**CRITICAL STEP*** Locates 2-HS-015B on panel 2C43 ***Rotates 2-HS-015B to the fully counter-clockwise/A position.**	—	—
Evaluator Comment				
J NOTE	Reactivity Control is satisfactory when Reactor Power is less than 10^{-4}% power and constant or lowering.			
CUE	When checked, state reactor power indicates and then point to and indicate that reactor power is $7x10^{-5}$% and slowly lowering.			
J.2	Verify Reactor Power is trending to or is less than 10^{-4}% power and lowering.	Locates % Power indication on 2-NI-016 and determines power is less than 10^{-4}% and lowering.	—	—
Evaluator Comment				
CUE	If asked: continue with Block Step M.			
J.3	Perform Step M.	Determines that next step to be performed is IV.M, to isolate SG Blowdown and conserve RCS inventory.	—	—
Evaluator Comment				
CUE	The component identified is in the position described.			
M.1	Insert key for 21 S/G SURF and BOT B/D, 2-BD-4010-CV / 2-BD-4011-CV.	Fully inserts key into 2-HS-4010A.	—	—
Evaluator Comment				

CUE	Initially, 2-HS-4010A is in the fully counter-clockwise/OPEN position. After HS is manipulated: The component identified is in the position described.			
* M.2	Rotate key to CLOSE.	**CRITICAL STEP*** ***Rotates 2-HS-4010A to the fully clockwise/CLOSE position.**	—	—
Evaluator Comment				
CUE	The component identified is in the position described.			
M.3	Insert key for 22 S/G SURF and BOT B/D, 2-BD-4012-CV / 2-BD-4013-CV.	Fully inserts key into 2-HS-4012A.	—	—
Evaluator Comment				
CUE	Initially, 2-HS-4012A is in the fully counter-clockwise/OPEN position. After HS is manipulated: The component identified is in the position described.			
* M.4	Rotate key to CLOSE.	**CRITICAL STEP*** ***Rotates 2-HS-4012A to the fully clockwise/CLOSE position.**	—	—
Evaluator Comment				
CUE	The component identified is in the position described.			
M.5	Insert key for RCP CBO ISOL, 2-CVC-505-CV.	Fully inserts key into 2-HS-2505A.	—	—
Evaluator Comment				
CUE	Initially, 2-HS-2505A is in the fully clockwise/NORMAL position. After HS is manipulated: The component identified is in the position described.			
* M.6	Rotate key to CLOSE.	**CRITICAL STEP*** ***Rotates 2-HS-2505A to the fully counter-clockwise/CLOSE position.**	—	—
Evaluator Comment				
CUE	The component identified is in the position described.			

M.7	Insert key for L/D CNTMT ISOL, 2-CVC-516-CV.	Fully inserts key into 2-HS-2516A.	__	__
Evaluator Comment				
CUE	Initially, 2-HS-2516A is in the fully clockwise/NORMAL position. After HS is manipulated: The component identified is in the position described.			
* M.8	Rotate key to CLOSE.	**CRITICAL STEP*** ***Rotates 2-HS-2516A to the fully counter-clockwise/CLOSE position.**	__	__
Evaluator Comment				
CUE	The component identified is in the position described.			
M.9	Insert key for RC SAMPLE ISOL, 2-PS-5464-SV.	Fully inserts key into 2-HS-5464B.	__	__
Evaluator Comment				
CUE	Initially, 2-HS-5464B is in the fully clockwise/NORMAL position. After HS is manipulated: The component identified is in the position described.			
* M.10	Rotate key to CLOSE.	**CRITICAL STEP*** ***Rotates 2-HS-5464B to the fully counter-clockwise/CLOSE position.**	__	__
Evaluator Comment				
TERMINATING CUE: This JPM is complete when the MG sets have been shutdown locally, the Reactor is verified shutdown, and SG Blowdown/RCP Bleedoff/Letdown/RCS Sampling are all isolated to conserve SG and RCS inventory. The Examiner is expected to end the JPM.				
TIME STOP: _____				

Verification of Completion

Job Performance Measure Number: Plant3

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s):

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Examinee Response:

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_____

Result: SATISFACTORY _____ UNSATISFACTORY _____

Examiner's Signature and Date:

_____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. You are performing the duties of the Unit-2 CRO.
2. A severe fire has started in the Unit-2 Cable Spreading Room.
3. AOP-9B-2, Safe Shutdown Due to a Severe Cable Spreading Room Fire, has been implemented.
4. All actions in the Unit-2 Control Room have been attempted.
5. Unit-2 personnel have evacuated the Control Room.
6. You have obtained your necessary key ring and equipment at the Safe Shutdown Panel in the Unit-2 45' SWGR Room per Step IV.H.

Initiating Cue:

1. The Unit Supervisor directs you to respond to the Unit-2 Cable Spreading Room fire using AOP-9B-2, Safe Shutdown Due to a Severe Cable Spreading Room Fire.
2. You are directed to perform Block Step I, Block Step J, and Block Step M.
3. All component actions will be simulated.
4. Are there any questions? You may begin.