

**JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
NRC INITIAL LICENSE EXAMINATION SCENARIO 1  
6 OCTOBER 2001**

**TITLE:** LOI-01-01 NRC EXAMINATION SCENARIO

**SCENARIO NUMBER:** 1

**PATH:** N/A

**DATE/TIME SCENARIO RUN:** \_\_\_\_\_

	CANDIDATES
CRS	
NCO1	
NCO2	

A. **TITLE:** LOI-01-01 NRC EXAMINATION SCENARIO 1

B.

B. **SCENARIO SETUP:**

1. Initial Protected IC for 100% power operations. A and B RBCLC pumps in service.
2. Special Instructions:  
Reduce power to approximately 90% and allow to stabilize. Snap into an available IC for reset.  
Roll chart recorders ahead.
3. Preset Conditions:

EVENRT NUMBER	EVENT DESCRIPTION	MFI/RFI
TRG E-4	Inadvertent MSIV Closure Inadvertent SRV Opening	MFI RP03 MFI AD06:J on 3 sec TD
Preset	Control Rod 06-31 Fails to Scram	MFI RD13:06:31
Preset	SRV-71K sticks open	MFI AD08:J
TRG E-6	SRV-71K discharge line break in torus	MFI MS16:J @ 10%
TRG E-7	Loss of 10500 Bus SRV Tailpipe leak worsens	MFI ED18:A MS16:J to 100% over 3 minutes
Preset	'D' RHR Pump Breaker Trip	MFI RH01:D
Preset	'C' APRM as is for 90% CTP	MFI NM14:C @ ~73%

4. Consumable Forms and Procedures:

- AOP-1
- AOP-18
- AOP-36

C. **SCENARIO SUMMARY:**

**Commitment Document:**

The scenario begins with the plant at approximately 90% CTP after a rod pattern exchange. After relieving the watch the crew will swap running RBCLC pumps then commence a power rise toward 100%. During the power rise, "C" APRM will fail to respond. The crew will declare the "C" APRM inop and bypass it. A tech spec review will indicate that no LCO is applicable. The major event will be a spurious MSIV closure resulting in the following events:

- A full scram in which 1 control rod will fail to scram. If attempted, the rod can be inserted with RMCS. The scram will result in AOP-1 and EOP-2 entry.
- SRV-71K will open and stick open resulting in uncontrolled RPV depressurization and crew actions of AOP-36.
- SRV-71K discharge tailpipe will rupture in the torus airspace resulting in EOP-2 and 4 entry on High Drywell Pressure. RHR pump "D" will trip on overcurrent upon auto start.
- After the first Torus Spray evolution is secured, a loss of the 10500 bus will occur resulting in AOP-18 actions and complete loss of containment cooling capability.
- Along with the loss of the 10500, the SRV tailpipe leak will worsen to 100% over the next several minutes. Without containment cooling capability and with Torus Pressure rising more rapidly, the crew will have to conclude that PSP will be violated thus requiring an Emergency Depressurization.

**Shift Turnover**

The plant is at 90% power after a scheduled rod pattern exchange. The Reactor Analyst is on-site and has given guidance to return to 100% power using Recirculation flow iaw RAP-7.3.16.

Performance Engineering and an NLO are standing by to startup the "C" RBCLC pump to evaluate the small fluctuations in discharge pressure observed last night. The shift schedule has been change to include starting the "C" RBCLC pump and securing "B".

EVENT NO.	EVENT SEQUENCE
1.	Swap of Running RBCLC Pump. (Normal evolution)
2.	Raise Reactor Power 90%-100% Using Recirculation Flow (Reactivity Manipulation)
3.	"C" APRM fails to respond to power change (Instrument Failure/Tech Spec Call)
4.	Inadvertent MSIV Closure. (Major transient)
5.	Control Rod 06-31 Fails To Scram (Component Failure)
6.	SRV-71K opens (on MSIV closure), sticks open and will not re-close. (Component Failure)
	SRV-71K discharge line breaks above the torus water level. Break severity should allow recognizing the approach to and anticipating exceeding PSP. (Major transient) One Torus Spray evolution will result (Normal Evolution)
7.	Loss of the 10500 bus (resulting in loss of RHR-A and B). (Component Failure)
8.	'D' RHR Pump trips upon start attempt. (Component Failure)
9.	Emergency Depressurization based upon unable to maintain torus pressure below PSP.

D. **TERMINATION CUES:**

1. 7 ADS valves open
2. RPV water level being maintained 177-222.5.

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
Simulator in RUN Recorder and Alarm Power ON Simulator Checklist Complete			
Provide Turnover			
After the shift turnover, allow no more than five minutes for panel walkdown	All	Walkdown the control panels and assume the watch.	SAT / UNSAT / NA
	CRS	Provide crew brief. Order startup of "C" RBCLC and place "B" in Standby.	SAT / UNSAT / NA
<b>Role Play:</b> If requested, you are the NLO and engineering standing by the "C" RBCLC Pump	NCO2	Obtain OP-40 and change in service RBCLC pumps per G.1 <ul style="list-style-type: none"> <li>At 09-6, Start "C" RBCLC and verify pump amps</li> <li>At 09-6, "B" RBCLC switch to stop until pressure stabilizes at &gt; 75 psig, then release</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	CRS	Order restoration of 100% power using Recirculation Flow iaw RAP-7.3.16	SAT / UNSAT / NA
	NCO2	Review RAP-7.3.16. and OP-27 Section E.1 Coordinate with NCO1 and commence raising recirculation flow. Power ramp at $\leq 200$ Mwth/min. <ul style="list-style-type: none"> <li>Alternating between "A" and "B" Recirc pump speed controllers at 09-4 make 1 to 3% speed adjustments while monitoring reactor power and core flow</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA
	NCO1/2	Observe and report that "C" APRM has failed to respond to the power rise.	SAT / UNSAT / NA
	CRS	Declare "C" APRM inoperable and order bypassed.	SAT / UNSAT / NA
	NCO1/2	Bypass "C" APRM per OP-16 Section E.16 <ul style="list-style-type: none"> <li>"A" division APRM Bypass Switch at 09-5 to "C" position</li> <li>Verify Bypass indications at 09-5</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	CRS	Review Tech Spec Tables 3.1.1 and 3.2-3. Assess that no LCO condition exists.	SAT / UNSAT / NA
<b>TRG! E4</b>	ANY/ALL	Recognize reactor scram, MSIV closure, EOP-2 entry	SAT / UNSAT / NA
	CRS	Order NCO1 perform AOP-1 immediate actions	SAT / UNSAT / NA
		Order NCO2 to level control with feed/condensate at 177-222.5 inches	SAT / UNSAT / NA
		Enter EOP-2	SAT / UNSAT / NA
	NCO1	Depress both Manual Scram Pushbuttons (optional) RMS to Shutdown. Insert SRM's and IRM's. Verify APRM's downscale Verify all rods in. Identify Rod 06-31 did not insert. Ensure SDIV vent and drains closed Trip the main turbine Verify fast transfer Check at least 1 Circ Water Pump running	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO2	Manipulate feed, condensate and FWLC to stabilize level 177-222.5 inches.  Recognize near future loss of RFPT's due to loss of condenser vacuum and communicate to CRS	SAT / UNSAT / NA  SAT / UNSAT / NA
	CRS	Order augmenting level control with HPCI, RCIC and CRD as necessary.	SAT / UNSAT / NA
	NCO	Ensure HPCI and RCIC injection and start second CRD pump as necessary. Recognize that as RPV pressure trends down, condensate injection will be enabled at ~700 psig.	SAT / UNSAT / NA
	CRS	Order NCO1/2 to pressure control 800-1000 psig using SRV's	SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	NCO	Recognize that SRV-71K is open and RPV pressure is trending down.	SAT / UNSAT / NA
	CRS	Order AOP-36 actions	SAT / UNSAT / NA
<b>ROLE PLAY</b> <b>To remove SRV-71K fuses</b> <b><u>RFI AD02:K</u></b>  <b>When fuses pulled:</b> <b>TRG! E6</b>	NCO	Perform AOP-36 actions <ul style="list-style-type: none"> <li>• Cycle SRV-71K control switch at 09-4</li> <li>• Dispatch NLO to remove SRV-71K control power fuses.</li> <li>• Identify attempts to re-close have failed.</li> <li>• Order fuses reinstalled (May not occur if E-6 triggered)</li> <li>• Initiate Torus Cooling and temperature monitoring (Relatively low priority) (May not occur if E-6 triggered)</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	ANY/ALL	Recognize High drywell pressure and ECCS/EDG initiations Recognize EOP-2 and 4 entry conditions	SAT / UNSAT / NA
	CRS	Order one NCO to accept pressure and level (P/L) control Order other NCO to containment (C) control	SAT / UNSAT / NA
	NCOP/L	Maintain RPV water level 177-222.5 inches with any of: <ul style="list-style-type: none"> <li>• Feed, condensate and FWLC.</li> <li>• HPCI</li> <li>• RCIC</li> <li>• CRD</li> </ul> Make periodic pressure trend reports	SAT / UNSAT / NA
	CRS	Order terminate and prevent RHR and Core Spray per EP-5 (Driven by EOP-2)	SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	NCOC	Terminate and Prevent Core Spray per EP-5 Section 5.3 and 5.4 <ul style="list-style-type: none"> <li>• 14MOV-11A/B Auto Actuation Bypass Switch to Bypass and verify white lamp</li> <li>• Ensure closed 14MOV-11A/B</li> <li>• Ensure Core Spray Pump A/B is stopped</li> </ul>	SAT / UNSAT / NA  SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCOC	Terminate and Prevent RHR per EP-5 Section 5.1 and 5.2. <ul style="list-style-type: none"> <li>• 10MOV-27A/B Auto Actuation Bypass Switch to Bypass</li> <li>• Ensure closed 10MOV-27A/B</li> <li>• Ensure RHR pumps not required are stopped. (Will retain at least one loop for containment control)</li> <li>• Report that 'D' RHR pump failed to start or tripped after start</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	CRS	Order startup of RHR in Torus Spray before Torus Pressure reaches 15 psig.	SAT / UNSAT / NA
	NCOC	Place RHR in Torus Spray and report downward trend in Torus Pressure. <ul style="list-style-type: none"> <li>• Spray Control Switch (S17) to Manual</li> <li>• Ensure at least 1 RHR pump running</li> <li>• Open/Throttle 10MOV-39 and 38 (at least 6500 gpm per pump)</li> <li>• Ensure at least 1 RHR/SW pump running</li> <li>• Throttle 10 MOV-89 (2500 to 4000 gpm per pump)</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA  SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA



INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	CRS	Recognize abnormal torus pressure trend and trend PSP. Order terminating Torus Sprays before torus pressure drops below 0 psig	SAT / UNSAT / NA SAT / UNSAT / NA
	NCOC	Terminate Torus Spray before 0 psig Torus Pressure <ul style="list-style-type: none"> <li>Close 10 MOV-38A</li> </ul>	SAT / UNSAT / NA
<b>When torus sprays are secured</b> <b>TRG! E7</b>	ALL	Recognize the loss of the 10500 bus	SAT / UNSAT / NA
	CRS	Enter AOP-18 and order actions	SAT / UNSAT / NA
	NCO	Enter AOP-18 and start actions which <b>MAY</b> include: <ul style="list-style-type: none"> <li>NLO dispatch to bus to investigate</li> <li>Securing EDG-A and C</li> <li>Restart of CRD pump</li> <li>Start additional Drywell cooling</li> <li>Ensure Reactor Building Vent isolation and SGT start.</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCOC	Report the loss of Torus Spray capability.	SAT / UNSAT / NA
	CRS/NCOC	Recognize that with the loss of the 10500 bus and 'D' RHR pump, no RHR containment cooling ability remains.	SAT / UNSAT / NA
	CRS	Recognize that when Torus Pressure cannot be maintained below PSP, and an emergency depressurization is required.	SAT / UNSAT / NA
	CRS	Order NCOC to open 7 ADS valves	SAT / UNSAT / NA
	NCOC	Coordinate with NCOP/L and open 7 ADS valves Report 7 ADS valves open	SAT / UNSAT / NA
When 7 ADS valves are open and RPV water level being controlled TERMINATE	NCOP/L	Adjust injection sources as necessary to maintain RPV level	SAT / UNSAT / NA

**JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
NRC INITIAL LICENSE EXAMINATION SCENARIO 2  
6 OCTOBER 2001**

**TITLE: LOI-01-01 NRC EXAMINATION SCENARIO**

**ON SCENARIO**

**SCENARIO NUMBER: 2**

**PATH: N/A**

**DATE/TIME SCENARIO RUN: \_\_\_\_\_**

	CANDIDATES
CRS	
NC01	
NC02	

A. **TITLE:** LOI-01-01 NRC EXAMINATION SCENARIO 2

B.

B. **SCENARIO SETUP:**

1. Initial Protected IC for 100% power operations. "A" CRD pump in service. "A" and "C" TBCLC pumps in service. "B" EHC pump in service.

2. Special Instructions:  
Reduce power to 90-95% and allow to stabilize. Roll chart recorders ahead.

3. Preset Conditions:

EVENT NUMBER	EVENT DESCRIPTION	MFI/RFI
TRG E-3	"A" CRD pump breaker trip	MFI-RD06:A
TRG E-3	Accumulator Trouble	MFI-RD09:10:35 (45 sec TD)
TRG E-4	EHC Pump Trip	MFI-TC02:B
TRG E-4	Loss of EHC hydraulic pressure	RFI-TC03 Open on 180 sec ramp
Preset	ATWAS on Hydraulic Lock	MFI-RD22:A and B at 70%

4. Consumable Forms and Procedures:

- OP-65 Attachment 5
- AOP-69
-

and to C. **SCENARIO SUMMARY:**

**SCENARIO SUMMARY:**

**Commitment Document:**

The scenario begins with the plant at approximately 90% CTP with a reactor shutdown in progress. Upon watch relief, the crew will swap the running TBCLC pumps then continue with the in-progress reactor shutdown. During the shutdown, the running CRD pump will trip followed shortly by an HCU Trouble Alarm. The crew will respond per AOP-69, starting the standby CRD pump and investigating the HCU Trouble Alarm. A field report will indicate the cause to be low nitrogen pressure at 0 psig and attempts to recharge will fail. A tech spec review will result in declaring the control rod inoperable. The major event will be initiated by a trip of the running EHC pump and the following sequence:

- Start of the standby pump and a slowly degrading EHC pressure
- Local reports of significant EHC leakage at the skid.
- Main Turbine trip on loss of EHC header pressure.
- A hydraulic lock in both SDV's resulting in only partial rod insertion with the reactor remaining at power.
- A loss of the BPV's resulting in RPV pressure control transition to the SRV's
- Terminate and Prevent of injection sources based upon exceeding BIIT.
- Re-injection with level control -19 to a value above TAF.
- Control rod insertion with RMCS after re-establishing CRD Drive Water D/P.

**Shift Turnover**

The plant is at ~90% power with a reactor shutdown in progress. OP-65 is complete through step F.1. You are currently at the beginning of F.2. The shutdown is to support a scheduled mid-cycle outage for condenser tube cleaning. There is a small EHC oil leak at the EHC pump common discharge header that will also be repaired. A 24 hour run post work test is due on the "B" TBCLC pump. An NLO and mechanic are standing by at the "B" TBCLC. The shift schedule has been revised to start up "B" TBCLC and secure "C" upon watch relief.

EVENT NO.	EVENT SEQUENCE
1.	Swap running TBCLC pumps.
2.	Power reduction from 95% CTP with Recirculation flow.
3.	Trip of running CRD pump complicated by an HCU trouble alarm.
4.	EHC pump trip. Standby pump start aggravates EHC leak
5.	Turbine trip on loss of EHC
6.	ATWAS caused by partial hydraulic lock of both SDV's
7.	Loss of BPV's as EHC goes away

D. **TERMINATION CUES:**

1. SLC Injecting
2. Control Rods being inserted with RMCS and/or repeated manual scrams
3. RPV water level being maintained between -19 and the T/P milestone
4. RPV pressure control stable on SRV's and main steam loads

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
Simulator in RUN Recorder and Alarm Power ON Simulator Checklist Complete			
Provide Turnover			
After the shift turnover, allow no more than five minutes for panel walkdown	All	Walkdown the control panels and assume the watch.	SAT / UNSAT / NA
	CRS	Provide crew brief.	SAT / UNSAT / NA
	CRS	Order NCO2 to start "B" TBCLC and secure "C" per OP-41	SAT / UNSAT / NA
<b>Role Play:</b> <b>If requested, you are the</b> <b>NLO and mechanic standing</b> <b>by the TBCLC Pumps</b>	NCO2	Obtain OP-41 Section G.1. <ul style="list-style-type: none"> <li>Start "B" TBCLC and verify amps</li> <li>Hold "C" control switch in stop until pressure stabilized &gt;95 psig, then release.</li> </ul>	SAT / UNSAT / NA
	CRS	Order review of OP-65, RAP-7.3.16, and OP-27. Order power reduction with Recirculation flow.	SAT / UNSAT / NA
	NCO2	Review procedures. Coordinate with NCO-1 and commence power reduction with Recirculation flow at $\leq 200$ Mwth per minute. <ul style="list-style-type: none"> <li>Alternating between "A" and "B" Recirc pump speed controllers at 09-6, make 1-3% speed adjustments while monitoring reactor power and core flow</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
<b>TRG! E3</b>	All	Recognize electrical trip of "A" CRD pump	SAT / UNSAT / NA
	CRS	Enter AOP-69. Order NCO2 to perform actions of AOP-69 and NCO1/2 to respond per the ARP's.	SAT / UNSAT / NA
	NCO2	Dispatch NLO to investigate L-15 breaker	SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	ANY	Report accumulator trouble on rod 10-35	SAT / UNSAT / NA
	CRS	Review AOP-69 C.4	SAT / UNSAT / NA
<b>Role Play:</b> <b>As NLO report acrid odor at L-15 ("A" CRD pump breaker. No damage or flame</b>	NCO2	Start "B"CRD per AOP-69 <ul style="list-style-type: none"> <li>• Close 03FCV-19 by placing controller in manual and reducing signal to minimum.</li> <li>• Place "B" CRD pump in start.</li> <li>• Slowly adjust 03FCV-19 controller to 59-61 gpm</li> <li>• Restore 03FCV-19 controller to automatic</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO1/2	Dispatch NLO to investigate 10-35 Accumulator trouble	SAT / UNSAT / NA
<b>Role Play:</b> <b>Report HCU 10-35 low N2 pressure at 0 psig</b>	CRS	Direct NLO be dispatched to recharge accumulator per OP-25 Section G	SAT / UNSAT / NA
	NCO	Dispatch NLO to recharge accumulator	SAT / UNSAT / NA
<b>Role Play:</b> <b>After several minutes report that accumulator will not retain Nitrogen pressure</b>	CRS	Declare control rod inoperable per Tech Spec 3.3.A.2.d	SAT / UNSAT / NA
<b>TRG! E4</b>	ANY	Recognize and report "B" EHC pump trip and "A" automatic start	SAT / UNSAT / NA
	NCO2	Dispatch NLO to EHC skid	SAT / UNSAT / NA
<b>Role Play: Just before auto turbine trip at 1100 psi EHC</b> <b>NLO report significant EHC header leak at the skid</b>	ANY	Recognize and report downward trend in EHC pressure	SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	ANY/ALL	Recognize and report Turbine Trip with Failure to Scram	SAT / UNSAT / NA
	CRS	Enter EOP-2, transition to EOP-3 Order NCO1 perform AOP1 Immediate Actions Order NCO2 to Level Control 177-222.5 with Feed/Condensate.	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO1	Perform AOP-1 Immediate Actions: <ul style="list-style-type: none"> <li>• Manual Scram</li> <li>• RMS to Shutdown</li> <li>• Report APRM's <b>NOT</b> downscale</li> <li>• Report multiple rods out</li> <li>• Insert SRM's and IRM's</li> <li>• Ensure SDIV Vent and Drains closed</li> <li>• Check at least 1 Circ Water pump running</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO2	Maintain RPV level using feed and condensate	SAT / UNSAT / NA
	ANY	Recognize and report loss of BPV's	SAT / UNSAT / NA
	CRS	Order NCO1/2 to pressure control on SRV's and steam loads at 800-1000 psig	SAT / UNSAT / NA
	NCO1/2	Operate SRV's and main steam loads to maintain 800-1000 psig	SAT / UNSAT / NA
	CRS	Order NCO1 <ul style="list-style-type: none"> <li>• Initiate ARI</li> <li>• Ensure Recirc Pumps at minimum then trip</li> <li>• Inject SLC</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA



INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
	NCO1	Initiate ARI Observe recirc pumps already tripped Inject SLC "A" or "B"	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	CRS	Order NCO1/2 to T/P all HP injection except SLC, CRD and RCIC per EP-5. Reinject to maintain 80-110 inches. Provide caution against rapid level changes causing reactivity excursions.  Order NCO1/2 to T/P Core Spray and RHR per EP-5 and override ADS	SAT / UNSAT / NA  SAT / UNSAT / NA
	NCO	Obtain EP-5. <ul style="list-style-type: none"> <li>• T/P HPCI by depressing turbine trip pushbutton</li> <li>• T/P Feedwater by selecting manual on both feedpump M/A station controllers and reducing signal to minimum.</li> <li>• Reinject with feedwater by raising M/A station signals to maintain 80-110 inches.</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO	Select both ADS logic switches to override.	SAT / UNSAT / NA
	NCO	Terminate and Prevent Core Spray per EP-5 Section 5.3 and 5.4 <ul style="list-style-type: none"> <li>• 14MOV-11A/B Auto Actuation Bypass Switch to Bypass and verify white lamp</li> <li>• Ensure closed 14MOV-11A/B</li> <li>• Ensure Core Spray Pump A/B is stopped</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
	NCO	Terminate and Prevent RHR per EP-5 Section 5.1 and 5.2. <ul style="list-style-type: none"> <li>• 10MOV-27A/B Auto Actuation Bypass Switch to Bypass</li> <li>• Ensure closed 10MOV-27A/B</li> <li>• Ensure RHR pumps not required are stopped</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
<b>When MSIV jumpers ordered: RUN CAE:????????</b>	CRS	Order NLO dispatched to hang MSIV low level jumpers	SAT / UNSAT / NA
	NCO	Dispatch NLO to hang jumpers	SAT / UNSAT / NA
	CRS	Order NCO to determine success path in EP-3	SAT / UNSAT / NA
	NCO	Determines success path is RMCS and Manual Scrams	SAT / UNSAT / NA
	CRS	When BIIT is exceeded, order NCO to again T/P feedwater until milestone of EOP-3	SAT / UNSAT / NA
	NCO	T/P feedwater by reducing controllers to minimum.	SAT / UNSAT / NA
	NCO1/2	Monitor milestones for and mark RPV level at: <ul style="list-style-type: none"> <li>• APRM's Downscale</li> <li>• RPV level at TAF</li> <li>• SRV's no longer needed for pressure control and none open</li> </ul>	SAT / UNSAT / NA
	CRS	When milestone reached, order NCO to reinject and maintain level -19 to milestone level. Provide caution against rapid level changes causing reactivity excursions.	SAT / UNSAT / NA
	NCO2	Commence and slowly raise injection to maintain band.	SAT / UNSAT / NA
	NCO1/2	Monitor SRM's and IRM's for reactivity excursion. Control injection rate as necessary.	SAT / UNSAT / NA
	CRS	Order NCO to insert control rods with RMCS and Manual Scrams	SAT / UNSAT / NA

INSTRUCTOR ACTIVITY	POSITION	OPERATOR ACTIONS/STANDARD	COMMENTS/EVALUATION
<b>Role Play:</b> <b>Reset ARI with RFI RP-20</b>  <b>Shut 03CRD-56 with RD07</b>	NCO	Insert control rods with RMCS per EP-3 by: <ul style="list-style-type: none"> <li>Dispatch NLO to place ARI test switch in Div I Pressure</li> <li>Verify all 5 ARI SOV's are closed</li> <li>Place RWM in bypass</li> <li>Dispatch NLO to shut 03CRD-56. May also select CRD flow control to manual and fully open. Both to establish Drive D/P</li> <li>Using Rod Movement or Rod Emergency In control switches, insert control rods in Att 1/Att 2 sequence. The 4 page template may be used to model the Attachments.</li> <li>Report success in rod insertion.</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA
<b>Role Play:</b> <b>Reset ARI with RFI RP-20</b> <b>Insert Scram Jumpers with</b> <ul style="list-style-type: none"> <li>RP21:A1, A@, B1, B2</li> </ul> <b>Open 03CRD 56 with RD07</b>  TERMINATE when the following are satisfied: <ul style="list-style-type: none"> <li>SLC Injecting</li> <li>Control Rods being inserted with RMCS</li> <li>RPV water level being maintained between -19 and the T/P milestone</li> </ul> RPV pressure control stable on SRV's and main steam loads	NCO	Insert control rods with Manual Scrams per EP-3 by: <ul style="list-style-type: none"> <li>Dispatch NLO to place ARI test switch in Div I Pressure</li> <li>Dispatch SELF to connect Scram jumpers in 09-15/17</li> <li>Dispatch NLO to open 03CRD-56</li> <li>Bypass SDIV High Level Trip</li> <li>Reset the scram.</li> <li>When SDIV's drained Manually Scram the Reactor.</li> <li>Report no rod motion occurred.</li> </ul>	SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA SAT / UNSAT / NA