APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SRO/ADMIN-1

Rev. 1

Rev. 0	New JPM.
Rev. 1	Integrate validation comments

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** SRO/ADMIN-1

Task Title: Perform review of completed Surveillance Test.

Task Number: 210.003 Perform the initial review of a completed STP.

K/A Reference: 2.1.7 (4.7)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☒ Simulator: ☐ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit-1 is in Mode 1 with normal electrical and system lineups.
2. Bay temperature is 72^0F.
3. U-1 Control Room Operator just completed STP O-73C-1 "Component Cooling Pump Quarterly Test" on 11 Component Cooling Pump as scheduled surveillance.
4. You are performing the duties of the U-1 Unit Supervisor.

Initiating Cue:

You are directed to perform the Acceptance Criteria for the completed STP IAW Step 6.1.AB. Are there any questions? You may begin.

Task Standard:

This JPM is complete when STP O-73C-1 Acceptance Criteria is completed and any required actions identified.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

Required Materials:

1. Prepared STP O-73C-1
2. U-1 Tech Specs

General References:

1. WC-AA-111 (EN4-104 replacement)

Time critical task:

No

Validation Time:

10 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
TIME START: _____	
CUE: Provide the Operator with the prepared STP O-73A-1.	
CUE: Inform Operator that Sect. 6.1 was completed and requires SRO review of Acceptance Criteria.	
❑ Step 6.1.AB.1 Was 11 CC Pump corrected ΔP between 33.2 and 40.5 PSID in step 6.1.N?	Determines the following: • Corrected ΔP is logged as 32.75 PSID which is out of spec low. **CRITICAL STEP** • Circles NO and initials step 6.1.AB.1. **CRITICAL STEP**
❑ Step 6.1.AB.2 Were 11 CC PP INBD **AND** OUTBD bearing vibration readings less than the ACTION RANGE limit as recorded in Step 6.1.N?	Determines the following: • Inboard vertical vibration is greater than ALERT RANGE but less than ACTION RANGE. • All other vibration readings are in spec. • Circles YES and initials step 6.1.AB.2.
❑ Step 6.1.AB.3 Was CC Flow greater than or equal to 5160 GPM in step 6.1.R?	Determines the following: • CC Flow was <5160 GPM. • Circles NO and initials step 6.1.AB.3. **CRITICAL STEP**
❑ Step 6.1.AB.4 **IF** 1-CC-115 is being tested for full stroke closed, **THEN** perform the following.	Determines step is applicable.
❑ Step 6.1.AB.4.a Was 11 CC Pump reverse rotation absent in step 6.1.V?	Determines the following: • No reverse rotation noted. • Circles YES and initials step 6.1.AB.4.a
❑ Step 6.1.AB.4.b Was 12 or 13 CC Pump flow greater than or equal to 5160 GPM in step 6.1.U?	Determines the following: • Flow was > 5160 GPM. • Circles YES and initials step 6.1.AB.4.b
❑ Step 6.1.AB.5 This test section is considered satisfactory if YES or N/A was answered in all steps above.	Circles UNSAT and initials step. **CRITICAL STEP**

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE: If asked, the 13 CC pump is electrically aligned to 14 480V bus (normal alignment). When operator notifies SM of the inoperable equipment, acknowledge report, ask for recommendation. If candidate asks to review EN-4-104, supply him with attached copy of WC-AA-111 and inform him that it is the Exelon Procedure replacement.	
☐ Step 6.1.AB.5.a **<u>IF</u>** unsat, **<u>THEN</u>** notify SM, declare the affected equipment inoperable and take actions as required by administrative actions stated in EN-4-104 (N/A if **<u>NOT</u>** UNSAT).	• References WC-AA-111 (EN-4-104 replacement). [redacted] (candidate should note that shifting to 11 480V bus would allow exiting the LCO)
CUE: When CRO directed to write Condition Report for failed pump flow, acknowledge direction.	
☐ Step 6.1.AB.5.b **Initiate** a Condition Report for any equipment deficiencies (N/A if **<u>NO</u>** equipment deficiencies).	• Direct CRO to write Condition Report. • Initials step.
CUE: When CRO directed to write Condition Report for vibration in Alert Range, acknowledge direction.	
☐ Step 6.1.AB.5.c **Initiate** a Condition Report for components tested in this section that exceeded the ALERT RANGE to evaluate pump conditions and include the need to be placed in the Supplemental Program for increased testing frequency. (N/A if **<u>NO</u>** components tested in this section exceeded the ALERT RANGE).	[redacted] • Initials step

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	When CRO directed to call the IST Engineer for vibration in Alert Range, acknowledge direction.
❑ Step 6.1.AB.5.c.(1) **Inform** the IST Engineer of any components that exceed the ALERT RANGE. (Voicemail is Acceptable). (N/A if NO components in this section exceed the ALERT Range).	• Directs CRO to call /or state intention to call IST Engineer. • Initials step.
TERMINATING CUE: This JPM is complete when Sect 6.1 of STP-73C-1 is completed. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SRO/ADMIN-1**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 is in Mode 1 with normal electrical and system lineups.
2. Bay temperature is 72^0F.
3. U-1 Control Room Operator just completed STP O-73C-1 "Component Cooling Pump Quarterly Test" on 11 Component Cooling Pump as scheduled surveillance.
4. You are performing the duties of the U-1 Unit Supervisor.

Initiating Cue:

You are directed to perform the Acceptance Criteria for the completed STP IAW Step 6.1.AB. Are there any questions? You may begin.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SRO/ADMIN-2

Rev. 2

Rev 1	Modified & updated JPM to 2017 Format using revised procedures.
Rev. 2	Integrated validation comments.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** SRO/ADMIN-2

Task Title: Verify an Estimated Critical Condition Calculation

Task Number: 202.247

K/A Reference: 2.1.25 (4.2)

Method of Testing:

Simulated Performance: ☒ Actual Performance: ☒

Classroom: ☒ Simulator: ☐ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit-2 is in MODE 3 at normal operating temperature and pressure. Current time is 0800.
2. The reactor tripped while performing RPS testing 32 hours ago. Preparations are underway for a quick trip recovery startup to begin within the next 30 minutes with criticality anticipated in 2 hours at 10am.
3. The following conditions exist:
   a. Unit-2 tripped from 100% power 32 hours ago.
   b. Power history: Prior to the trip, Unit-2 operated at 100% for the previous 68 days.
   c. Burnup from the plant computer point "CEBURNUP" is 14,400 MWD/MTU.
   d. Nuclear Fuels has provided a Xenon Worth Calculation and a B-10 Correction factor of 0.971.
4. An ECC has been prepared by an extra licensed operator.

Initiating Cue:

The Shift Manager has directed you to Verify the Estimated Critical Condition calculation per NEOP-302 Section 4 of Attachment 2, Step 6.3.2. Consider the evaluator as the preparer.

Verify the ECC's from 0800 to 1200.

Task Standard:

This JPM is complete when ECC review is completed.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

Required Materials:

1. Procedures and manuals normally available in the plant

General References:

1. NEOP302, Estimated Critical Condition
2. NEOP-23, Technical Data Book (Unit-2)

Time critical task:

No

Validation Time:

30 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
TIME START: _____	
❑ Locates NEOP-302 Step 6.3.2	Same as Element
❑ 6.3.2 Submit Section 2 to a licensed SRO for review. Prior to performing the review, the SRO shall review Step 4.5.2	Same as Element
❑ Step 4.5.2 Some calculations performed in this procedure are originated by Reactor Engineering (RE) and then reviewed by a Senior Reactor Operator (SRO).....	Same as Element
❑ Step 4.5.2.1 Verify that the previous critical condition is correct if not previously reviewed	Determines previous critical condition was previously reviewed by an SRO as shown by SRO signature on Attachment 2 Section 1
❑ Step 4.5.2.2 **INDEPENDENTLY VERIFY** that all recorded data and calculations in the section being reviewed are accurate	Reviews data and calculations and identifies 1100 CEA worth as incorrect, causing all subsequent data for 1100 to be incorrect **CRITICAL STEP** **(See attached key)**
❑ Step 4.5.2.3 **VERIFY** that the ECC Upper and Lower Bounds are calculated correctly **AND** the established bounds are between 135 inches withdrawn on Reg Grp 5 and Zero Power PDIL, if reviewing an estimated critical condition.	Identifies following errors: • 1100 Lower Bound Gp 4 level • 1100 Upper Bound Gp 4 & Gp5 level • 1200 Lower Bound Gp 3 <ZPDIL

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	When student instructs preparer to make necessary corrections to Attachment 2 Section 4, tell him to determine and document corrections on a blank line on form.
❑ Step 4.5.2.4 **IF** an error is found, **THEN INSTRUCT** the preparer to make the necessary corrections, **AND REPEAT** the review	Instructs the preparer (Evaluator) to make necessary corrections. After Cue given, the following changes should be made:  • 1200 Lower Bound not valid
TERMINATING CUE: This JPM is corrected values are inserted into blank line on Attachment 2 Section 4. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SRO/ADMIN-2**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-2 is in MODE 3 at normal operating temperature and pressure. Current time is 0800.
2. The reactor tripped while performing RPS testing 32 hours ago. Preparations are underway for a quick trip recovery startup to begin within the next 30 minutes with criticality anticipated in 2 hours at 10am.
3. The following conditions exist:
   a. Unit-2 tripped from 100% power 32 hours ago.
   b. Power history: Prior to the trip, Unit-2 operated at 100% for the previous 68 days.
   c. Burnup from the plant computer point "CEBURNUP" is 14,400 MWD/MTU.
   d. Nuclear Fuels has provided a Xenon Worth Calculation and a B-10 Correction factor of 0.971.
4. An ECC has been prepared by an extra licensed operator.

Initiating Cue:

The Shift Manager has directed you to Verify the Estimated Critical Condition calculation per NEOP-302 Section 4 of Attachment 2, Step 6.3.2. Consider the evaluator as the preparer.

Verify the ECC's from 0800 to 1200.

Task Standard:

This JPM is complete when ECC review is completed.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SRO/ADMIN-3

Rev. 2

Rev 1	Revised 2011 NRC ADMIN-3 to new format, using latest procedures
Rev.2	Integrated validation comments.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** SRO/ADMIN-3

Task Title: Establish initial plant conditions for and approve performance of an STP.

Task Number: 210.001

K/A Reference: 2.2.40 (4.7)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☒ Simulator: ☐ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1) Unit-1 is at 100% reactor power.
2) STP O-8A-1 is scheduled today.
3) Ops FSTC has indicated that monthly and quarterly surveillances are due.
4) No maintenance was performed on the 1A DG.
5) STP M-651C-1A is not required.
6) All D/G's are operable and available
7) You are performing the duties of the CRS.

Initiating Cue:

1) The Shift Manager directs you to prepare STP O-8A-1 for performance by completing SRO portions of step 4.0.A
2) List sections of the test that will be performed.

Task Standard:

This JPM is complete when the SRO portion of the STP preliminary section using the given information and Technical Specifications.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

Required Materials:

1. Blank copy of STP 0-8A-1

General References:

2. U-1 Tech Specs

Time critical task:

No

Validation Time:

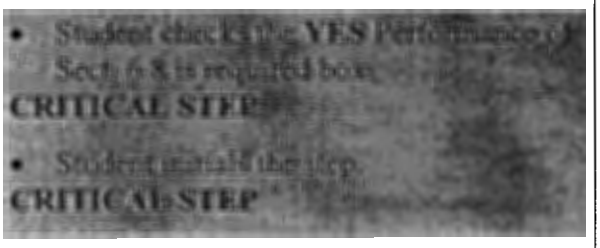
30 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
TIME START: _____	
CUE: The Shift Manager directs you to prepare STP O-8A-1 for performance by completing SRO portions of up through section 4.0.	
❑ Step 4.0.A.1 IF STP M-651C-1A is to be performed concurrently with this test THEN NOTIFY E&C to perform STP M-651C-1A prerequisites.	Determines this step is N/A from given cues and either writes N/A with initial or just initials the block.
NOTE SIAS A-10 Logic, Channel Functional test is required quarterly in Modes 1-3.	
❑ Step 4.0.A.2 **INDICATE** ESFAS test requirements: ❑ SIAS/UV test required: (check required tests) ❑ **PERFORM** Sect. 6.4, QUARTERLY SIAS A-10 LOGIC AND UV-4 LOGIC TEST. • Required if performing STP M-651C-1A.	• Student checks the SIAS/UV test required box. **CRITICAL STEP** • Student checks the PERFORM Sect 6.4 box. **CRITICAL STEP** • Student initials the step. **CRITICAL STEP**
❑ ESFAS testing NOT required: ❑ **LEAVE** Sections 6.4 through 6.6 blank.	Student leaves the ESFAS testing NOT required: box blank.
NOTE Taking 1A DG to LOCAL makes the DG inoperable. This minimizes unloaded run time during ESFAS testing **AND** is the preferred alignment.	

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ Step 4.0A.3 **IF** performing ESFAS testing, **THEN REVIEW** equipment availability **AND INDICATE** 1A DG alignment during test: (N/A if **NOT** testing ESFAS) ❑ **1A DG in LOCAL during ESFAS test:** • **LEAVE** Sections 6.2 **AND** 6.3 Blank.	• Student checks the **1A DG in LOCAL during ESFAS test:** box. • Student initials the step.
❑ **1A DG in AUTO during ESFAS test:** • Required if performing STP M-651C-1A ❑ **LEAVE** Sections 6.5 **AND** 6.6 blank	Student leaves the **1A DG in AUTO during ESFAS test:** box blank.
NOTE 1A DG remains operable when performing a Slow Speed start from 1C18A.	
CUE: If asked by candidate about Slow or Fast start preferred, inform him "POD says slow speed start".	
❑ Step 4.0.A.4 **REVIEW** PMT requirements, Surveillance Schedule **AND INDICATE** 1A DG start requirements: • **Slow start of 1A DG:** • Required if performing STP M-651C-1A. • **LEAVE** Sections 6.2 AND 6.5 blank. • **IF** 1A DG will be LOCAL during ESFAS testing, **THEN LEAVE** Section 6.3 blank. • **IF** 1A DG will be started before ESFAS testing, **THEN LEAVE** Section 6.6 blank.	• Student checks the **Slow Speed Start of 1A DG: box.** • Student initials step.

ELEMENT (shaded = CRITICAL STEP)	STANDARD
• **Emergency start of 1A DG:** • **LEAVE** Sections 6.3 AND 6.6 blank: • IF 1A DG will be in LOCAL during ESFAS testing, THEN LEAVE Section 6.2 blank.	Student leaves the **Emergency start of 1A DG:** box blank.
• **Start of 1A DG NOT required:** • **LEAVE** Sections 6.2, 6.3, **AND** 6.5 through 6.7 blank:	Student leaves the **Start of 1A DG NOT required:** box blank.
❑ Step 4.0.A.5 **REVIEW** the Surveillance Schedule **OR** PMT to determine if Section 6.1 is required to be performed. ❑ **YES** – Performance of Sect 6.1 is required ❑ Monthly FO TRANSFER PP Automatic Start test is required. ❑ Quarterly IST FO TRANSFER PP Performance Capacity test is required.	• Student checks the YES Performance of Sect 6.1 is required box. **CRITICAL STEP** • Student checks to Monthly FO TRANSFER PP Automatic Start test is required box. **CRITICAL STEP** • Student checks the Quarterly IST FO TRANSFER PP Performance Capacity test is required box. **CRITICAL STEP** • Student initials the step. **CRITICAL STEP**
❑ **NO** – Performance is **NOT** required; **LEAVE** Sect. 6.1 blank.	Student leaves the Performance is **NOT** required; **LEAVE** Sect. 6.1 blank box blank
❑ Step 4.0.A.6 **REVIEW** the Surveillance Schedule **OR** PMT to determine if Section 6.8 is required to be performed. ❑ YES – Performance of Sect. 6.8 is required.	
❑ NO – Performance is NOT required; LEAVE Sect.6.8 blank.	• Student leaves the Performance is NOT required; LEAVE Sect.6.8 blank box blank

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	If FSTC called inform student that no maintenance was performed on 1A DG
❑ Step 4.0.A.7 **IF** this the first performance of this test after EDG-13 has been performed on 1A DG, **THEN INDICATE** minimum 1A DG loaded run time for Sect. 6.7. (N/A if **NOT** first test after EDG-13) ❑ **1 hour minimum loaded run time.** ❑ **4 hour minimum loaded run time.**	Determines this step is N/A from given cues and either writes N/A with initial or just initials the block.
❑ Step 4.0.A.8 **REVIEW** the Surveillance Schedule **OR** PMT to determine if the Quarterly air receiver check valve testing is required. ❑ **YES** - Quarterly air receiver check valve testing is required. ❑ **NO** - Quarterly air receiver check valve testing is **NOT** required.	• Student checks the YES Quarterly air receiver check valve testing is required box. **CRITICAL STEP** • Student initials the step. **CRITICAL STEP**
TERMINATING CUE: This JPM is complete when all SRO steps are complete in Sect. 4.0.A The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SRO/ADMIN-3**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

Applicant Response: _____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1) Unit-1 is at 100% reactor power.
2) STP O-8A-1 is scheduled today.
3) Ops FSTC has indicated that monthly and quarterly surveillances are due.
4) No maintenance was performed on the 1A DG.
5) STP M-651C-1A is not required.
6) All D/G's are operable and available.
7) You are performing the duties of the CRS.

Initiating Cue:

1) The Shift Manager directs you to prepare STP O-8A-1 for performance by completing SRO portions of step 4.0.A
2) List sections of the test that will be performed.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SRO/ADMIN-4

Rev. 1

Rev. 0	New JPM.
Rev. 1	Integrated validation comments.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** SRO/ADMIN-4

Task Title: Review and approve a gaseous waste discharge permit.

Task Number: None

K/A Reference: 2.3.11 (4.3)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☒ Simulator: ☐ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1) Unit-1 is at 100% reactor power, Unit-2 is defueled.
2) Discharge of 13 WGDT is scheduled for today.
3) Access Control Area Ventilation is secured due to U-2 Main Exhaust fan being secured.
4) You are performing the duties of the CRS.

Initiating Cue:

1) The Shift Manager directs you to review and approve the gaseous waste discharge permit.

Task Standard:

This JPM is complete when the gaseous waste discharge permit is reviewed, and candidate has identified actions required.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

Required Materials:

1. Prepared gaseous waste permits
2. Prepared copy of OI-17B
3. List of plant conditions

General References:

1. OI-17B Waste Gas System
2. OI-22A Main Exhaust Fan System

Time critical task:

No

Validation Time:

15 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
TIME START: _____	
CUE: The Shift Manager directs you to review and approve the gaseous waste discharge permit If candidate asks for Attachment 2, tell him "CRO has Attachment 2 and will log RMS readings"	
❑ Gaseous Waste Permit OPERATIONS AUTHORIZATION AND RELEASE DATA SECTION Shift Manager/SRO Release Criteria Reviewed (Note 5).	Reviews Note 5.
❑ Note 5 The Shift Manager/SRO review signature acknowledges that the release criteria required is understood and that required plant systems are in operation **AND** required plant configuration for conducting the release has been established.	Reviews Gaseous Waste Discharge Permit • Notes setpoints for Rad Monitor alarms are identified. • Identifies that U-2 Main Exhaust Fans are secured. **CRITICAL STEP** • Contacts Chemistry directly or directs Chemistry to be contacted to change the permit for discharge to U-1 Main Vent.
CUE: When candidate calls Chemistry to change permit for U-1 Main Vent Fans, acknowledge request and give candidate the corrected permit.	
❑ Note 5 The Shift Manager/SRO review signature acknowledges that the release criteria required is understood and that required plant systems are in operation **AND** required plant configuration for conducting the release has been established.	Reviews Gaseous Waste Discharge Permit • Notes setpoints for Rad Monitor alarms are identified. • Identifies that U-1 Main Exhaust Fans are in service. **CRITICAL STEP** • Initials permit with correct date and time. **CRITICAL STEP**

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	When candidate signs the permit as complete, initial and date permit to complete the OPERATION AUTHORIZATION AND RELEASE DATA SECTION. Inform candidate that the discharge is now in progress IAW OI-17B, once the candidate finds the correct section of OI-17B hand give him the signed off section and give him the attached parameter page and ask if any new actions are required.
❑ OI-17B Sect. 6.4 NOTE above step 6.4.B.19 ❑ If at any time during the release the RMS Critical Setpoint is exceeded, the release should **IMMEDIATELY** be SECURED and Plant Chemistry contacted	Reviews the parameters given and recognizes that Main Vent RMS RI-5415 has exceeded the critical alarm setpoint. • Direct securing the discharge. **CRITICAL STEP** • Contacts Chemistry directly or directs Chemistry to be contacted regarding the exceeding of Main Vent RMS critical setpoint.
TERMINATING CUE: This JPM is complete when candidate determines the discharge should be terminated. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SRO/ADMIN-4**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

Applicant Response: _____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1) Unit-1 is at 100% reactor power, Unit-2 is defueled.
2) Discharge of 13 WGDT is scheduled for today.
3) Access Control Area Ventilation is secured due to U-2 Main Exhaust fan being secured.
4) You are performing the duties of the CRS.

Initiating Cue:

1) The Shift Manager directs you to review and approve the gaseous waste discharge permit.

13 WGDT discharge data

13 WGDT Pressure	75 psig
Discharge flow rate	48 scfm
RI-2191	OOS
U-1 WRNGM	7.0E2 μCi/sec
U-1 Main Vent RMS	5.15E02 cpm
Gaseous Waste Discharge Filter	5.0 inches of water

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SRO/ADMIN-5

Rev. 2

Rev 1	Revised 2011 NRC ADMIN-5 to new format, using latest procedures.
Rev 2	Integrated validation comments.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** SRO/ADMIN-5

Task Title: Determine Appropriate Emergency Response Actions.

Task Number: 204.097 Determine appropriate emergency response actions per the ERPIP while maintaining an overview of plant conditions.

K/A Reference: 2.4.38 (4.4)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☒ Simulator: ☐ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit-1 was at 100% power with 1A DG tagged out and 0C DG pre-aligned to 11 4KV bus IAW OI-21A-1.
2. Security has reported a credible threat to CCNPP from the FBI.
3. Severe thunderstorms in progress with wind gusts of 50mph.
4. A loss of offsite power has occurred resulting in a reactor trip.
5. 1B DG failed to start on the undervoltage condition; subsequent attempts to start the 1B DG have been unsuccessful.
6. CRO completed the Vital Auxiliaries Safety Function and reported it as complete to the Unit Supervisor 5 minutes after the trip.
7. You are performing the duties of the Shift Manager.
8. This JPM is **TIME CRITICAL**.

Initiating Cue:

You have been requested to determine appropriate Emergency Response Actions, per the ERPIP, based on the current plant conditions provided.

Task Standard:

Determines EAL classification, Protective Action Recommendations and completes the initial notification form within prescribed time limits.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in the Control Room

Time critical task:

Yes

Validation Time:

12 minutes

Setup:

1. None

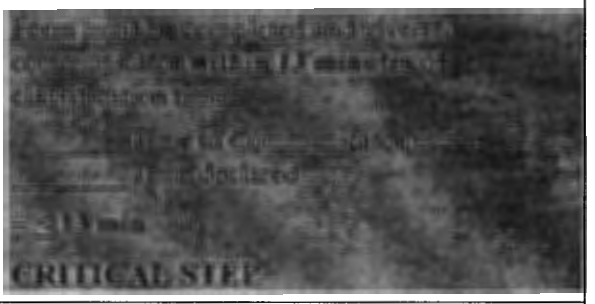
ELEMENT (shaded = CRITICAL STEP)	STANDARD
EVALUATOR NOTE: The "EAL CLOCK" starts ***after*** candidate reads "Initial Conditions" CUE sheet.	
CUE:	Inform candidate that all initial conditions just occurred at time now.
TIME START: _____	
EAL CLOCK TIME START: _____	
❑ Identify and locate Shift Manager Checklist.	Candidate locates Shift Manager Checklist from provided book.
❑ 1.1 - Entry into the Emergency Plan.	
❑ 1.1.1 - Print your name and today's date.	Candidate correctly prints name and current date on checklist.
CUE:	Inform candidate that you will be acting as Shift Communicator and Dose Assessor.
❑ 1.1.2 - Call or direct an available individual to call the Shift Communicator and Dose Assessor to the Control Room.	Candidate calls, or directs you to call Shift Communicator and Dose Assessor to the Control Room.
NOTE: The following step is applicable only to those Units that have implemented FLEX	
❑ 1.1.3 - **If** SAFER FLEX equipment is deemed necessary, **then DIRECT** that the Nuclear Duty Officer be contacted at (630) 657-2202 **and DIRECT** SAFER response organization activation.	Determines step is **NOT** applicable.
❑ 1.1.4 - **If** SAFER FLEX equipment is deemed necessary, **then REFER** to Sections 2.5 and 3.3 for additional actions.	Determines step is **NOT** applicable.
❑ 1.2 - Emergency Classification and PAR and Notifications.	
NOTE: Emergency Classification and declaration shall be completed as soon as possible but no later than 15 minutes from the time indications an EAL threshold being met or exceeded are available in the Control Room.	

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ 1.2.1 - If entry is due to a security event, THEN perform the appropriate actions in the station specific procedure in parallel with completing this checklist.	Determines step is **NOT** applicable.
❑ 1.2.2 - Classify the events in progress using EP-CE-111, Emergency Classification and Protective Action Recommendations.	Reference Tab 2, EAL Wall Chart.
Evaluator Note Examinee should review the EAL Wall Chart and determine SA1.1 and determine Tab 2 is **NOT** necessary at this time since no Protective Action Recommendations required.	
❑ Determining if one or more EAL thresholds in the EAL matrix have been matched or exceeded. ❑ Classifying the event at the highest level emergency classification for which an EAL is currently being met or exceeded.	 **Note:** Unit was in a Station Blackout for a couple of minutes but Initial Conditions given clearly state 0C DG was aligned to 11 4KV bus in <5 min.
Evaluator Note: Student should move back to previous procedure to complete following steps.	
CUE: When a Peer Check of the EAL call is requested, acknowledge the request.	
❑ 1.2.2.A - **IF** time permits, **THEN** validate the emergency classification with the STA (peer check), if available.	Requests Peer Check from STA.
❑ 1.2.2.B - Declare the event by announcing the following: "I am declaring a(n) _____(EAL) at _____(time) due to _____ (brief reason) and assuming the role as Emergency Director.	Fills out checklist: 

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ 1.2.3 - **DETERMINE** if protective actions for onsite personnel are necessary using EP-AA-113-F-53, Onsite Protective Measures Flowchart.	References Tab 3 (EP-AA-113-F-53) and determines flowchart calls for "Consider Implementing protected area Evacuation and Accountability".
CUE:	**IF** Operator elects to perform PA Announcements, acknowledge that the Unit Supervisor will perform the announcements per EP-AA-112-F-57.
❑ 1.2.4 - **ANNOUNCE**, or **DIRECT** PA announcements, for station personnel as necessary.	Operator will not perform per CUE provided.
❑ 1.2.5 - **DETERMINE** the appropriate PAR per EP-CE-111, Emergency Classification and Protective Action Recommendations.	Determines step is **NOT** applicable.
❑ 1.3 Notifications for Change in Classification or PAR	
❑ 1.3.1 - **If** the classification is an Unusual Event, **then COMPLETE** ERO notification/activation per EP-AA-112-100-F-57, ERONS Notification Details.	Determines step is **NOT** applicable.
❑ 1.3.2 – **GINNA Only…**	Determines step is **NOT** applicable.
❑ 1.3.3 – **If** the classification is an Alert or higher **and** the ERO has **not** been activated, **then DIRECT** activation per EP-AA-112-100-F-57 (Tab 5)	Determines step is applicable
Evaluator Note: Student should move to Tab 5 to complete following steps	
❑ 1 – **INITIATE PRIMARY ACTIVATION OF NOTIFICATION SYSTEM USING THE INTERNET**	
❑ 1.1 - **CIRCLE** the appropriate station from the table below.	Circles "Calvert Cliffs". **CRITICAL STEP**
❑ 1.2 – **CIRCLE** the appropriate Activation/Termination for the event from the table below.	Circles "For Alert, Site Area, or General Emergency" from the first column. **CRITICAL STEP**

ELEMENT (shaded = CRITICAL STEP)	STANDARD
Evaluator Note: Student should move back to previous procedure to complete following steps.	
❑ 1.3.3.A – **NMP Only…**	Determines step is **NOT** applicable.
CUE: Ensure student knows you are performing the duties of the Emergency Communicator, acknowledge order to notify ERO.	
❑ 1.3.3.B – **PROVIDE** completed ERONS form to the shift communicator **and DIRECT** them to notify/activate ERO.	Hands the Tab 5 (EP-AA-112-100-F-57) to the Emergency Communicator and directs notification of the ERO.
❑ 1.3.1.C – **If** no one is available to notify ERO…..	Determines step is **NOT** applicable.
NOTE: Notifications to the state and local are required within 15 minutes of Emergency Declaration or a change in PAR.	
❑ 1.3.4 State and Local Notification.	
❑ 1.3.4.A – **COMPLETE** station specific notification form **Tab 7.**	Determines step is applicable.
Evaluator Note: Student should move to Tab 7 to complete following steps	
❑ **CCNPP INITIAL NOTIFICATION FORM**	
❑ A.1	This is a drill **CRITICAL STEP**
❑ A.2	Facility: CCNPP U-1 **CRITICAL STEP**
❑ A.3	Emergency Class: Alert **CRITICAL STEP**
❑ A.4	EAL Number S.A.1.1 **CRITICAL STEP**

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ A.5	Radioactivity is/was released due to event NO **CRITICAL STEP**
❑ A.5.a	Radioactivity released is /was monitored N/A
❑ A.5.b	Type of Release N/A
❑ A.6 Protective Action Recommendations	
❑ A.6.a	None **CRITICAL STEP**
❑ A.7	Time Declared- Time Declared, Date Today's Date **CRITICAL STEP**
❑ Shift ED/Corporate ED Name:	Prints name and signs form.
Evaluator Note: Student should move back to previous procedure to complete following steps.	
❑ 1.3.4.A.1 – **GINNA Only**…	Determines step is **NOT** applicable.
CUE: When a Peer Check of the EAL call is requested, acknowledge the request.	
❑ 1.3.4.B – **If** time permits, **then OBTAIN** a peer check of completed form information.	Requests Peer Check from STA.

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	Ensure student knows you are performing the duties of the Emergency Communicator; acknowledge order to notify State and Local.
❑ 1.3.4.C – **PROVIDE** completed form to Shift Communication **and DIRECT** them to notify State and Local.	Hands the Tab 7 (Initial Notification Form) to the Emergency Communicator and directs notification of State and Local. 
TERMINATING CUE: The JPM is complete when an EAL classification is determined and declared within time requirements and the Initial Notification form is completed and given to the communicator within time requirements. No further actions are required. The operator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SRO/ADMIN-5**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 was at 100% power with 1A DG tagged out and 0C DG pre-aligned to 11 4KV bus IAW OI-21A-1.
2. Security has reported a credible threat to CCNPP from the FBI.
3. Severe thunderstorms in progress with wind gusts of 50mph.
4. A loss of offsite power has occurred resulting in a reactor trip.
5. 1B DG failed to start on the undervoltage condition; subsequent attempts to start the 1B DG have been unsuccessful.
6. CRO completed the Vital Auxiliaries Safety Function and reported it as complete to the Unit Supervisor 5 minutes after the trip.
7. You are performing the duties of the Shift Manager.
8. This JPM is **TIME CRITICAL**.

Initiating Cue:

You have been requested to determine appropriate Emergency Response Actions, per the ERPIP, based on the current plant conditions provided.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-1

Rev. 1

Rev. 0	New JPM.
Rev 1	Incorporate comments from validations

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-1 (Alt Path)

Task Title: Dropped CEA during startup.

Task Number: 055.003 Operate the Regulating CEAs
202.008 Respond to CEA(s) misaligned by >15"

K/A Reference: 001.A2.03 (3.5,4.2)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. U-1 is currently performing a startup IAW OP-2 Section 6.7
2. Unit-1 has just been called critical.
3. Critical data was just taken with power at $\approx 1 \times 10^{-5}$%.
4. You are performing the duties of the Reactor Operator.

Initiating Cue:

You have been directed to raise reactor power to ≈ 1% power IAW OP-2 Step 6.7.S

Task Standard:

Recognize dropped CEA during startup and takes correct action IAW OP-2.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room

Time critical task:

No

Validation Time:

25 minutes

Setup:

1. Reset simulator to IC-009 U-1 critical approximately 1E-5% Power MOC
2. Ensure CEDS is Off
3. CEAPDS selected to display all CEAs
4. Event Trigger 1 P1C05_PWRJI001_MT >.001 (WRNI Power reaches 1E-2%)
5. CEA 6 drop ceds012_06 on Event 1
6. 1C05_D40_LTON to On at time zero
7. Place NRRH01 & NRRH02 on trend on plant computer screen near 1C05

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ OP-2 Section 6.7 TAKE THE REACTOR CRITICAL	
CAUTION Do **NOT** exceed a sustained one DPM startup rate	
CUE:	US (Unit Supervisor) suggests target of 0.5 DPM startup rate for power ascension to 1%
❑ 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 CEA's sustained startup rate does not exceed 1 DPM.
Evaluator Note:	CCNPP procedures allow operation of equipment based on the OP or AOP step, therefore the candidate may not reference OI-42, but all critical steps must be performed to accomplish the objective.
❑ OI-42 Sect. 6.7 REGULATING CEA OPERATION	
CUE:	If asked by candidate if Chemistry has been informed, tell them this notification has already been completed.
❑ B.1 – IF CEAs are inserted less than 130 inches. THEN INFORM Chemistry to ensure requirements of CP-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.
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.	
❑ B.2 – ENSURE desired regulating group (1,2,3,4,5) is selected.	Ensures Group 4 is selected.
❑ B.3 – Ensure the desired CEA in the group is selected.	Any CEA in Group 4 can be selected.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
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 candidate asks US (Unit Supervisor) if Manual Sequential or Manual Group should be used, direct use of Manual Sequential.
❑ B.4 – **SELECT AND DEPRESS** one of the following mode control pushbuttons: • MANUAL SEQUENTIAL • MANUAL GROUP • MANUAL INDIVIDUAL	Depresses either the Manual Sequential or Manual Group pushbuttons. **CRITICAL STEP**
❑ B.5 – **IF** necessary to bypass CMI, **THEN REFER** to Section 6.8, USE OF CEA MOTION INHIBIT BYPASS.	Determines step is N/A
NOTE • Group sequencing must be accomplished by the Reactor Operator when Plant Computer, OR DAS B is OOS…. • Unit-1 CEA-18 will NOT move while jumpered PER ECP-15-000409.	
CAUTION • **RAISE/HOLD/LOWER** switch operation should be accomplished with positive … • Withdraw and insert CEAs only in a deliberate and carefully controlled manner… • Primary plant anomalies caused by secondary plant transients are rarely, if ever,…	
❑ B.6 – **INSERT OR WITHDRAW** selected CEA(s) using the **RAISE/HOLD/LOWER** switch while observing the following limits.	Takes RAISE/HOLD/LOWER switch to **RAISE** while observing SUR. Returns switch to **HOLD** when desired SUR is achieved (<1 DPM sustained). **CRITICAL STEP**

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ 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 N/A.
❑ 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 N/A.
❑ B.7 – **ENSURE** at least 5 seconds has elapsed once CEA motion is completed.	After stopping CEA motion candidate should ensure at least 5 seconds has elapsed before movement initiated again.
❑ B.8 – IF other CEA manipulations are desired, THEN REPEAT steps 1 through 7.	Candidate may or may not use additional CEA movements to achieve desired SUR.
CUE:	Once a stable SUR is achieved and power is rising toward 1% the dropped CEA malfunction will be entered. Once the candidate recognizes and announces the dropped CEA to Control Room, direct candidate to implement AOP-1B Section IV Preliminary.
BEGIN ALTERNATE PATH	
❑ AOP-1B A. – CONTROL CEA MOVEMENT AND STABILIZE THE UNIT	
❑ A.1 – IF the CEAs are moving without operator action, THEN ensure the CEDS Control System is turned off.	Determines step is N/A.
CAUTION **If CEA misalignment causes power to be reduced, power shall not be raised until the CEA is within it alignment requirements or until Reactor Engineering is consulted.**	
CAUTION **Do NOT use CEAs to control RCS temperature.**	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	Inform candidate 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).
❑ A.3 – Verify Pressurizer pressure is between 2225 and 2275 psia, and trending toward 2250 psia.	Verifies pressure is ≈2250 psia.
❑ A.4 – Verify position of ALL CEAs using reed switch position indication.	Verifies all CEAs using CEAPDS indication. Recognizes only 1 CEA is misaligned.
CUE:	**IF** NRRH01 & NRRH02 trends are not working sue pointer to indicate that reactivity is negative on these trend screen to reinforce that reactor is subcritical.
❑ 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. **CRITICAL STEP**
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.
❑ OI-42 Sect. 6.7 REGULATING CEA OPERATION	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	If asked by candidate if Chemistry has been informed, tell them this notification has already been completed.
❑ B.1 – IF CEAs are inserted less than 130 inches. THEN INFORM Chemistry to ensure requirements of CP-204, SPECIFICATION AND SURVEILLANCE PRIMARY SYSTEMS, related to CO-58 are met.	Either asks US if this has already been done or calls Chemistry directly.
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.	
❑ B.2 – ENSURE desired regulating group (1,2,3,4,5) is selected.	Ensures Group 4 is selected.
❑ B.3 – Ensure the desired CEA in the group is selected.	Any CEA in Group 4 can be selected.
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 froups are at the upper computer stop.	
CUE:	If candidate asks US if Manual Sequential or Manual Group should be used, direct use of Manual Sequential.
❑ B.4 – **SELECT AND DEPRESS** one of the following mode control pushbuttons: • MANUAL SEQUENTIAL • MANUAL GROUP • MANUAL INDIVIDUAL	Depresses either the Manual Sequential or Manual Group pushbuttons. **CRITICAL STEP**
❑ B.5 – **IF** necessary to bypass CMI, **THEN REFER** to Section 6.8, USE OF CEA MOTION INHIBIT BYPASS.	Determines step is applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ 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.	
❑ B.1 – DEPRESS GROUP BYPASS pushbutton(s) on CEDS Control Panel for the CEA groups(s) needing alignment.	Depresses Group Bypass Pushbuttons for Groups 1,2,3,4. **CRITICAL TASK**
❑ B.2 – DEPRESS AND HOLD MOTION INHIBIT BYPASS pushbutton on CEDS Control Panel.	Depresses and holds Motion Inhibit Bypass pushbutton. **CRITICAL TASK**
❑ B.3 – WHEN at least 5 seconds have elapsed, THEN INITIATE group OR Individual CEA Motion.	Waits at least 5 seconds before inserting Regulating CEAs.
❑ OI-42 Section 6.7 REGULATING CEA OPERATION	
NOTE • Group sequencing must be accomplished by the Reactor Operator when Plant Computer, OR DAS B is OOS…. • Unit-1 CEA-18 will NOT move while jumpered PER ECP-15-000409.	
CAUTION • **RAISE/HOLD/LOWER** switch operation should be accomplished with positive … • Withdraw and insert CEAs only in a deliberate and carefully controlled manner… • Primary plant anomalies caused by secondary plant transients are rarely, if ever,…	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	Once CEA insertion has begun the evaluator can terminate the JPM.
❑ B.6 – **INSERT OR WITHDRAW** selected CEA(s) using the **RAISE/HOLD/LOWER** switch while observing the following limits.	Takes RAISE/HOLD/LOWER switch to **LOWER**. Continues to insert CEAs until All Regulating CEAs are at lower computer stop. **CRITICAL STEP**
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 **SIMULATOR-1**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. U-1 is currently performing a startup IAW OP-2 Section 6.7.
2. Unit-1 has just been called critical.
3. Critical data was just taken with power at $\approx 1 \times 10^{-5}$%.
4. You are performing the duties of the Reactor Operator.

Initiating Cue:

You have been directed to raise reactor power to ≈1% power IAW OP-2 Step 6.7.S.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-2

Rev. 2

Rev. 1	Update procedures since last given in 2011
Rev 2	Incorporate comments from validations.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-2 (Alt Path)

Task Title: Override shut a PORV

Task Number: 064.035 Override shut a PORV

K/A Reference: 002.A2.01 (3.9, 4.2)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit 1 is stable in Mode 4.
2. Temperature band of 250°F +/-10° established and controlled by CRO.
3. Pressure band of 400 psia +/-10 psia established and controlled by RO.
4. All General Precautions and Initial Conditions are met.
5. You are performing duties of the Reactor Operator.

Initiating Cue:

The Unit Supervisor directs aligning Low Pressure Pressurizer control IAW OI-1H Sect. 6.3.

Task Standard:

The candidate will diagnose that the PORV is open due to equipment malfunction and shut the associated PORV block valve.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room
2. ALM-1C06, RCS Control Alarm Manual
3. OI-1H Pressurizer Pressure Control

Time critical task:

No

Validation Time:

10 minutes

Setup:

_____ 1. Reset to IC-1.

_____ 2. Place simulator in run.

_____ 3. Override 1-PI-103-1 to 1533# (P1C06_1PI1031_MT to 1533) on Event 1.

_____ 4. Override PORV 402 handswitch (P1C06_1HS1402) to "manopen on Event 1.

_____ 5. Override PORV HS not in auto alarm (P1C06_E23_LTON) to OFF at time zero.

_____ 6. Ensure PZR level deviation is <4"

_____ 7. Insert PORV MPT keys 47 & 48 in panel.

_____ 8. Insert SIT outlet valve keys 25-28 in panel.

_____ 9. Insert PORV Block MOV keys 45 & 46 in panel.

_____ 10. Initiate Event 1 when directed by the examiner

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ OI-1H Section 6.3 LOW PRESSURE PRESSURIZER CONTROL.	
❑ B.1 – **IF** controlling U-1 pressure, **THEN PERFORM** the following:	Determines step is applicable.
❑ a. – **ENSURE** PRESSURIZER SPRAY VLV CONTROLLER, 1-HIC-100 is in MANUAL with zero output.	Verifies that 1-HIC-100 is in manual with 0% or negative output.
CUE: **IF** candidate does not energize heaters to raise pressure, US should direct raising pressure into assigned band.	
❑ b. – **CYCLE** Pressurizer Heaters while lowering Pressurizer level to maintain pressure.	Since pressure is low out of assigned band the candidate should energize additional heaters to raise pressure.
❑ c. – **CHECK** deviation less than 4 inches between Pressurizer level and programmed setpoint using 1-LT-110X and 1-LT-110Y as read on PZR LVL recorder 1-LR-110.	Checks deviation is <4".
❑ d. – **IF** the deviation between Pressurizer level and Pressurizer programmed setpoint is greater than 4 inches…	Determines step is **NOT** applicable.
❑ e. – **PLACE** the selected Pressurizer Pressure Controller 11 PZR PRESS CONTR CHAN X, 1-PIC-100X **OR** 11 PZR PRESS CONTR CHAN Y, 1-PIC-100Y, in MANUAL with 50% output signal.	Places 1-PIC-100Y in Manual with 50% output.
CUE: Initiate Event 1 to cause faulted PORV	
BEGIN ALTERNATE PATH	
❑ Locates the 1C06 alarm manual and refers to E-21.	Locates 1C06 ARM and refers to E-21.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ 1. - The PORVs are energized.	The candidate determines the step is applicable since PORV 402 is open with red light lit.
❑ 1. - **PERFORM** the following: ❑ a. - **IF** reactor trip occurs, **THEN IMPLEMENT** EOP-0, Post-Trip Immediate Actions.	The candidate determines the reactor is shut down and step is **NOT** applicable.
CUE: The shift manager will contact the electric shop.	
❑ b. - **NOTIFY** the electric shop to verify the trip status of the PORV thermal overloads to ensure PORV operability. **[B0034]**	Candidate informs US of step and is informed that the Shift Manager will call electric shop.
❑ c. - **IF** the PORVs are in NORMAL, **THEN**: …	The candidate determines PORVs are in variable MPT and step is **NOT** applicable.
❑ d. - **IF** the PORVs are in MPT ENABLE, **THEN**:	The candidate determines PORVs are in variable MPT and step is applicable.
❑ (1) - **TRIP** any RCPs operating in the NON-OPERATING AREA of the RCP curve.	Candidate refers to RCP curve for current lineup. When RCS pressure lowers to 300# candidate determines RCP are in the non-operating area of the curve. Candidate secures 11A and 12B RCPs. **CRITICAL STEP**
CUE: The candidate may perform step (2) since there is no actual high pressure condition, these actions will be unsuccessful in shutting the PORV.	
❑ (2) - **WHEN** the cause of the high pressure condition has been corrected, **THEN**: **[B0064]**	Candidate determines the PORV is open due to equipment malfunction and not high RCS pressure. Determines step is **NOT** applicable.
❑ (3) - **IF** a PORV fails to shut or is open due to a failed transmitter, **THEN SHUT** the applicable PORV Block, 1-RC-403-MOV or 1-RC-405-MOV.	The candidate determines PORV 402 is open due to a failed transmitter and closes the PORV 402 block valve 1-RC-403-MOV using keyswitch 1-HS-1403. **CRITICAL STEP**

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	The CRO will perform step 1.d.(4).
❑ (4) - **DRAIN** the PORV discharge piping to the Quench Tank as follows:	US informs the candidate that the CRO will perform this step.
❑ e. - **MONITOR** computer points T106, T107, and T108 for leak-off temperatures.	Candidate uses plant computer to monitor leak-off temperatures.
Terminating Cue: This JPM is complete when the candidate isolates the open PORV flow path. No further actions are required. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-2**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit 1 is stable in Mode 4.
2. Temperature band of 250°F +/-10° established and controlled by CRO.
3. Pressure band of 400 psia +/-10 psia established and controlled by RO.
4. All General Precautions and Initial Conditions are met.
5. You are performing duties of the Reactor Operator.

Initiating Cue:

The Unit Supervisor directs aligning Low Pressure Pressurizer control IAW OI-1H Sect. 6.3.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-3

Rev. 1

Rev. 0	New JPM.
Rev 1	Incorporate comments from validation.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-3 (Alt Path)

Task Title: Depressurize RCS to fill PZR in EOP-5.

Task Number: 202.015 Respond to RCS leakage exceeding capacity of one charging pump, modes 1 & 2.

K/A Reference: 010.A4.01 (3.7,3.5)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit-1 has experienced a LOCA from 100% power.
2. Unit-1 has tripped, EOP-0 has been completed and EOP-5 has been implemented.
3. You are performing the duties of the Reactor Operator.

Initiating Cue:

You have been directed to depressurize the RCS IAW EOP-5 Step K, and Throttle HPSI flow IAW EOP-5 Step L.

Task Standard:

Initiate Aux Spray to depressurize RCS and throttle HPSI flow to control Pressurizer level.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room

Time critical task:

No

Validation Time:

20 minutes

Setup:

1. Reset simulator to IC-24 U-1 at 100% Power MOC.
2. RCS leak of 700 gpm (rcs002 to 700gpm) at Time Zero.
3. Trip Reactor and complete EOP-0.
4. Ensure SIAS initiates.
5. Manually insert CIS with panel pushbuttons.
6. Secure all RCP's.
7. Control plant until subcooling ≈50˚F.
8. Ensure key 41 inserted in Aux Spray CV.
9. Ensure Key 20 inserted in 1-HS-2080A.
10. Prepared to modify rcs002 to 10,000gpm once throttling complete.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ EOP-5 Step K DEPRESSURIZE THE RCS TO REDUCE SUBCOOLING AND MAINTAIN PRESSURIZER LEVEL	
NOTE If rapid pressure excursions due to RCS inventory or temperature changes have occurred, consider the RCS solid.	
CUE: Direct a subcooling band between 30 and 60° subcooling.	
❑ 1 – **IF** a bubble exists in the Pressurizer **OR** the Reactor Vessel Head, **THEN** maintain subcooling as low as possible **AND** within the following limits: • Between 30 and 140° based on CET temperatures. • RCS pressure greater than the NPSH limits **PER** ATTACHMENT (1), RCS PRESSURE TEMPERATURE LIMITS.	Subcooling band of 30-60° subcooling, is given, critical task will only require maintaining between 30-140° subcooling per the procedure step.
❑ 1.a – Lower subcooling by ANY of the following methods: ❑ (1) – De-energize Pressurizer HTR(s).	Ensures all Pressurizer HTR(s) are de-energized.
❑ (2) – IF ALL RCPs are operating, THEN…	Determines step is **NOT** applicable.
CUE: CRO will control the cooldown rate.	
❑ (3) – Lower the RCS cooldown rate.	CRO will control the cooldown rate.
❑ (4) – IF the overpressurization is due to HPSI/Charging flow AND HPSI throttle criteria are met…	Determines step is **NOT** applicable.
❑ (5) – Initiate AUX SPRAY as follows:	Determines step is applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ (a) - Place the 1-IA-2080-MOV CIS OVERRIDE switch, 1-HS-2080A, in OVERRIDE.	Places 1-HS-2080A in OVERRIDE.
❑ (b) – Open the IA CNTMT ISOL valve, 1-IA-2080-MOV.	Verifies 1-IA-2080-MOV is open.
CAUTION **If the difference between the PZR WTR TEMP and CHG OUT TEMP is greater than 400°, then TRM 15.4.2 must be complied with.**	
❑ (c) – Record the following information: • PZR WTR TEMP (1-TI-101). • CHG OUT TEMP (1-TI-229).	Records the temperatures and informs CRS if >400° and directs US to enter TRM 15.4.2.
❑ (d) – Open the AUX SPRAY valve, 1-CVC-517-CV.	Opens 1-CVC-517-CV. **CRITICAL STEP.**
❑ (e) – Operate the LOOP CHG valves as necessary to adjust AUX SPRAY flow: • 1-CVC-518-CV • 1-CVC-519-CV	Operates either one or both Loop Chg valves to control depressurization. **CRITICAL STEP.**
❑ (f) - Shift the PRESSURIZER SPRAY VLV CONTROLLER, 1-HIC-100, to MANUAL.	Shifts 1-HIC-100 to Manual.
❑ (g) - Shut the PRZR SPRAY VLVs by adjusting the output of 1-HIC-100 to 0%: • 1-RC-100E-CV • 1-RC-100F-CV	Places 1-HIC-100 output to 0%.
❑ Maintain the pressurizer cooldown rate less than 200°F/hour.	Monitors PZR cooldown rate to ensure <200°F/hour.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE: When HPSI throttling criteria is achieved the candidate should re-open Loop Chg valves to slow the depressurization and prevent overfill of PZR. Step (e) above allows operation of these valves to control Aux Spray Flow.	
❑ EOP-5 Step L EVALUATE THE NEED FOR HPSI OR LPSI THROTTLING/TERMINATION	

❑ 1. – **IF** HPSI PPs are operating **AND ALL** of the following conditions can be maintained:
• At least 30° subcooling based on CET temperatures.
• Pressurizer level greater than 101 inches {141}.
• At least ONE S/G available for heat removal.
  • S/G level greater than (-)170 inches.
  • Capable of being supplied with feedwater.
  • Capable of being steamed.
• Reactor Vessel level above the top of the hot leg.
THEN HPSI flow may be reduced by throttling the HPSI HDR valves, or stopping the HPSI PPs one at a time, as desired, to maintain the following:
• RCS subcooling between 30 and 140°F based on CET temperatures.
• Pressurizer level between 101 inches {141} and 180 inches {190}.
	When all HPSI throttling criteria is met the candidate should secure 1 HPSI pump and shut 3 HPSI header valves and throttle the 4th to control subcooling and PZR level.
	Other methods of throttling are acceptable as long as subcooling and PZR level are controlled.
	Subcooling maintained between 30-140°F
	PZR level maintained between 101-180 inches.
	CRITICAL STEP

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	IF asked by candidate if stopping LPSI PPs is desired, then direct the securing of LPSI PPs.
❑ 2. – **IF** pressurizer pressure is greater than 200 PSIA and constant **OR** rising, **THEN** the operating LPSI PPs may be stopped.	Candidate may or may not secure LPSI PPs.
CUE:	When evaluator has determined that candidate has control of subcooling and PZR level direct simulator driver to increase RCS leak to 10,000 gpm. IF CSAS actuates inform the candidate that the CRO will verify CSAS.
BEGIN ALTERNATE PATH	
❑ 3. – **IF** HPSI or LPSI throttle criteria can **NOT** be maintained after the pumps are throttled or secured, **THEN** restart the appropriate pumps **AND** restore full flow.	Candidate recognizes conditions have changed and throttle criteria cannot be maintained. Restarts any HPSI or LPSI pumps secured in previous steps. Fully opens any HPSI header valves throttled in previous steps. At end of step 11 & 13 HPSI and 11 & 12 LPSI pumps should be running with all 8 HPSI header valves fully open. **CRITICAL STEP**
TERMINATING CUE: The JPM is complete when 11 & 13 HPSI, 11 & 12 LPSI are running and all 8 HPSI Header Valves are full open. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-3**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 has experienced a LOCA from 100% power.
2. Unit-1 has tripped, EOP-0 has been completed and EOP-5 has been implemented.
3. You are performing the duties of the Reactor Operator.

Initiating Cue:

You have been directed to depressurize the RCS IAW EOP-5 Step K, and Throttle HPSI flow IAW EOP-5 Step L.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-4

Rev. 1

Rev. 0	New JPM.
Rev. 1	Incorporate comments from validation.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-4 (Alt Path)

Task Title: Restore from loss of SRW Pump.

Task Number: 202.065 Respond to loss of Service Water in mode 1 or 2.

K/A Reference: 076.A4.01 (2.9,2.9)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. U-1 is operating at 100% power MOC.
2. All systems in normal lineup.
3. All General Precautions and Initial Conditions are met.
4. You are performing duties of Control Room Operator.

Initiating Cue:

You have been directed to shift to 12 Component Cooling Pump IAW OI-16 Sect. 6.2.

Task Standard:

Restore a Service Water Pump to 11 header.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room

Time critical task:

No

Validation Time:

15 minutes

Setup:

1. Reset simulator to IC-24 U-1 at 100% Power MOC.
2. Loss of 11 SRW pump (srw003_01) on Event 1.
3. Shut 13 SRW pump to 12 SRW header valves (1-srw-119 & 1-srw-124) on Event 2.
4. Open 13 SRW pump to 11 SRW header valves (1-srw-117 & 1-srw-122 on Event 3.
5. Ensure orange tags hanging for 13 SRW PP aligned to 12 header.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ OI-16 Section 6.2 SHIFTING OPERATING PUMPS	
❑ B.1 – IF 13 Component Cooling Pump will be started…	Determines step is NOT applicable.
CAUTION Two CC Pumps SHALL **NOT** be operating with only one CCHX aligned for service, unless for a very short period of time as in bumping a pump or momentary pump shifting	
CUE:	**IF** candidate calls ABO to check 12 CC PP ready for start inform him it is ready after short delay. After pump starts inform candidate that pump is running normally.
❑ B.2 – Start the Component Cooling pump to be placed in service.	Starts 12 CC pump. **CRITICAL STEP**
CUE:	When informed of low amps on 12 CC PP tell candidate to continue with procedure.
❑ B.3 – CHECK the following parameters: • Component Cooling Pump motor ammeters …150-160 amps • (1C13)"CC PPS DISCH PRESS LO"…clear	Checks 11 & 12 CC PPs ammeters 150-160 amps and CC PPS DISCH PRESS LO clear 12 CC PP amps are low at 120, candidate should inform US. (This condition is expected, amps will rise after 11 CC PP is secured)
❑ B.4 – STOP the Component Cooling Pump to be removed from service	Stops 11 CC pump. **CRITICAL STEP**
CAUTION When 13 Component Cooling Pump is running, the associated Component Cooling Pump aligned to the same power supply shall be placed in PTL. This is to prevent all three pumps from running on a SIAS signal without a UV signal, which could damage the tubes…	
❑ B.5 – **IF** 13 Component Cooling Pump is running…	Determines step is NOT applicable.
❑ B.6 – **IF** 13 Component Cooling Pump is running…	Determines step is NOT applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ B.7 – **IF** 13 Component Cooling Pump is **NOT** running, **THEN ENSURE** all available Component Cooling Pumps are in AUTO.	Verifies no Component Cooling Pump handswitches are in PTL.
❑ B.8 – CHECK (1C13)"CC PPS DISCH PRESS LO" annunciator clear.	Verifies annunciator clear.
CUE:	Once 11 CC pump is secured initiate Event 1 to trip 11 Service Water Pump. Direct candidate to diagnose cause of alarm. Direct candidate to recommend procedure, including proper section.
BEGIN ALTERNATE PATH	
❑ 1C13 alarm Window K-04 11 SRW HDR PRESS LO and K15 SRW PPS SIAS BLOCKED AUTO START.	Candidate determines 11 SRW pump has tripped. Candidate recommends AOP-7B Section V MODES 1 OR 2.
CUE:	After candidate recommends AOP-7B, direct candidate to perform AOP-7B Section V. When candidate starts Section V.A inform him that the RO will perform step A.
❑ A. – DETERMINE IF A REACTOR TRIP IS REQUIRED.	Candidate informed the RO will perform this section.
❑ B – REDUCE SRW HEAT LOAD.	Determines this section is applicable.
NOTE Reducing Main Generator Reactive Load will reduce Main Generator heating	
CAUTION **Reducing Reactive Load on Unit 1 may cause Unit 2 Main Generator or DG limits to be exceeded.**	
CAUTION **Rapid changes in Main Generator Reactive Load require coordination with the SO-TSO to minimize Electric System perturbations and alarms.**	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE: When candidate calls SO-TSO to request reducing VARS on U-1 grant permission to do so.	
❑ B.1 – **IF** the Main Generator is paralleled, **THEN** coordinate with the SO-TSO to reduce the Main Generator MVARS to zero.	Contacts the SO-TSO to get permission and lowers the U-1 Main Generator voltage regulator 1-CS-90 to reduce VARS to zero. **CRITICAL STEP**
❑ B.2 – **IF** 1B DG is affected by loss of its associated SRW header, **THEN** with the SM/US permission, shutdown the DG **PER** the appropriate procedure being used at the time of event initiation.	Determines step is **NOT** applicable.
CUE: When/If candidate suggests a power reduction PER OP-3, tell him it is not required at this time.	
❑ B.3 Commence power reduction **PER** OP-3, NORMAL POWER OPERATION, as required.	Determines step is **NOT** applicable.
❑ C – ATTEMPT TO RESTORE SRW FLOW.	
❑ C.1. – **IF** the loss of SRW is due to a system leak or rupture, THEN PROCEED to step D (page 13).	Determines step is **NOT** applicable. (SRW Head tank levels normal)
❑ C.2. – **IF** an operating SRW PP has failed, THEN perform the following actions.	Determines step is applicable.
❑ a. – Place the handswitch for the failed SRW PP in PULL TO LOCK.	Takes 11 SRW PP HS to PTL.
❑ b. – **IF** a Saltwater header is removed from service, **THEN PROCEED** to step C.2.d (page10).	Determines step is **NOT** applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ c. – IF the backup SRW PP is available, THEN ensure that the backup SRW PP is mechanically aligned to the affected header.	Determines step is applicable.
❑ c.1 – **IF** 13 SRW PP needs to be aligned to 11 SRW header,…	Determines step is applicable.
❑ (1) – Place the handswitch for 13 SRW PP in PULL TO LOCK.	Places 13 SRW PP handswitch in PTL. **CRITICAL TASK**
CUE: When candidate calls TBO to lock shut 12 SRW Header valves initiate Event 2 and inform candidate step is complete after 2 minute delay.	
❑ (2) – Lock shut 13 SRW Suction and Discharge valves to 11 SRW Header. • 1-SRW-119 • 1-SRW-120 • 1-SRW-123 • 1-SRW-124	Contacts the Turbine Building watch and directs locking shut 11 SRW Header valves.
CUE: When candidate calls TBO to lock open 11 SRW Header valves initiate Event 3 and inform candidate step is complete after 2 minute delay.	
❑ (3) – Lock open 13 SRW Suction and Discharge valves to 11 SRW Header. • 1-SRW-117 • 1-SRW-118 • 1-SRW-121 • 1-SRW-122	Contacts the Turbine Building watch and directs locking open 11 SRW Header valves.
❑ c.2 – **IF** 13 SRW PP needs to be aligned to 12 SRW Header, **THEN** perform the following actions.	Determines step is **NOT** applicable.
❑ d. – **IF** 13 SRW PP is the backup SRW PP, **AND** POWER is **NOT** available to 13 SRW PP….	Determines step is **NOT** applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CAUTION **Starting a backup SRW PP without determining the cause of the failure could initiate a common mode failure**	
❑ e. – Start the backup SRW PP	Starts 13 SRW PP. **CRITICAL STEP** (Candidate should voice that there is no common mode failure sometime before starting 13 SRW PP).
❑ C.3 – **IF** the affected HDR PRESS is greater than or equal to 80 psig, **THEN PROCEED** to step C.& (Page 12).	Determines step is applicable.
❑ C.7 – **WHEN BOTH** HDR PRESSs are greater than 80 psig, **AND** component temperatures are stable or lowering, **THEN** restore plant systems to normal.	Candidate should check both board indications and the plant computer to verify temperatures are restoring.
TERMINATING CUE: The JPM is complete when 12 SRW header press is >80 psig and candidate is checking temperatures to be stable or lowering. No further actions are required. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-4**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. U-1 is operating at 100% power MOC.
2. All systems in normal lineup.
3. All General Precautions and Initial Conditions are met.
4. You are performing duties of Control Room Operator.

Initiating Cue:

You have been directed to shift to 12 Component Cooling Pump IAW OI-16 Sect. 6.2.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-5

Rev. 2

Rev. 1	Update procedures since last used in 2011.
Rev. 2	Incorporate comments from validation.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-5

Task Title: Respond to a faulted S/G.

Task Number: 201.065 Identify, Isolate and Confirm the affected Steam Generator.

K/A Reference: 035.A2.01 (4.5,4.6)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. U-1 was operating at 100% power MOC.
2. A plant transient and manual Reactor trip have occurred.
3. EOP-4 has been implemented.
4. You are performing the duties of the Reactor Operator.

Initiating Cue:

The CRS directs you to perform RCP Trip Strategy IAW EOP-4 step E.

Task Standard:

Determines wrong S/G was isolated, restores feeding and steaming to 11 S/G, and isolates 12 S/G.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room

Time critical task:

No

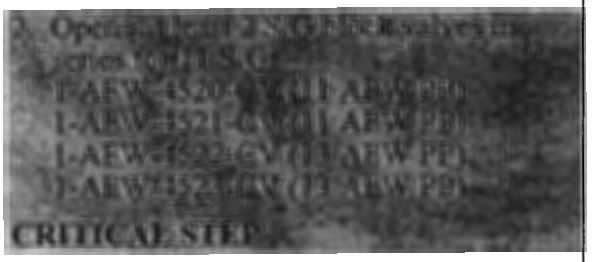
Validation Time:

15 minutes

Setup:

1. Reset simulator to IC-24 U-1 at 100% Power MOC.
2. Place an off-normal pink ring next to the '11 Steam Generator' sign (under 11 S/G level safety channels).
3. Enter following malfunctions at time zero:
    a) MS010_02 10% leak, 12 Steam generator rupture in containment.
    b) AFW006-01, Failure of AFAS block.
    c) AFW006-02, Failure of AFAS block.
    d) AFW006-03, Failure of AFAS block.
    e) AFW006-04, Failure of AFAS block.
4. Place simulator in Run.
5. When containment pressure high pre-trip alarm actuates, manually trip the unit.
6. Stop all RCPs.
7. Isolate Letdown.
8. Start 13 AFW pump.
9. Isolate 11 S/G per EOP-4 step H.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ EOP-4 Step E. – PERFORM THE RCP TRIP STRATEGY	
NOTE Subsequent operations to depressurize the plant under control are **NOT** considered a result of the event.	
❑ E.1 – **IF** RCS pressure drops to 1725 PSIA as a result of the event, **THEN** trip RCPs so **EITHER** of the following pairs are remaining: • 11A and 12B RCPs. • 11B and 12A RCPs.	Determines step is **NOT** applicable.
❑ E.2 – **IF** CIS has actuated, **OR** Component Cooling flow can **NOT** be verified to the RCPs, **THEN** trip **ALL** RCPs.	Determines step is applicable. Verifies all RCP's are secured.
❑ E.3 – **IF** RCS pressure drops below the minimum pump operating limits PER ATTACHMENT (1), RCS PRESSURE TEMPERATURE LIMITS, **THEN** trip **ALL** RCPs.	Determines step is **NOT** applicable.
CUE: **The CRS directs you to peer check the CRO by verifying the most affected S/G was isolated per EOP-4 Block Step H.3.**	
❑ H.3 – Verify the most affected S/G was isolated by checking the following: • S/G pressure lower for the affected S/G. • S/G level lowering for the affected S/G and stabilized for the unaffected S/G. • RCS loop T_{cold} lower in the affected loop.	The candidate determines 12 S/G is the most affected and the wrong S/G has been isolated based on: • Pressure is lower in 12 S/G. • Level is lower and lowering in 12 S/G. 11 S/G level is relatively steady. • Tcold is lower in 12 loop. **CRITICAL STEP**

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	The candidate may report that the wrong S/G was isolated. The evaluator should acknowledge the report and give cue to **"continue with the procedure".**
❑ 3.1 – **IF** the wrong S/G was isolated, **THEN** perform the following actions:	Determines step is applicable.
CAUTION **Severe waterhammer may result if Main Feedwater is restored after it has been stopped for greater than 80 minutes.**	
CUE:	If asked how long main feed water flow has been lost tell the candidate **"The plant was tripped 20 minutes ago".**
❑ a. – Restore feeding and steaming capability to the least affected S/G.	**The candidate will at a minimum:** **Restore Steaming:**  **Restore feeding:** 1 Place 1-MS-4070-CV HS in Open or Auto. 
❑ H.2 - Isolate the affected S/G. ❑ a. – **IF** 11 S/G is the affected S/G, **THEN** isolate 11 S/G by performing the following actions:	Determines step is **NOT** applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ b. – **IF** 12 S/G is the affected S/G, **THEN** isolate 12 S/G by performing the following actions:	Determines step is applicable.
❑ (1) - Shut 12 ADV using the Hand Transfer Valves on the West wall of the Unit 1 45 ft Switchgear Room as follows: (a) **IF** 12 ADV was locally operated, **THEN** remove the manual override. (b) Verify 12 ADV controller, 1-HC-4056B, at 1C43 is set at 0% output. (c) Align 12 S/G Hand Transfer Valves to 1C43 (POSITION 2): • 1-HV-3939A • 1-HV-3939B	Candidate directs the TBO to 'Align 12 ADV to 1C43 with a zero percent output' or similar. The candidate may alternatively direct EOP-4 step numbers.
❑ (2) – Verify 12 SG FW ISOL valve 1-FW-4517-MOV, is shut.	Verifies 1-FW-4517-MOV is shut. (Valve may be shut at this point due to ESFAS actuations)
❑ (3) – Verify 12 MSIV BYP valve, 1-MS-4052-MOV, is shut.	Verifies 1-MS-4052-MOV is shut.
❑ (4) - Shut 12 S/G B/D valves: • 1-BD-4012-CV • 1-BD-4013-CV	Places bottom blowdown 1-BD-4013-CV handswitch to close. (Valve may be shut at this point due to ESFAS actuations, still required to match this handswitch) **CRITICAL STEP**
❑ (5) – Shut 12 SG AFW STM SUPP & BYPASS valves, 1-MS-4071-CV and 1-MS-4071A-CV.	Candidate places MS-4071-CV handswitch to close. May be previously performed per step 3.1.a when re-establishing feed. This handswitch in close is required after this step. **CRITICAL STEP**

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ (6) – Shut 12 S/G AFW BLOCK valves by placing the handswitches in SHUT: • 1-AFW-4530-CV • 1-AFW-4531-CV • 1-AFW-4532-CV • 1-AFW-4533-CV	Places handswitches for the following valves to close: • 1-AFW-4530-CV • 1-AFW-4531-CV • 1-AFW-4532-CV • 1-AFW-4533-CV **CRITICAL STEP**
❑ (7) – Shut the MS UPSTREAM DRN ISOL VLVS by placing handswitch 1-HS-6622 in CLOSE.	Checks 1-HS-6622 in close. (valve closed from isolation of 11 S/G)
❑ (8) - Observe locally, the S/G Safety Valves are **NOT** leaking.	Candidate directs an operator to check for leaking S/G safety valves.
TERMINATING CUE: This JPM is complete when the operator determines the wrong S/G was isolated, restores feeding and steaming to 11 S/G, and isolates 12 S/G. The evaluator is expected to end this JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-5**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. U-1 was operating at 100% power MOC
2. A plant transient and manual Reactor trip have occurred.
3. EOP-4 has been implemented.
4. You are performing the duties of the Reactor Operator.

Initiating Cue:

The CRS directs you to perform RCP Trip Strategy IAW EOP-4 step E.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-6

Rev. 1

Rev. 0	New JPM
Rev. 1	Incorporated comments from validation.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-6

Task Title: Shift 13 IRU Power Supply.

Task Number: 004.012 Transfer power supplies.

K/A Reference: 027.A4.01 (3.3, 3.3)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit 1 is in Mode 1 100 % MOC.
2. Maintenance completed on 13 IRU 11B 480V breaker.
3. All General Precautions and Initial Conditions are met.
4. You are performing duties as the Control Room Operator.

Initiating Cue:

The CRS directs shifting 13 IRU to11B 480V bus IAW OI-5B Section 6.3and performance of a breaker operation check IAW OI-5B Section 6.1.

Task Standard:

The candidate will shift power supplies for 13 IRU, then start and stop 13 IRU.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room

Time critical task:

No

Validation Time:

10 minutes

Setup:

_____ 1. Reset to IC-24

_____ 2. Place simulator in run

_____ 3. Ensure 13 IRU is aligned to 14B 480V bus.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ OI-5B Section 6.3 SHIFTING 13 CONTAINMENT IODINE REMOVAL UNIT POWER SUPPLY FROM 14B 480V BUS TO 11B 480V BUS.	❑ Identifies correct section of procedure to use.
NOTE The preferred lineup for 13 CNTMT Iodine Removal Unit is 11B 480V Bus.	
CUE:	Candidate should notify CRS to enter Tech Spec 3.6.8. Acknowledge report and confirm entering TS.
❑ B.1. – IF plant is in Mode 1,2,3,4, THEN ENTER TS 3.6.8.	❑ Notifies CRS to enter TS 3.6.8.
❑ B.2 – **PLACE** 13 IODINE FILT FAN handswitch 1-HS-5297 in PULL-TO-LOCK at 1C10, **AND CHECK** that "13 CNTMT FILT SIAS BLOCK AUTO START" alarm is present on 1C09	❑ Places 1-HS-5297 in PTL and checks alarm at 1C09.
❑ B.3 – **PLACE** 14 BUS DISC IODINE FILT !# keyswitch 1-HS-5297B in OPEN at 1 C10 **AND REMOVE** key.	❑ Places 1-HS-5297B keyswitch in open. **CRITICAL STEP**
❑ B.4 – **CHECK** 14 BUS green light is off above 13 IODINE FILT FAN handswitch.	❑ Checks green light is off.
❑ B.5 – **INSERT** key from step 3 in 11 BUS DISC IODINE FILT !# keyswitch 1-HS-5297A at 1C10 **AND PLACE** keyswitch to CLOSE.	❑ Inserts key in 1-HS-52978A and places switch in CLOSE. **CRITICAL STEP**
NOTE Fan handswitches spring return to "normal" from either START or STOP. The "normal" position is unmarked and lies between START and STOP on each handswitch.	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ B.6 – **PLACE** 13 IODINE FILT FAN handswitch in normal, **AND CHECK** the following: • "13 CNTME FILT SIAS BLOCKED AUTO START" alarm is clear. • 11 BUS green light is on above 13 IODINE FILT FAN handswitch.	❑ Place 13 IRU Handswitch in normal and verifies alarm clears and green light is lit.
CUE:	When notified to exit TS 3.6.8 acknowledge the report.
❑ B.7 – **IF** plant is in Mode 1,2,3,4, **THEN EXIT** TS 3.6.8.	❑ Notifies CRS to exit TS 3.6.8.
❑ OI-5B Section 6.1 MANUAL OPERATION OF CONTAINMENT IODINE REMOVAL UNITS.	❑ Identifies correct section of procedure to use.
CAUTION Containment Iodine Removal Unit operation is undesirable whenever paint fumes are present in containment, due to the effect these have on the charcoal filters.	
CUE:	**IF** candidate asks if any painting has taken place in containment tell him that U-1 has been at 100% power for past 3 months.
❑ B.1 - **IF** paint fumes are present from Minor Painting **PER** MN-3-100, Safety Related and Controlled Protective Coatings, **THEN CONSIDER NOT** running any Containment Iodine Removal Unit.	❑ Determines this step is **NOT** applicable.
❑ B.2 - **IF** paint fumes are present from Major Painting **PER** MN-3-100, Safety Related and Controlled Protective Coatings, **THEN DECLARE** any Containment Iodine Removal Unit to be started inoperable, **PER** TS 3.6.8.	❑ Determines this step is **NOT** applicable.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
NOTE Fan handswitches spring return to "normal" from either START or STOP. The "normal" position is unmarked and lies between START and STOP on each handswitch.	
❑ B.3 - **MOMENTARILY PLACE** handswitch for selected unit in START, **AND ENSURE** that it returns to normal when released: • 13 IODINE FILT FAN (at 1C10) 1-HS-5297	❑ Places 1-HS-5297 to start and return to normal. **CRITICAL TASK**
❑ B.4 - **CHECK** that red light is on above selected fan handswitch (indicating that fan is energized).	❑ Checks red light is lit.
CUE:	When candidate prepares to log in service time to Charcoal Filter log inform candidate that extra licensed operator will take care of the logging requirement.
❑ B.5 - **RECORD** date and time filter was started in the Charcoal Filter Log for unit placed in service.	❑ Candidate ensures date and time is logged in Charcoal Filter log.
NOTE Fan handswitches spring return to "normal" from either START or STOP. The "normal" position is unmarked and lies between START and STOP on each handswitch.	
❑ C.1 - **MOMENTARILY PLACE** handswitch for selected unit in STOP, **AND ENSURE**that it returns to normal when released: • 13 IODINE FILT FAN (at 1C10) 1-HS-5297	❑ Places 1-HS-5297 to stop and returns to normal. **CRITICAL TASK**
❑ C.2 - **CHECK** that green light is on above selected fan handswitch. (indicating that fan is de-energized).	❑ Checks green light is lit.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
CUE:	When candidate prepares to log in service time to Charcoal Filter log inform candidate that extra licensed operator will take care of the logging requirement.
❑ C.3 - **RECORD** date and time filter was started in the Charcoal Filter Log for unit placed in service.	❑ Candidate ensures date and time is logged in Charcoal Filter log.
❑ C.4 - **IF** any units just secured were operated while paint fumes were present from Major Painting, **THEN DIRECT** that charcoal filters be tested **PER** TS 3.6.8 on any affected units.	❑ Determines this step is **NOT** applicable.
Terminating Cue: This JPM is complete when the candidate shifts power supply and performs break operation check for 13 IRU. The candidate is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-6**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit 1 is in Mode 1 100 % MOC.
2. Maintenance completed on 13 IRU 11B 480V breaker.
3. All General Precautions and Initial Conditions are met.
4. You are performing duties as the Control Room Operator.

Initiating Cue:

The CRS directs shifting 13 IRU to11B 480V bus IAW OI-5B Section 6.3and performance of a breaker operation check IAW OI-5B Section 6.1.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM SIMULATOR-7

Rev. 1

Rev. 0	New JPM
Rev. 1	Incorporate comments from validation

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Sim-7

Task Title: Energize a 480V Load Center.

Task Number: 005/006.002 Energize double ended load center from a service transformer.

K/A Reference: 062.A4.01 (3.1, 3.4)

Method of Testing:

Simulated Performance: ☐ Actual Performance: ☒

Classroom: ☐ Simulator: ☒ Plant: ☐

Read to the examinee:

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

Initial Conditions:

1. Unit 1 is in Mode 1 100 % MOC.
2. Maintenance/Testing completed on U440-13A.
3. General Precautions and Initial Conditions are met.
4. All required briefs have been performed.
5. You are performing duties as the Control Room Operator.

Initiating Cue:

The US directs energizing 13A 480V bus from its service transformer IAW OI 27C Section 6.12 and OI-27-D-1 Section 6.7.

Task Standard:

The candidate will energize bus from its service transformer and open tie breaker.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Control Room
2. OI-27D-1 Station Power 480 Volt System

Time critical task:

No

Validation Time:

15 minutes

Setup:

_____ 1. Reset to IC-24.

_____ 2. Place simulator in run.

_____ 3. Shut 13A-13B Bus Tie Breaker using 1-CS-1312.

_____ 4. Open 13A 480V Bus Feeder breaker using 1-CS-1301, leave H/S not in PTL with "off normal" pink ring on H/S.

_____ 5. Open U440-13A 4KV feeder using 1-CS-152-1310, leave H/S not in PTL with "off normal" pink ring on H/S.

ELEMENT	STANDARD (shaded = CRITICAL STEP)
TIME START: _____	
❑ OI-27C Section 6.12 ENERGIZING A 4160/480/V TRANSFORMER.	Identifies correct section of procedure to use.
❑ B.1 – Momentarily **PLACE** the 4160/480V transformer feeder breaker control switch in the CLOSE position.	Closes breaker U440-13 4KV FDR using 1-CS-152-1310. **CRITICAL STEP**
CUE:	IF candidate calls TBO to check on transformer, report that transformer appears normal,
❑ B.2 – **OBSERVE** breaker CLOSED indication.	Observes red light lit for breaker 152-1310.
❑ OI-27D-1 Section 6.7 - ENERGIZING A DOUBLE ENDED LOAD CENTER FROM ITS ASSOCIATED SERVICE TRANSFORMER.	Identifies correct section of procedure to use.
CAUTION Attempts should NOT be made to re-energize a bus if a fault is suspected.	
❑ B.1. – **IF** power is **NOT** available, **THEN** REFER to OI-27C, 4.16KV SYSTEM.	Determines step is **NOT** applicable.
❑ B.2 – **CHECK** the associated transformer supply breaker is SHUT AND all alarms clear on that transformer.	Checks breaker 152-1310, previously shut in OI-27C is shut.
❑ B.3 – **CLOSE** the normal feeder breaker with the control switch.	Closes breaker 52-1301 using 1-CS-1301. **CRITICAL STEP**
❑ B.4 – **VERIFY** normal breaker closed indication.	Checks red light is on.
NOTE There are two bus tie breakers between Load Centers 15 and 25.	

ELEMENT	STANDARD (shaded = CRITICAL STEP)
❑ B.5 – **VERIFY OPEN** the bus tie breaker(s).	Opens breaker 52-1312 using 1-CS-1312 **CRITICAL STEP**
❑ B.6 – Verify potential indicating light is illuminated.	Checks white light on.
❑ B.7 – **IF** bus voltage is **NOT** between 445 and 510 volts on each phase, **THEN REFER** to OI-28, OPERATION OF 500 KV SWITCHYARD.	Determines step is **NOT** applicable.
NOTE Total current drawn must be maintained less than 1200 amps.	
CUE:	Inform candidate that no loads were shed when tying the busses and no Control Manipulation Form (now known as an Abnormal Component Position Sheet) was generated.
❑ B.8 – **RESTORE** loads which may have been shed while the Load Center was tied.	Determines step is **NOT** applicable.
❑ B.8.a – Close out the associated Control Manipulation Form.	Determines step is **NOT** applicable.
Terminating Cue: This JPM is complete when the candidate energizes 13A 480V Bus from normal feed with tie breaker opened. The candidate is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **SIMULATOR-7**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit 1 is in Mode 1 100 % MOC
2. Maintenance/Testing completed on U440-13A.
3. General Precautions and Initial Conditions are met.
4. All required briefs have been performed.
5. You are performing duties as the Control Room Operator.

Initiating Cue:

The US directs energizing 13A 480V bus from its service transformer IAW OI 27C Section 6.12 and OI-27-D-1 Section 6.7.

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM Plant-1

Rev. 0

Rev. 0	New JPM.

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Plant-1

Task Title: Control Steam Flow from ADV's locally.

Task Number: 204.097

K/A Reference: 039.A2.04 (3.4,3.7)

Method of Testing:

Simulated Performance: ☒ Actual Performance: ☐

Classroom: ☐ Simulator: ☐ Plant: ☒

Read to the examinee:

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

Initial Conditions:

1. Unit-1 was at 100% power.
2. 11 Atmospheric Dump Valves has failed open.
3. Control Room staff has implemented AOP-7K Overcooling Event.
4. Manual operation of 1C03 ADV Controller did not shut the ADV.
5. You are performing the duties of an extra licensed operator.

Initiating Cue:

You have been directed to shut 11 ADV in controlled fashion from 1C43 IAW AOP-7K Step D.3

Task Standard:

Correctly takes local control of 11 ADV and shuts it as directed by Control Room.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Plant

Time critical task:

Yes

Validation Time:

15 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
• AOP-7K Overcooling Event.	
• D.3 – **IF** an ADV has failed, **THEN** perform **ANY** of the following as necessary.	
• D.3 1st Bullet – Shut any failed open ADV's by shifting ATMOSPHERIC STEAM DUMP CONT, 1-HIC-4056 to MANUAL and adjusting as necessary.	Determines step is **NOT** applicable. (already performed by Control Room Staff).
• D.3 2nd Bullet – Locally shut the affected ADV isolation valve:	Determines step is **NOT** applicable.
• D.3 2nd Bullet – Shut the affected ADV from 1C43.	Determines step is applicable based on Initiating Cue.
• a. - **IF** 11 ADV is affected, **THEN** shut 11 ADV using the Hand Transfer Valves on the West wall of the U-1 45 ft Switchgear Room as follows:	Determines step is applicable.
CUE:	Control Room directs controller to be initially set at 100% during transfer allowing controlled shutting of 11 ADV. When student simulates moving lever to right to raise output use a pointing device to show output rising.
• a.1 – Verfiy11 ADV controller, 1-HC-4056A at 1C43 is set as necessary to perform a controlled recovery.	Locates 1-HC-4056A on 1C43 and simulates setting controller to 100% by moving lever to right and watching needle rise from 0% to 100%. **CRITICAL STEP**

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	When student simulates opening Hand Transfer box cover hand, show him a picture of the valves inside and have him simulate operation on the picture.
❑ a.2 – Align 11 S/G Hand Transfer Valves to 1C43 (Position 2). • 1-HV-3938A • 1-HV-3938B	Student simulates opening the Hand Transfer box by unbuckling locking mechanism. Student simulates moving 1-HV-3938A & 1-HV-3938B to position 2. **CRITICAL TASK**
CUE:	Control Room directs 11 ADV position of ≈66% initially. When student simulates moving lever to left to lower output use a pointing device to show output lowering.
❑ a.3 – Adjust 11 ADV controller, 1-HIC-4056A as necessary.	Student adjust 1-HIC-4056A output to ≈66%. **CRITICAL STEP**
CUE:	Control Room directs 11 ADV position of ≈33% after approx 30 seconds. When student simulates moving lever to left to lower output use a pointing device to show output lowering.
❑ a.3 – Adjust 11 ADV controller, 1-HIC-4056A as necessary.	Student adjust 1-HIC-4056A output to ≈33%. **CRITICAL STEP**
CUE:	Control Room directs 11 ADV position of 0% after approx 30 seconds. When student simulates moving lever to left to lower output use a pointing device to show output lowering.
❑ a.3 – Adjust 11 ADV controller, 1-HIC-4056A as necessary.	Student adjust 1-HIC-4056A output to 0%. **CRITICAL STEP**
TERMINATING CUE: The JPM is complete when 11 ADV is shut. No further actions are required. The operator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **IN-PLANT-1**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

Applicant Response: _____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-1 was at 100% power.
2. 11 Atmospheric Dump Valves has failed open.
3. Control Room staff has implemented AOP-7K Overcooling Event
4. Manual operation of 1C03 ADV Controller did not shut the ADV
5. You are performing the duties of an extra licensed operator.

Initiating Cue:

You have been directed to shut 11 ADV in controlled fashion from 1C43 IAW AOP-7K Step D.3

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC

Initial Licensed Operator Exam

JPM Plant-2

Rev. 1

Rev. 0	New JPM.
Rev. 1	Integrate OTPS comments

Rev. 0	New JPM.
Rev. 1	Integrate OTPS comments

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Plant-2

Task Title: Locally control AFW flow during EOP-7.

Task Number: 204.097

K/A Reference: E06 EA1.1 (4.0, 3.9)

Method of Testing:

Simulated Performance: ☒ Actual Performance: ☐

Classroom: ☐ Simulator: ☐ Plant: ☒

Read to the examinee:

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

Initial Conditions:

1. Unit-2 was at 100% power.
2. A Station Blackout has occurred.
3. Control Room staff has implemented EOP-7 Station Blackout
4. 22 AFW is running, supply water to S/G's
5. AFW flow control valves are starting to fail open on loss of air.
6. You are performing the duties of an extra licensed operator.

Initiating Cue:

You have been directed to locally control AFW flow IAW EOP-7 Step F.2.c.

Task Standard:

Correctly takes local control of 22 AFW PP speed.

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Plant

Time critical task:

Yes

Validation Time:

15 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ EOP-7 Station Blackout	
NOTE: The AFW Air Accumulators are designed for 2 hours of available air:	
WARNING **The use of N_2 to operate AFW may result in the depletion of oxygen levels in some rooms due to system venting.**	
❑ F.2.c – When the S/G FLOW CONTR valves begin to fail OPEN, **THEN** align Liquid N_2 System to supply SG FLOW CONTR valves by opening the following valves located in SRW Room.	
CUE: When candidate simulates opening 0-N_2-107, give feedback that handwheel rotates counter-clockwise until it stops.	
• N_2 SUPPLY TO U-2 AFW AMP AIR SYS B/U ISOLATION VALVE, 0-N_2-107 (located SRW RM upper level, overhead of air amplifier).	Simulates opening 0-N_2-107 **CRITICAL STEP**
CUE: When candidate simulates opening 0-IA-390, give feedback that handwheel rotates counter-clockwise until it stops.	
• AFW AMPLIFIER AIR SYSTEM N2 BACKUP SUPPLY VALVE, 2-IA-390 (located SRW RM lower level, west of 21 SRW PP).	Simulates opening 2-IA-390 **CRITICAL STEP**
CUE: Inform student he is the assigned operator.	
❑ F.2.d – Assign an operator to locally control AFW discharge pressure locally as follows:	Acknowledges he is the assigned operator.
CUE: When student contacts control room to establish communication, acknowledge that communication is established.	
❑ D.(1). – Establish communications between the operator and the control room.	Verifies communications established with the control room.

ELEMENT (shaded = CRITICAL STEP)	STANDARD
❑ D.(2) – Isolate the Instrument Air to the Turbine Governor. 22 AFW PP	
CUE: When candidate simulates shutting 0-IA-509 & 510, give feedback that handwheel rotates clockwise until it stops.	
• 2-AFW-3987 I/P A ISOL, 2-IA-509.	Locates and simulates shutting 2-IA-509. **CRITICAL STEP**
• 2-AFW-3987 I/P B ISOL, 2-IA-510.	Locates and simulates shutting 2-IA-510. **CRITICAL STEP**
CUE: Filters are just upstream of the controllers, straight ahead after going in door. The filter drain is the small petcock on bottom of filter. When candidate simulates opening petcock, give feedback that handwheel rotates counter-clockwise until it stops and air flow noise is heard, which slowly stops.	
❑ D.(3) – Open the filter drains on controllers to allow local control.	Locates and simulates opening filter drains. **CRITICAL STEP**
CUE: If student calls the control room for the S/G press and AFW PP discharge pressure then inform him S/G press is 870 psia and AFW discharge press is 1050 psia. If student looks at gauges in AFW PP room then indicate 870 psia for S/G Press (Steam Inlet Press) and 1050 psia for AFW discharge pressure.	
❑ D,(4) – Adjust 21 AFW PP governor control knob to maintain discharge pressure at least 100 PSI greater than S/G pressure.	Student either locates the following gauges and recognizes >100 psia or asks control room for pressures: • 22 AFW PP Discharge Pressure 2-MS-4502-PI • S/G Pressure (Steam Inlet Press) 2-MS-3988-PI.
TERMINATING CUE: The JPM is complete when student has local control of 22 AFW PP speed and recognizes >100 psid. The evaluator is expected to end the JPM.	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **IN-PLANT-2**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. Unit-2 was at 100% power.
2. A Station Blackout has occurred.
3. Control Room staff has implemented EOP-7 Station Blackout
4. 22 AFW is running, supply water to S/G's
5. AFW flow control valves are starting to fail open on loss of air.
6. You are performing the duties of an extra licensed operator.

Initiating Cue:

You have been directed to locally control AFW flow IAW EOP-7 Step F.2.c

APPLICANT: _____

CALVERT CLIFFS NUCLEAR POWER PLANT

2017 NRC Initial Licensed Operator Exam

JPM Plant-3

Rev. 2

Rev. 1	Updated with procedure changes since 2011 exam
Rev. 2	Integrated OTPS comments

Facility: Calvert Cliffs 1 & 2 **Job Performance Measure** Plant-3

Task Title: Fill the SRW and CC head tanks during loss of AC power.

Task Number: 011.025, 015.008

K/A Reference: 008.A4.07 (2.9, 2.9)

Method of Testing:

Simulated Performance: ☒ Actual Performance: ☐

Classroom: ☐ Simulator: ☐ Plant: ☒

Read to the examinee:

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

Initial Conditions:

1. A severe fire has resulted in Control Room evacuation. AOP-9A has been implemented.
2. You are performing the duties of the Unit-2 ABO.

Initiating Cue:

You have just completed Step CH, ESTABLISH SALTWATER FLOW THROUGH THE COMPONENT COOLING HEAT EXCHANGERS which directs you to "Go to the 69' Aux Building to perform Step CI".

Task Standard:

Correctly aligns makeup to the Service Water and Component Cooling Head Tanks

Evaluation Criteria:

1. All critical steps completed (denoted by shading).
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Critical Step Basis:

Critical steps are those that when not performed correctly, in the proper sequence, and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task.

General References:

1. Procedures and manuals normally available in Plant
2. AOP-9A, CONTROL ROOM EVACUATION AND SAFE SHUTDOWN DUE TO A SEVERE CONTROL ROOM FIRE

Time critical task:

No

Validation Time:

20 minutes

Setup:

1. None

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE	You have just completed Step CH, ESTABLISH SALTWATER FLOW THROUGH THE COMPONENT COOLING HEAT EXCHANGERS which directs you to "Go to the 69' Aux Building to perform Step CI".
❑ Locate AOP-9A, Step CI	Same as element
❑ Candidate proceeds to the Unit 2 69'	Same as element
CUE	2C43 notifies you that makeup has been restored to fill the Service Water and Component Cooling Head Tanks. When candidate simulates opening 2-CD-145, give feedback that handwheel rotates counter-clockwise until it stops.
❑ CH.1 - **WHEN** notified that makeup has been restored to fill the Service Water and Component Cooling Head Tanks, **THEN**: • Open Component Cooling Head Tank Condensate Supply, 2-CD-145.	Simulates opening 2-CD-145.
CUE:	When candidate simulates opening 2-CD-144, give feedback that handwheel rotates counter-clockwise until it stops.
• Open SRW Head Tank Condensate Supply, 2-CD-144.	Simulates opening 2-CD-144.

ELEMENT (shaded = CRITICAL STEP)		STANDARD
CUE:	The component cooling head tank level is below the sight glass. When candidate simulates opening 2-CC-108, give feedback that handwheel rotates counter-clockwise until it stops. When candidate simulates shutting 2-CC-107, give feedback that handwheel rotates clockwise until it stops.	
❑	CH.2 – Operate, as necessary, to maintain level indication for the Component Cooling and Service Water Head Tanks: • a. – Component Cooling Head Tank • (1) - Open Component Cooling Head Tank Makeup Bypass, 2-CC-108. • (2) - Shut 2-CC-3820-CV Inlet Isol, 2-CC-107.	Simulates opening 2-CC-108. **CRITICAL STEP** Simulates shutting 2-CC-107.
CUE:	CC Head tank level is rising and after ≈2 minutes simulate that the level is midway in sightglass. When candidate simulates shutting 2-CC-108, give feedback that handwheel rotates - clockwise until it stops. When candidate simulates opening 2-CC-107, give feedback that handwheel rotates counter-clockwise until it stops.	
❑	CH.2 – Operate, as necessary, to maintain level indication for the Component Cooling and Service Water Head Tanks: • a. – Component Cooling Head Tank • (1) - Open Component Cooling Head Tank Makeup Bypass, 2-CC-108. • (2) - Shut 2-CC-3820-CV Inlet Isol, 2-CC-107.	Simulates shutting 2-CC-108. **CRITICAL STEP** Simulates opening 2-CC-107.

ELEMENT (shaded = CRITICAL STEP)		STANDARD
CUE:	21 SRW head tank level is normal, 22 SRW head tank level is below the sight glass.	

❑	CH.2 – Operate, as necessary, to maintain level indication for the Component Cooling and Service Water Head Tanks:
	• b. – 21 Service Water Heat Tank
	  • (1) - Open 21 Service Water Head Tank Makeup Bypass, 2-SRW-106.
	  • (2) - Shut 21 Service Water Head Tank LCV Inlet Isol, 2-SRW-104.
		Determines this step is **NOT** applicable

CUE:	When candidate simulates opening 2-SRW-114, give feedback that handwheel rotates counter-clockwise until it stops. When candidate simulates shutting 2-SRW-112, give feedback that handwheel rotates clockwise until it stops.	
❑	CH.2 – Operate, as necessary, to maintain level indication for the Component Cooling and Service Water Head Tanks: • b. – 22 Service Water Heat Tank • (1) - Open 22 Service Water Head Tank Makeup Bypass, 2-SRW-114. • (2) - Shut 22 Service Water Head Tank LCV Inlet Isol, 2-SRW-112.	Simulates opening 2-SRW-114. **CRITICAL STEP** Simulates shutting 2-SRW-112.

ELEMENT (shaded = CRITICAL STEP)	STANDARD
CUE:	22 SRW Head tank level is rising and after ≈2 minutes simulate that the level is midway in sightglass. When candidate simulates shutting 2-SRW-114, give feedback that handwheel rotates - clockwise until it stops. When candidate simulates opening 2-SRW-112, give feedback that handwheel rotates counter-clockwise until it stops.
❑ CH.2 – Operate, as necessary, to maintain level indication for the Component Cooling and Service Water Head Tanks: • b. – 22 Service Water Heat Tank • (1) - Open 22 Service Water Head Tank Makeup Bypass, 2-SRW-114. • (2) - Shut 22 Service Water Head Tank LCV Inlet Isol, 2-SRW-112.	Simulates shutting 2-SRW-114. **CRITICAL STEP** Simulates opening 2-SRW-112.
❑ CH.3 – Periodically monitor Component Cooling and Service Water Head Tanks levels and fill as necessary.	Student should voice that this step is continuously applicable.
TERMINATING CUE: This JPM is complete when the Component Cooling and 22 Service Water Head Tanks are in the normal band. No further actions are required. The evaluator is expected to end the JPM	
TIME STOP: _____	

Verification of Completion

Job Performance Measure **IN-PLANT-3**

Examinee: _____

NRC Examiner: _____

Date Performed: _____

Facility Evaluator: _____

Number of Attempts: _____

Time to Complete: _____

Follow up Question(s): _____

_____

_____

_____

_____

_____

_____

Applicant Response: _____

_____

_____

_____

_____

_____

_____

Result: SAT _____ UNSAT _____

Examiner's Signature and Date: _____

EXAMINEE'S CUE SHEET

Initial Conditions:

1. A severe fire has resulted in Control Room evacuation. AOP-9A has been implemented.
2. You are performing the duties of the Unit-2 ABO.

Initiating Cue:

You have just completed Step CH, ESTABLISH SALTWATER FLOW THROUGH THE COMPONENT COOLING HEAT EXCHANGERS which directs you to "Go to the 69' Aux Building to perform Step CI".