

Facility: Byron Nuclear Station Scenario No.: 2 Op-Test No.: 2021-301

Examiners: _____ Operators: _____

Initial Conditions: 75% RTP, MOL, steady state conditions.

Turnover: Crew is directed to perform IV/RV surveillance and then initiate ramp to 100%. 1A FW Pump OOS. Expected RTS in 21 hours. Byron Unit 1 has been notified of potential response due grid instabilities projected over the next 16 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N – BOP N – SRO	Perform IV/RV surveillance
2	None	R – ATC R – BOP R - SRO	Rapid ramp down of 100 MWe for grid instability
3	SLIM12ManPB SLIM12OutDecPB SLIM12pwrFail_t	I – ATC I – SRO	Master PZR Level Controller 1LK-0459 demand lowers and power failure (NRC Exam 19-1)
4	CV16	I – ATC I – SRO	VCT level channel 1LI-112 fails high (NRC Exam 19-2)
5	CC01B CC01C	C – BOP C – SRO TS - SRO	1A CC pump trip with 1B CC pump failure to auto start
6	ZDI1HSDG0200 ZLO1HSDG0201 ZLO1HSDG0202 ZLO1HSDG0203	TS – SRO	Loss of 1B DG CP
7	ZDI1CC685	C – BOP C – SRO	1CC685 spurious closure (NRC Exam 19-2)
8	MS07D MS07A	M (ALL)	1A and 1D Main Steamline leak inside CNMT [CT]
9	ZDI1CS01PA CLS ZDI1CS01PB CLS ZDI1CS01PA TRIP ZDI1CS01PB TRIP	C – BOP C – SRO	Both CS pumps fail to actuate in auto [CT] (NRC Exam 19-1)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

1. **CT-17:** Isolate the faulted 1A and 1D SG before transition out of 1BEP-2 (K/A number – APE 040-AA1.03 importance 4.3/4.3)
 - a. Safety Significance: Failure to isolate a faulted SG can result in challenges to the CSFs Integrity, Subcriticality, and Containment.
 - b. Cues: Steam pressure and flow rate indications that make it possible to identify a single SG as faulted AND valve position and flow rate indication that AFW continues to be delivered to the faulted SG.
 - c. Performance Indicator: Manipulate controls to isolate the faulted the SG by MSIVs indicate closed, feedline isolation valves closed, and indication of AFW flow to the faulted SG is stopped.
 - d. Feedback: Any depressurization of intact SGs stops and AFW flow rate indicates zero to faulted SG.

2. **CT-3:** Restart Containment Spray Pump before transition out of 1BEP-0. (K/A: 026-A2.04; importance – 3.9/4.2)
 - a. Safety Significance: Failure to manually actuate one containment spray pump results in a failure to prevent a significant reduction of safety margin.
 - b. Cues: Rising pressure in containment and no CS Spray pumps running.
 - c. Performance Indicator: Manipulate controls to actuate at least one CS Spray pump.
 - d. Feedback: Indication and/or annunciation that at least one CS Spray pump is actuated.

Scenario will start at 75% RTP, MOL, steady state conditions. Crew is directed to perform IV/RV surveillance and then initiate ramp to 100%. 1A FW Pump OOS. Expected RTS in 21 hours. Online risk is green.

Event 1

The crew will be directed to perform the surveillance 1BOSR 3.g.3-1 UNIT ONE REHEAT AND INTERCEPT VALVE QUARTERLY SURVEILLANCE. After the first valve stroke is complete and the crew is in the 10 minute waiting period for unit stabilization, at the lead examiner discretion, continue to Event 2.

Event 2

The crew will receive notification from grid operator to lower power 100 MWe due to grid instabilities within 30 minutes. The crew will perform a rapid down power. Expectations are to initiate the ramp within 10 minutes and complete within the directed time frame. Once sufficient observation of the reactivity maneuver is complete, at the lead examiner discretion, continue to Event 3.

Event 3

Master PZR Level Controller 1LK-0459 demand lowers and power failure. The crew will identify the failure, take manual control of the Master PZR Level Controller in Ovation or take manual control of 1CV121 to restore PZR level. Once PZR level is under control, at lead examiner discretion, continue to Event 4.

Event 4

1LI-112 Volume Control Tank (VCT) Level Channel 1 will fail high. The crew will identify the failure and respond to BAR 1-9-A2. The crew should enter 1BOA INST-2 OPERATION WITH A FAILED INSTRUMENT CHANNEL, perform attachment V, and swap channels in Ovation to 1LT185 VCT Level Channel 2, placing 1CV112A Letdown Diversion to VCT or HUT Tanks Valve to manual and selecting HUT or VCT to control level as required. Once the VCT level is under control, at lead examiner discretion, continue to Event 5.

Event 5

The 1A CC pump will trip and the 1B CC pump will not auto start. The crew will manually start the 1B CC pump per Bar 1-2-A4 CC PUMP TRIP or OP-AA-103-102-1001 STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION. The crew will enter Tech Spec 3.7.7 Condition A. Once alarms are clear and system parameters are stable, at the lead examiner discretion, continue to Event 6.

Event 6

The 1B DG will lose DC Control Power. The crew will identify the failure and respond per BAR 1-22-C8 DG 1B TROUBLE/FAIL TO START. The crew will dispatch an EO to identify local alarms for the 1B DG. The report from the field will identify that the 1B DG has lost DC CP. The crew will enter Tech Spec 3.8.1 Condition B. Once the Tech Spec has been entered, at lead examiner discretion, continue to Event 7.

Event 7

1CC685 Component Cooling Water from RCPs Thermal Barrier Isolation Valve will spuriously go closed. The crew will identify the failure and reopen the valve. The crew should enter 1BOA PRI-6 COMPONENT COOLING MALFUNCTION UNIT 1. Once restoration of CC cooling flow through the Thermal barrier is restored, at the lead examiner discretion, continue to Event 8.

Event 8

1A and 1D Steamlines will rupture inside containment. The crew should identify the faulted Steam Generators and initiate a manual RX trip and Main Steam Isolation and enter 1BEP-0 REACTOR TRIP OR SAFETY INJECTION UNIT1. The crew will proceed to 1BEP-2 FAULTED STEAM GENERATOR ISOLATION UNIT1 to isolate the 1A and 1D SG. Containment pressure will rise to the Phase B / Containment Spray actuation setpoint. Neither CS pump will automatically start. The crew will identify the lack of CS pumps running above 20 PSIG containment pressure. Manual actuation of CS / Phase B will not function. The crew will use Attachment B and Attachment C of 1BEP-0 and manually start the 1A & 1B CS pumps.

The scenario can be terminated when the crew has transitioned to **1BEP ES-1.1 SI TERMINATION**.

Facility: Byron Nuclear Station Scenario No.: 3 Op-Test No.: 2021-301

Examiners: _____ Operators: _____

Initial Conditions: 8% RTP, BOL, Main Generator not synced to the grid.

Turnover: Continue raising power to the 20% per 1BGP 100-3, step 72 after Syncing the Main Generator per Step 27. 1A FW Pump OOS, expected RTS in 8 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	None	R – ATC R – BOP R – SRO N – BOP N – SRO	Raise power above 10% Raise Turbine speed to 1800 RPM (preparing to sync main generator)
2	CV08	I – ATC I - SRO	1PT131 fails low
3	TH11B	C – ATC C – SRO TC – SRO	PZR PORV leaking (Isolable) (NRC Exam 19-2) Simulation provided insufficient Tech Spec information to applicant to be considered a discriminating test item.
4	ED10D ED11D	C – BOP C – SRO TS - SRO	Loss of Instrument Bus 114
5	TH06B SI01A	M (ALL)	SB LOCA – E-1 1A SI Fails to start Manually start 1B SI Pump [CT]
6	ZDI1CV112B ZDI1CV112C ZDI1CV112D ZDI1CV112E	CREW	1CV112 valves fail to swapover for SI [CT]
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Critical Tasks:

1. **CT-7:** Establish flow from the 1B SI pump before transition out of E-0. (K/A number – 006A3.05; importance 4.2/4.3)
 - a. Safety Significance: Failure to manually start at least one high-head SI pump results in degraded ECCS capacity.
 - b. Cues: Indication of a SI actuation AND RCS pressure below the shutoff head of the high-head SI pumps AND all Charging/SI pumps indicate zero discharge pressure and zero injection flow.
 - c. Performance Indicator: Manipulation of controls as required to establish flow from at least one Charging/SI pump.
 - d. Feedback: Indication and/or annunciation that at least one high-head SI pump is injecting.

2. **CT-15:** Transfer suction from VCT (BAT) to RWST for at least one operating train of high-head SI before suction on the VCT (BAT) is lost due to low level. (K/A Number – 006-A3.08, Importance – 4.2/4.3)
 - a. Safety Significance: Failure to manually transfer high-head SI suction to the RWST results in loss of high-head SI at a time when high-head injection is required for core cooling.
 - b. Cues: Indications that a safety injection is actuated AND indication that the high-head SI suction is not transferred to the RWST.
 - c. Performance Indicator: Manipulations of controls to align the high-head SI suction for at least one train of high-head SI from the VCT (BAT) to the RWST
 - d. Feedback: Flow indication of RWST water through the high-head SI pumps into the RCS.

The scenario will start at ~8% RTP, BOL, with the crew being directed to continue raising power to the 20% per 1BGP 100-3 POWER ASCENSION, step 72 after Syncing the Main Generator per Step 27.

Event 1

The crew will raise power above 10% RX power, per 1BGP 100-3 POWER ASCENSION, step 9 and 10, to establish conditions to support syncing the Main Generator to the grid. The crew will prepare to Sync the Main Generator by raising turbine speed to 1800 RPM per step 19. Once the turbine is at 1800 RPM, at the lead examiner's discretion, proceed to Event 2.

Event 2

1PT-131 Letdown Line Pressure Transmitter will fail low causing 1CV131 Letdown HX Outlet Header Pressure Control Valve to close. The crew will identify the failed instrument and take manual control of 1CV131 per BHC 1-LD LETDOWN MALFUNCTION. Once letdown is restored to normal in manual, at the lead examiner discretion, continue to Event 3.

Event 3

1RY456 U1 Pressurizer PORV will start to leak by at 5 GPM. The crew will identify the leakage, by Dual Indication on the valve and rising tailpipe temperature. The crew will respond per BAR 1-12-C6 PZR PORV DSCH TEMP HIGH. The crew will close PZR PORV Block valve 1RY8000B to isolate the leakage. ~~The crew will enter Tech Spec 3.4.11 Condition A. Once the Tech Spec has been entered, at lead examiner discretion, continue to Event 4.~~

Event 4

Instrument Bus 114 will fail. The crew will identify the failure of the instrument bus and respond with 1BOA ELEC-2 LOSS OF INSTRUMENT BUS UNIT 1. The crew will reference Table D, enter 1BOA INST-1 NUCLEAR INSTRUMENTATION MALFUNCTION for loss of N44 to bypass/defeat N44 functions, and dispatch an EO to fail the air to the 1AF005E-H 1B AF Pump Discharge Valves to the Steam Generators. The crew will enter Tech Specs 3.8.9 Condition B. Once the initial actions are complete for both BOAs, at the lead examiner's discretion, continue with Event 5.

Event 5

A LOCA will occur inside containment. The crew will identify the event and manually trip the RX and actuate a Safety Injection. The crew will respond per 1BEP-0 REACTOR TRIP OR SAFETY INJECTION UNIT 1. Due to the loss of Instrument Bus 114, B Train ECCS equipment will need to be manually aligned. Both SI pumps will fail to start automatically. The 1B SI pump, will need to be manually started. The 1A SI pump will fail to start manually. The crew will transition to 1BEP-1 LOSS OF REACTOR OR SECONDARYCOOLANT UNIT 1.

Event 6

The 1CV112D and E, RWST to U1 Charging Pump Suction Isolation Valves, will fail to open on the Safety Injection initiation. 1CV112B and C, VCT Outlet Upstream and Downstream Isolation Valves, receive the close signal from the SI, but are interlocked to close only after 1CV11D and E are open, respectively. The crew will identify and align the valves per 1BEP-0, Attachment B or OP-AA-103-102-1001 STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION. The crew will need to manually open the 1CV112D and E valves (at least one) to ensure proper suction to ECCS pumps.

The scenario can be terminated after completion of 1BEP-1 Step 6 and completion of critical tasks of ECCS equipment alignment and alignment of the 1CV112 valves.

Facility: Byron Nuclear Station Scenario No.: 4 Op-Test No.: 2021-301

Examiners: _____ Operators: _____

Initial Conditions: 75% RTP, MOL, steady state.

Turnover: A partial performance of 1BOSR 0.5-2.AF.1-2 UNIT ONE TRAIN B AUXILIARY FEEDWATER VALVES STROKE TEST is required to ensure surveillance compliance.

1A FW pump is OOS. Expected RTS in 21 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N – BOP N – SRO TS-SRO	Partial 1BOSR 0.5-2.AF.1-2 Unit One Train B Auxiliary Feedwater Valves Stroke Test
2	CV10SLIM13S pDecPB	C – ATC C – SRO	1CV121 fails closed
3	FW157 Pre FW22B	C – BOP C – SRO	1B CD/CB trip / Stby pump fails to auto start
4	RX22B	I - BOP TS – SRO	PZR Press Channel 458 fails low
5	CH03D	C – BOP C – SRO	1D CRDM Exhaust Fan trips (NRC Exam 19-1)
6	FW35A FW35C	R– ATC R– BOP R -SRO	1A HD Pump trip and 1C HD pump fails to start; HD Pump Runback (NRC Exam 19-2)
7	RD02M04	C – ATC C – SRO TS - SRO	Dropped rod
8	RP24A	M – ALL	Spurious Safety Injection Train A [CT]
9	CC04A RH01B	C – ALL	LOCA Outside CNMT – CA 1.2 [CT] (NRC Exam 19-2)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Critical Tasks:

1. **CT-32:** Isolate the LOCA outside containment prior to transitioning out of 1BCA 1.2 LOCA OUTSIDE OF CONTAINMENT (K/A Number – EPE 04 EA1.3, Importance – 3.8/4.0)
 - a. Safety Significance: Failure to isolate a LOCA outside containment (that can be isolated) degrades containment integrity beyond the level of degradation irreparably introduced by the postulated conditions. Failure to perform the critical task eventually leads to degraded ECCS capacity because the LOCA outside containment depletes the RWST inventory without causing a corresponding increase in the containment sump inventory. Thus, failure to isolate the LOCA can result in a situation in which all ECCS pumps taking suction on the RWST must be stopped because the RWST is empty and emergency coolant recirculation is unavailable.
 - b. Cues: Indications of a Safety Injection is required due to RCS pressure AND indication of abnormally high radiation in the auxiliary building.
 - c. Performance Indicator: Manipulations of control switches to the isolate the LOCA by closing valves near the leak.
 - d. Feedback: RCS pressure starts increasing after closing valves.

1. **CT-16:** Trip RCPs within 10 minutes of meeting RCP trip criteria (RCS pressure <1425 psig and high head SI flow >100 gpm or SI pump discharge flow >200 gpm). (K/A Number – EPE009 EK3.23, Importance – 4.2/4.3)
 - a. Safety Significance: Failure to trip the RCPs under the postulated plant conditions leads to core uncover and to fuel cladding temperatures in excess of 2200°F, which is the limit specified in the ECCS acceptance criteria. Thus, failure to perform the task represents misoperation or incorrect crew performance in which the crew has failed to prevent “degradation of... {the fuel cladding} ...barrier to fission product release” and which leads to “violation of the facility license condition.”
 - b. Cues: Indications of a SBLOCA, Safety Injection, only one SI pump running, and RCP trip criteria of RCS pressure <1425 psig and high head SI flow >100 gpm or SI pump discharge flow >200 gpm).
 - c. Performance Indicator: Manual trip all RCPs.
 - d. Feedback: Indication that all RCPs are stopped (RCP breaker position, RCP flow decreasing).

PWROG-14043-NP_3 ERG Rev 3 identifies analysis that the critical time to trip RCPs for Small Break LOCA, in all cases, is about 10 minutes. This conclusion in Appendix A.3 for Safety Significance of Manual RCP Trip During SBLOCA states “The task documented in worksheet CT-16 should be retained on a generic basis. Under the plant conditions specified in the worksheet, failure to manually trip the RCPs within the time frames specified in the worksheet will result in RCP operation during a window for adverse consequence. If the RCPs trip during a window for adverse consequence, PCT will exceed 2200°F.”

21-1 NRC SCENARIO 4 OVERVIEW

The scenario will start at approximately 75% RTP, MOL, steady state. A partial performance of 1BOSR 0.5-2.AF.1-2 UNIT ONE TRAIN B AUXILIARY FEEDWATER VALVES STROKE TEST is required to ensure surveillance compliance. 1A FW pump is OOS for an oil change.

Event 1

The crew will perform a partial surveillance of 1BOSR 0.5-2.AF.1-2 Unit One Train B Auxiliary Feedwater Valves Stroke Test for 1AF013H only. When the crew has completed the surveillance, continue to Event 2.

Event 2

1CV121 fails low to 52 GPM. The crew will identify the failure and respond to BAR 1-9-A1 REGEN HX LTDWN TEMP HIGH. The crew will take manual control of 1CV121 and restore normal charging and letdown. Once the actions to restore charging flow are complete, at lead examiner's discretion, continue to Event 3.

Event 3

1B CD/CB pump will trip on overcurrent and the Stby pump, 1D CD/CB pump, will not auto start. The crew will identify the tripped pump and manually start the 1D CD/CB pump per BHC 1-17-A9 CD/CB PUMP TRIP. This will restore adequate NPSH for the Feedwater pumps and stabilize the secondary system. The crew will enter 1BOA SEC-1 SECONDARY PUMP TRIP UNIT 1. Once 1BOA SEC-1 is complete, at the lead examiner discretion, continue with Event 4.

Event 4

PZR Pressure channel 458 will fail low. The crew will identify the failure and respond per 1BOA INST-2 OPERATION WITH A FAILED INSTRUMENT CHANNEL UNIT 1 Attachment B. The crew will verify no changes to the RCS and bypass/remove the channel in Ovation. The crew will enter Tech Specs 3.3.1 Conditions A, E, and K and 3.3.2 Conditions A and D. After the Tech Spec assessment is complete, at lead examiner's discretion, continue to Event 5.

Event 5

The 1D Control Rod Drive Mechanism fan will trip. The crew will identify the failure and respond per BAR 0-33-A5 CRDM EXH FAN TRIP. The crew will start an additional CRDM fan per BOP VP-9. After the fan is started, at lead examiner's discretion, continue to Event 6.

Event 6

1A HD Pump will trip. 1C HD Pump will fail to start when crew attempts to manually start the pump. Crew will perform a HD Pump Runback of the unit at 20MW/min down to 780 MWe. After the crew stabilizes the unit at the new power level, the lead examiner will direct continuation to Event 7.

Event 7

When directed, CBD rod D12 will drop. The crew will identify the failure and respond to the failure with 1BOA ROD-3 DROPPED OR MISALIGNED ROD UNIT 1. The crew will take rods to MANUAL. The crew will enter Tech Spec 3.1.4 Condition B. Once the crew has dispatched personnel to check fuses and the SRO has evaluated Tech Specs, at the lead examiner's discretion, continue to Events 8 and 9.

Event 8 and 9

A spurious Safety Injection will occur on Train A. The RX will auto trip. The crew will implement 1BEP-0 REACTOR TRIP OR SI. 1B RH pump will trip, discharge check valve will fail to fully close, and 1B RH HX will develop a leak on actuation of the SI causing a LOCA outside of containment. The crew will transition from 1BEP-0 to 1BCA-1.2 LOCA OUTSIDE CONTAINMENT UNIT 1.

The 1500 GPM leak develops in the 1B RH HX bypass line just upstream of 1RH619.

The scenario can terminate after isolation of the leak. The crew will note an RCS pressure rise when 1SI8809B is closed and will isolate the LOCA outside CNMT.

Facility: Byron Nuclear Station Scenario No.: 5 Op-Test No.: 2021-301

Examiners: _____ Operators: _____

Initial Conditions: 75% power, CBD 171 steps, MOL, 917 ppm boron, equilibrium xenon.

Turnover: Swap CV pumps. 1A FW Pump OOS. Expected RTS in 12 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N – ATC N – SRO	Swap CV pumps
2	ED24A – Pre ED23A	C – ATC C – BOP C – SRO TS – SRO	Loss of Bus 141 (SAT Feed BRKR trip) 1A DG fails to close on bus; Bus not faulted
3	CH08D	TS – SRO	Containment Pressure channel 937 fails high
4	CV09 d7mod4127c3v	I – ATC I – SRO	1TI-130 fails low (NRC_Exam 19-1)
5	FW02B	R – ATC R – BOP R – SRO	1C FW pump trip
6	TH06C	M - ALL	LB LOCA [CT]
7	RP30A RP30B	C -ALL	Phase A Containment isolation fails to auto actuate [CT]
8	TC03	C – BOP C - SRO	Main Turbine fails to trip in auto
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Critical Tasks:

1. **CT-11:** Close containment isolation valves such that at least one valve is closed on each critical Phase A penetration before the end of the scenario (K/A number – Containment System 103-A3.01; importance 3.9/4.2)
 - a. **Safety Significance:** Closing at least one containment isolation valve on each critical Phase A penetration, under the postulated plant conditions constitutes a task that “is essential to safety,” because “its improper performance or omission by an operator will result in direct adverse consequences or significant degradation in the mitigative capability of the plant.” In particular, the crew has failed to prevent “degradation of any barrier to fission product release.” In this case, the containment barrier is needlessly left in a degraded condition.
 - b. **Cues:** Indication that a SI is required and absence of annunciation that Phase A isolation is actuated.
 - c. **Performance Indicator:** Manipulation of controls as required to close at least one containment isolation valve on each critical Phase A penetration
 - d. **Feedback:** ESF system status lamps show that at least one containment isolation valve is closed on each critical Phase A penetration.

2. **CT-36:** Transfer to cold leg recirculation prior to reaching 9% in the RWST. (K/A Number – ECCS 006-A4.07, Importance – 4.4/4.4)
 - a. **Safety Significance:** Improper performance or omission by an operator will result in direct adverse consequence(s) or a significant degradation in the mitigative capability of the plant. Correct performance prevents unnecessary challenges to the CSFs of Core cooling and Containment
 - b. **Cues:** Indication and/or annunciation that safety injection is actuated AND Indication and/or annunciation that RWST level is at or below 46.7% AND Indication that containment sump level is at or above the minimum level required for transfer to cold leg recirculation.
 - c. **Performance Indicator:** Manipulation of controls as required to transfer to cold leg recirculation and establish ECCS recirculation flow: Valve position indication that the cold leg recirculation flow path is established and Control switch indication that the circuit breakers or contactors for the low-head injection pumps (and other ECCS injection pumps as necessary) are closed
 - d. **Feedback:** Flow indication of the recirculation of containment sump water through the RHR heat exchangers and into the RCS.

21-1 NRC SCENARIO 5 OVERVIEW

The scenario will start at 75% RTP, MOL, steady state conditions. The crew is directed to swap the 1B CV pump to the 1A CV pump. 1A FW Pump OOS. Expected RTS in 12 hours.

Event 1

The crew is directed to swap Charging pumps per BOP CV-19 SWITCHING CHARGING PUMPS. Once the swap is completed satisfactory, continue to Event 2.

Event 2

Bus 141 will de-energize due to a trip of the SAT feed Breaker 1412 with a failure of breaker 1413 to automatically close on the bus. The crew will identify the de-energized bus and enter 1BOA ELEC-3 LOSS OF 4KV ESF BUS UNIT1. The crew will be required to start 1B CV pump due to the failure. The crew will crosstie the bus to Unit 2 Bus 241. The crew will enter Tech Specs 3.8.9 Condition A and 3.8.1 Conditions A, B, and E. Once Bus 141 is energized and the US has made Tech Spec identification, and at lead examiner's discretion, continue to Event 3.

Event 3

Containment Pressure channel 937 fails high. The crew will identify the failure and perform 1BOA INST-2 OPERATION WITH A FAILED INSTRUMENT CHANNEL Attachment K CONTAINMENT PRESSURE CHANNEL. The crew will enter Tech Spec 3.3.2 Conditions A and E. Once Techs Specs have been determined, at the lead examiner's discretion, continue to Event 4.

Event 4

1TI-130 fails low (spurious). This will cause 1CC130A to be transferred into Manual. The crew will identify the failure and take action per BAR 1-10-E5 OVATION ALTERNATE ACTION. This will require the crew to take manual control of 1CC130A and maintain normal cooling flow to the HX. Once the actions are complete, at lead examiner's discretion, continue to Event 5.

Event 5

1C FW pump will trip. The crew will respond per BHC-1-16-BC1 FW PUMP TRIP, and with 1A FW pump not available, the crew will initiate a turbine runback. The ATC operator will initiate a boration in response to the turbine runback. The crew will enter 1BOA SEC-1 SECONDARY PUMP TRIP UNIT 1. Once the crew stabilizes power approximately 60% power and RCS temperature and pressure, at the lead examiner's discretion, continue to Event 6, 7, & 8.

Event 6, 7, & 8

A LOCA will initiate. The crew will identify the LOCA and initiate a manual RX trip. The Main Turbine will not auto trip and will require manual actuation. Automatic Phase A isolation will not occur and requires manual actuation (**CT 11**). After the RX trip, the LOCA will significantly increase in size. The crew will respond per 1BEP-0 REACTOR TRIP OR SAFETY INJECTION UNIT 1. The crew will transition to 1BEP-1 LOSS OF REACTOR OR SECONDARYCOOLANT UNIT 1. While the crew is working through 1BEP-1, the RWST level will lower until it reaches 46.7%, at which point the crew will transition to 1BEP ES-1.3, TRANSFER TO COLD LEG RECIRCULATION UNIT 1 and swap suction sources for the ECCS pumps from the RWST to the CNMT sumps.

Completion of 1BEP ES-1.3 Step 5, Align SI and CV Pumps for Cold Leg Recirculation, prior to the RWST reaching 9% level will satisfy **Critical Task 36**, and the scenario can be terminated.