

FINAL SUBMITTAL

VOGTLE EXAM
50-424, 425/2001-301

MAY 14 - 18 & 21 - 25, 2001

FINAL SCENARIOS

SCENARIO OUTLINES ES-D-1

OPERATOR ACTIONS ES-D-2

Facility: VOGTLE Scenario No.: 1 Op-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions: The plant is at 75% Power (IC9) with Condensate Pump "C" out of service and the TDAFW Pump is in LCO 3.75 condition A due to one steam isolation valve shut (1HV-3009).

Turnover: Plant Startup is in progress. Rx power is 75%. Condensate Pump "C" was tagged out due to high vibration 11 hours ago. The TDAFW pump steam supply valve from #1 SG (I-HV-3009) is tagged shut for repairs to the motor operator Tech Spec 3.7.5 condition "A". Estimated return to service is sometime tomorrow. SG #3 has a 9 GPD tube leak AOP-18009-C section B "Operation with a minor tube leak" is in progress. Raise power to 80% and stabilize for power range calorimetric. When you get to 80% the SS wants you to place Control Rods in automatic. The Load Dispatcher has been notified of the power increase.

Event No.	Malf. No.	Event Type*	Event Description
1		RO-R	Increase power to 80%
2a 2b 2c	EL11c	SRO-C,I BOP-C RO-C,I	(2a) TDAFW loss of control, (2b) N43 failure, (3c) letdown isolation
3		SRO-N RO-N	Place Excess Letdown in service
4	TU19a 100%	SRO-I RO-I BOP-I	Turbine Impulse Pressure transmitter Fails high.
5	FW06b	ALL-MT	FW Line #2 Rupture Inside Containment causing RX Trip, SIS, FWI and Blowdown of #2 SG. (Loss of TDAFW Pump due to SG blowdown.) Turbine fails to auto-trip. MSL fails to automatically isolate. MDAFW pump B no flow.
6	EL07a	ALL-C	Loss of ESF Bus 1AA02 causing loss of 1 train of ESF. (Insert t+30 sec)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

1

2

3

PREINSERTS:

Initial Conditions:

- Reset to IC #94 (NRC #1)

Select to following QMCB positions:

- PZR pressure control selected to channel #3 (1-PT-457)
- Condensate Pump "C" in PTL (HOLD TAG)
- 1-HV-3009 in close (HOLD TAG)
- ACCW pump #2 in service
- Control rod in manual
- Align plant for operation with minor S/G tube leak per AOP-18009-C section "B"

Insert simulator malfunctions:

- ES10 Auto steam line isolation failure (Train A)
- ES 11 Auto steam line isolation failure (Train B)
- TU18 Auto Turbine trip failure
- AF16 Loop 3 1HV-5134A in local control
- AF17 MDAFW Pump B SG #3 throttle valve 1HV-5134A at 0%.

Simulator Overrides Annunciators:

- ALB04E2 - Off
- ALB37C2 – Off
- HS5134A red light on

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Event Description: Increase Power to 80%

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none">• Gives crew briefing on the power increase• Directs Operators to increase power to 80%• Refers to UOP 12004-C, Power Operation
	RO	<u>Actions:</u> <ul style="list-style-type: none">• Commences dilution• Maintains rods above insertion limits• Maintains Tave within 2 deg Tref• Maintains AFD within target band
	BOP	<u>Actions:</u> <ul style="list-style-type: none">• Loads Turbine per SOP.

Event Description: 125VDC SWGR 1CD1

Simulator operator CUE: When maintenance is dispatched report back, both 1CD1 and 1CY1A needs to be inspected because they are unsure where the fault originated.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Identify loss of 1CD1. <ul style="list-style-type: none"> • ARP on electrical panel (BOP) • Recognize failed channel 3 instruments. (RO/BOP) • Recognize Train C pressure instrument failure 1-PT-457. (RO) • Recognize CVCS letdown has isolated. (RO) • Perform actions for failed Pressurizer pressure channel as directed by the USS. (RO) <ul style="list-style-type: none"> • Swap controlling channels. (RO) • Control Pressurizer pressure.(RO) • Return control system to automatic.(RO) • Isolate letdown. (RO) • Note: Refer to "Event 3" for placing excess letdown in service. • Block failed NI channel. <ul style="list-style-type: none"> • Rod stop bypass for failed channel • Comparator channel defeat for failed channel • Power mismatch bypass for failed channel • Upper section for failed channel • Lower section for failed channel • Identify TDAFW pump has lost control power. (BOP)
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Dispatch operator and maintenance to investigate problem. • Enter AOP 18034.C "Loss of 125V DC Bus 1CD1". • Enter AOP 18001-C "Due to 1PI-457 controlling channel". • Dispatch operator to restore power to 120 VAC instrument panel 1CY1A. (Do Not Restore Power until maintenance has investigated cause of the power loss) • Enter AOP 18032-1 "Due to loss of 1CY1A". • Defeat Failed loop 3 Tavg and ΔT. • Direct isolation of letdown and initiate excess letdown. • Verify TS interlocks. <ul style="list-style-type: none"> • Tech Spec 3.3.1-1 functions 16a,b,c,d,e, and 3.3.2-1 function 8b.

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Event Description: 125VDC SWGR 1CD1

Simulator operator CUE: When maintenance is dispatched report back, both 1CD1 and 1CY1A needs to be inspected because they are unsure where the fault originated.

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none">• Enter AOP-18002-C for failed NI.• Block failed NI channel.• Notify Operations duty manager.• Have Maintenance Work order written.• Refer to Technical Specifications.• Apply TS 3.8.4 Action A: Be in mode 3 in 8 hours• Apply TS 3.7.5 Action B: restore in 72 hours/mode3 in 6

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Event Description: Place excess letdown inservice.

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none">• Direct operator to place excess letdown in service per SOP-13008-1.
	RO	<u>Actions:</u> <ul style="list-style-type: none">• Place excess letdown in service.<ul style="list-style-type: none">• Open 1-HV-8153• Open 1-HV-8154• Throttle 1-HC-0123 to desired flow

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Event Description: FW Line #2 Rupture Inside Containment causing RX Trip, SIS, FWI and Blowdown of #2 SG. Loss of TDAFW Pump due to SG blowdown. SG #3 has manual valve isolated in flow path for the Train "B" AFW Pump. Turbine fails to auto trip, MSLIV fails to isolate.

Time	Position	Applicant's Actions or Behavior
*	RO/BOP	<p>Actions:</p> <ul style="list-style-type: none"> • Verify Rx Trip (RO) • Verify turbine trip. Manually trips turbine(BOP) • Verify power to AC emergency busses. (BOP) • Check if SI Actuated. (RO) • Verify Feedwater isolation. (BOP) • Verify MLB indications for both trains of ECCS equipment aligning for injection phase. (RO) • Verify containment isolation Phase A actuated. (RO) • MDAFW Pumps running. Notes Pump B has no flow and Pump A loss of power(BOP) • SG blowdown isolated (BOP) • TDAFW pump running. (BOP) • Verify ECCS pumps running: CCPs, SI, RHR. (RO) • Verify 2 CCW pumps running on each train. (RO) • Verify 2 NSCW pumps running on each train. (RO) • Verify containment ventilation isolation (CVI). (RO) • Check if MSLIVs should be isolated. Manually isolates MSLIVs(RO/BOP) • Check containment spray not required. (RO) • Verify DG running. (BOP) • Verify ECCS flows. (RO) • Verify total AFW flow greater than 570 GPM. Notes < 570 gpm(BOP) • Verify ECCS alignment on MLBs. (RO) • Verify RCS temperatures. (RO/BOP)

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Event Description: FW Line #2 Rupture Inside Containment causing RX Trip, SIS, FWI and Blowdown of #2 SG. Loss of TDAFW Pump due to SG blowdown. SG #3 has manual valve isolated in flow path for the Train "B" AFW Pump.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Checks PORV's and Block valves. (RO) • Check if RCPs should be stopped. Trips RCPs <1375 psig(RO) • Verify ACCW System operating. (RO) • Check S/G Secondary pressure Boundaries: "Notes S/G #2 pressure lowering in uncontrolled manner" (BOP)
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Directs operators to trip the reactor if not already done. • Enters 19000-C. • Directs operator actions per the 19000-C direction. • Ensures proper communication between crewmembers.

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Event Description: Loss of Bus 1AA02

Time	Position	Applicant's Actions or Behavior
*	RO/BOP	<u>Actions:</u> <ul style="list-style-type: none"> • Recognize Loss of 1AA02. (RO/BOP) • Emergency trips DG1A due to loss of NSCW. (BOP) • Recognize the loss of Train "A" MDAFW Pump. (BOP)
	SRO	<u>Actions:</u> (Possible success paths out of 19000-C) <ul style="list-style-type: none"> • Transitions to 19231-C <ul style="list-style-type: none"> • Transitions to 19020 (E-2) • Transitions from 19020 (E2), when flow is isolated to S/G #3, crew transitions to 19231-C. • <u>OR</u> Crew goes directly to 19231-C from 19000-C step 19.
	RO/BOP	<u>Actions:</u> (If crew transitions to 19020-C) <ul style="list-style-type: none"> • Perform the actions of 19020-C as directed: • Close MSIV and MSIV bypass valve. • Isolate Feedwater. • Close blowdown isolation valves. • Recognize red path when AFW is isolated to S/G #3.
	SRO	<u>Actions:</u> (Possible success paths in 19231-C) <ul style="list-style-type: none"> • If required by conditions initiate Bleed and Feed. • Could crosstie MDAFW pump discharge header. • Could establish Condensate flow to S/G.

Facility: VOGTLE Scenario No.: 3 Op-Test No.: 1

Examiners:

Operators:

Initial Conditions: The plant is at 60% Power (IC9) with Condensate Pump "C" out of service and the TDAFW Pump is in LCO 3.75 condition A due to one steam isolation valve shut (1HV-3009).

Turnover: Plant Startup is in progress. Rx power is 60%. Condensate Pump "C" was tagged out due to high vibration 11 hours ago. The TDAFW pump steam supply valve from #1 SG (1HV-3009) is tagged shut for repairs to the motor operator Tech Spec 3.7.5 condition "A". Estimated return to service is sometime tomorrow. SG #3 has a 9 GPD tube leak AOP-18009-C section B "Operation with a minor tube leak" is in progress. Raise power 100% per UOP-12004-C at 8% per hour. The Load Dispatcher has been notified of the power increase.

Event No.	Malf. No.	Event Type*	Event Description
1		N-All	Power increase to 100%
2	PR-03c	SRO-I RO-I	LT461 PZR LEVEL channel fails high
3	CW01a	RO-R ALL-C	At about 60% Reactor Power CIRC WTR P-1 Motor overload, crew will reduce Reactor power to prevent trip on low condenser vacuum.
4	SG02F	SRO-I BOP-I	S/G # 2 controlling level transmitter fails low (1-LT-529)
5	TU02	ALL-C	Turbine trip below P-9 due to high vibrations (AOP 18011-C) NOTE: SIM OPERATOR - TU02 to 80 % when turbine trips
6	PR04 1-HV-8000B open	ALL-MT	PORV 456 fails open on the Reactor Trip. RCS lower to the automatic trip setpoint and fails to trip.
7		ALL-C	Crew transitions to 190010-C due LOCA out the stuck open PORV and the block valve failing to go close.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

PREINSERTS:

Initial Conditions:

- Reset to IC #___ (NRC #2)

Select to following QMCB positions:

- Pressurizer level control selected to channel #3 (1-LT-461)
- Condensate Pump "C" in PTL (HOLD TAG)
- 1-HV-3009 in close (HOLD TAG)
- ACCW pump #2 in service
- Control rod in manual
- Align plant for operation with minor S/G tube leak per AOP-18009-C section "B"

Insert simulator malfunctions:

- Panel Drawings block automatic rod operation.
- Panel Drawings place 1-HV-8801A in open.
- Panel Drawings place 1-HV-8801B in open.
 - The malfunction is to be removed when operator attempts to open.

Simulator Overrides Annunciators:

- None

Event Description: Power Increase to 100%

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none"> • Gives crew briefing on the power increase • Directs Operators to increase power to 100% at 8% per hour. • Refers to UOP 12004-C, Power Operation
	RO	<u>Actions:</u> <ul style="list-style-type: none"> • Commences dilution • Maintains rods above insertion limits • Maintains Tave within 2 deg Tref • Maintains AFD within target band
	BOP	<u>Actions:</u> <ul style="list-style-type: none"> • Loads Turbine per SOP.

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Event Description: LT461 PZR LEVEL channel fails high

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none"> • Enters AOP-18001-C section "D". • Directs operator to control Pressurizer level at program. • Directs operator to control RCP seal injection between 8 to 13 gpm. • Directs operator to select operable channel for control. • Directs operator to restore Pressurizer level to program and return to automatic control. • May BTI the failed channel per SOP-13509-C. • Initiate maintenance. • Notify Operations duty manager. • Have Maintenance Work Order written. • Refer to Technical Specifications.
	RO	<u>Actions:</u> <ul style="list-style-type: none"> • Detects failure of LT-461 PRZR Level. • Takes manual control of charging using 1-FV-0121. • Select unaffected channel on PRZR Level Control Selector 459/460 • Return Pressurizer level control to automatic.

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 5 of 9

Event Description: At about 60% Circulating Water Pump #1 trips.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Enter 18013-C rapid power reduction. • Direct operators to reduce power and reduce load. • Directs operator on RCS temperature. • Directs operators to maintain the following parameters on program: <ul style="list-style-type: none"> • Pressurizer pressure • Pressurizer level • S/G levels • If below 50 percent power and turbine trips, INITIATE 18011-C, "Turbine Trip Below P-9". (this should not happen if actions are rapid enough) • Dispatch operator to investigate (CREW) • Initiate maintenance. • Notify Operations duty manager. • Have Maintenance Work Order written.
	RO/BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Uses control rod and boration to maintain RCS temperature on program. (RO) • Reduces Main Turbine load to maintain condenser vacuum. (BOP) • Verify Steam Generator Level Control controlling level in Programmed Band. (BOP) • Start additional Mechanical Vacuum Pumps if required. (BOP)

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 5 of 9

Event Description: At about 60% Circulating Water Pump #1 trips.

Time	Position	Applicant's Actions or Behavior

Op-Test No.: 1 Scenario No.: 3 Event No.: 4 Page 6 of 9

Event Description: S/G # 2 controlling level transmitter fails low (1-LT-529)

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none"> • Ensures operator performing immediate actions for failure. • Direct operator to select unaffected controlling channel. • Direct operator to return S/G #2 level control to automatic and verify controlling at 65%. • May BTI the failed channel per SOP-13509-C. • Initiate maintenance. • Notify Operations duty manager. • Have Maintenance Work Order written. • Refer to Technical Specifications.
	BOP	<u>Actions:</u> <ul style="list-style-type: none"> • Take manual control of S/G #2 MFRV and return level to 65%. • As directed by the USS select a unaffected controlling level for S/G #2. • Return S/G #2 level to automatic control and ensures level stabilizes at 65%.

Op-Test No.: 1 Scenario No.: 3 Event No.: 5 Page 7 of 9Event Description: Turbine trip below P-9 due to **high vibrations**.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Direct crew pull ARP for high main turbine vibration if time permits. • Direct operator monitor vibration using the IPC. • May dispatch operator for local readings if time permits. • May have crew initiate manual turbine trip on increasing vibration. • Enters 18011-C "TURBINE TRIP BELOW P-9" <u>OR</u> • Enters 19000-C "REACTOR TRIP OR SAFETY INJECTION" <p>If USS elects to trip the Main Turbine:</p> <ul style="list-style-type: none"> • Enters 18011-C "TURBINE TRIP BELOW P-9" • Direct operator place control rods in manual. • Direct operator to check steam dump operator. • Direct operator to restore Tavg to program. • Direct operator to place steam dumps in steam pressure mode of operation. • Direct operator to ensure main generator output breakers are open. • Direct operator to check S/G level control normal. • Direct operator to verify RCS parameters <ul style="list-style-type: none"> • Pressurizer pressure • Pressurizer level • Control rod position
	RO/BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Respond to the high vibration alarm per the ARP. • Monitor Main Turbine vibration as time permits. • Trip the Main Turbine <u>OR</u> the Reactor as directed by the USS. <p>If USS elects to trip the Main Turbine:</p> <ul style="list-style-type: none"> • Adjust RCS temperature to program. (RO) • Place control rod in manual. (RO) • Verify steam dump operation. (BOP) • Transfer steam dumps to steam pressure mode per USS direction. (BOP) • Ensures Main Generator output breakers open per USS request. (BOP) • Check S/G level control. (BOP) • Check RCS parameters per USS direction: (RO) <ul style="list-style-type: none"> • Pressurizer pressure • Pressurizer level

Op-Test No.: 1 Scenario No.: 3 Event No.: 5

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Event Description: Turbine trip below P-9 due to **high vibrations**.

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none">• Control rod position

Op-Test No.: 1 Scenario No.: 2 Event No.: 6 Page 8 of 9

Event Description: Following the Main Turbine trip or the Reactor trip PORV 456 sticks open and the block valve fails to close. Both BIT valves will fail to open on the SI signal.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Recognizes reactor failed to trip when required. • Directs operators to close the failed open PORV and block valve when crew recognizes the problem. • Direct operator to open BIT valve when problem recognized or when in 19000-C step 17. • Direct the operator to manually trip the reactor. • Enters 19211-C ""ATWT"" • Dispatches operator to locally trip the reactor. • Directs operator to verify turbine is tripped. • Directs operator to verify AFW operation. • Directs operator to check reactor power. • Directs operator to emergency borate the RCS. • Directs operator to align for CVI. Note: the automatic SI signal will perform this action. • Direct operator to ensure dilution flowpaths is isolated. • Directs operators to check for RCS cooldown. • Directs operators the check reactor power. • When reactor is tripped return to 19000-C.
	RO/BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Recognizes reactor failed to trip when required. (RO/BOP) • Attempt to close the failed open PORV and block valve when crew recognizes the problem. • Attempt to open the BIT valves when problem recognized or as directed by the USS per EOP. • Attempt to trip the reactor using both control room handswitches. (RO) • Ensure the main turbine is tripped. (BOP) • Dispatch operator to locally trip the reactor. (CREW) • Emergency borate the RCS. (RO) • Start AFW pumps as directed by the USS. (BOP) • Perform the CVI alignment when directed by the USS. (BOP) Note: the automatic SI signal will perform this action.

Facility: VOGTLE Scenario No.: 2 Op-Test No.: 1

Examiners:

Operators:

Initial Conditions: The plant is at 100% Power (IC19). The NCP is tagged out to replace the pump seals (Info LCO per TRM).

Turnover: Unit One has been at 100% Reactor Power for 411 days following refueling. The SS has requested that Reactor Power be reduced to 90% to allow the "A" HDT Pump to be removed from service to repair a minor steam leak on the next shift. The Load Dispatcher has been notified of the power decrease. When power is at 90% the Train "B" CCP needs to be placed in service for normal equipment rotation.

Event No.	Malf. No.	Event Type*	Event Description
1		SRO-N RO-N	Swap CCP (Start Train "B" stop Train "A")
2a		RO-R	Power decrease to 90%
2b	PR02A 100%	SRO-I RO-I	Controlling Pressurizer pressure channel fails high. (1-PT-455)
3	CV12	SRO-I RO-I	VCT level transmitter 1-LT-185 fails high
4	FV-510 override	SRO-I BOP-I	Loop #1 Main Feedwater Reg Valve (MFRV) drifts Shut.
5		ALL-MT	Reactor Trip on lowering S/G #1 level. S/G tube rupture on loop #4 following Reactor trip. During response per the EOP's the Loop #4 ARV (1-PV-3030) will fail open.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

PREINSERTS:

Initial Conditions:

- Reset to IC # ____ (NRC #3)

Select to following QMCB positions:

- NCP tagged out
- ACCW pump #2 in service
- Control rods in Auto

Insert simulator malfunctions:

- None

Simulator Overrides Annunciators:

- None

Event Description: Swap CCP's (start CCP Train "B" and stop CCP Train "A")

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Directs operator to swap CCP's using SOP-13006-1.
	RO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Dispatch operator for local checks on the Train "B" CCP. • Check idle CCP alignment correct for starting. <ul style="list-style-type: none"> • Suction open (1-HV-8471B). • Mini-flow path open (1-HV-8111B and 1HV-8110 open). • Safety grade charging path shut (1-HV-0190B). • Discharge path open (1-HV-8485B). • CCP discharge header cross-connect open (1-HV-8438). • Verify Auxiliary Lube Oil Pump running (ALOP). • Start Train "B" CCP. • Stop Train "A" CCP. • Adjust charging and RCP seal injection flow. • Return charging to automatic control.

Op-Test No.: 1 Scenario No.: 2 Event No.: 2 Page 3 of 8

Event Description: Power lowered to 90% to remove "A" HDT pump from service.

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none"> • Gives crew briefing on the power decrease • Directs Operators to decrease power to 90% • Refers to UOP 12004-C, Power Operation
	RO	<u>Actions:</u> <ul style="list-style-type: none"> • Place control rods in manual • Commences boration • Maintains rods above insertion limits • Maintains Tave within 2 deg Tref • Maintains AFD within target band
	BOP	<u>Actions:</u> <ul style="list-style-type: none"> • Unloads Main Turbine per SOP.

Op-Test No.: 1 Scenario No.: 2 Event No.: 2b Page 4 of 8

Event Description: Controlling Pressurizer pressure channel fails high.

Time	Position	Applicant's Actions or Behavior
	SRO	<u>Actions:</u> <ul style="list-style-type: none"> • Ensures operators perform immediate actions. • Enters AOP-18001-C section "C" • Directs operator actions per the AOP to control Pressurizer pressure and to return the control system to automatic. • Within 1 hour verify P-11 status light per Tech Spec. • USS may elect to BTI the failed channel per SOP-13509-C • Initiate maintenance. • Notify Operations duty manager. • Have Maintenance Work Order written. • Refer to Technical Specifications.
	RO	<u>Actions:</u> <ul style="list-style-type: none"> • Identify failed Pressurizer pressure channel (1-PT-455) • Take immediate operator actions to stabilize Pressurizer pressure <ul style="list-style-type: none"> • Close spray valves • Close affected PORV (455) • Verify Pressurizer heaters on • Per USS direction, swap controlling Pressurizer pressure channels and return system to automatic.

Event Description: VCT level transmitter 1-LT-185 fails high.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Directs operator to place 1-LV-0112A to the VCT position • Directs operator to Monitor VCT level using 1-LT-0112 (IPC) • Alerts operator that the automatic swap-over on low VCT level is not functional. • Caution the operators of the possible loss of suction to the CCP's • Have Maintenance Work order written.
	RO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Identify failed VCT level channel (1-LT-185) • Trend 1-LT-115 on the IPC computer. • Place 1-LV-0112A to the VCT position. • Be aware of the possible loss of suction potential to the CCP's.

Op-Test No.: 1 Scenario No.: 2 Event No.: 4 Page 7 of 8

Event Description: Loop #1 Main Feedwater Regulation Valve (1FV-510) drifts shut.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none">• Directs operators to take manual control of the loop #1 MFRV and restore S/G level to program.• Directs operator to closely monitor S/G #1 level and initiate manual Reactor trip if conditions warrant (Loss of level if imminent).• Directs operator the manually trip the Unit One Reactor due to the decreasing S/G #1 Level.
	BOP	<p><u>Actions:</u></p> <ul style="list-style-type: none">• Recognize the problem with the loop #1 MFRV.• Alert the USS that the loop #1 MFRV is not responding in manual control.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 8 of 8

Event Description: Reactor Trip response. S/G tube rupture loop #4 with ARV (1-PV-3030) failed open.

Simulator operator (CUE): When crew request that the failed open ARV on loop #4 be manually isolated, inform them that HP prohibits entry into the area due to the radiation levels.

Time	Position	Applicant's Actions or Behavior
	SRO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Directs operator the manually trip the Unit One Reactor due to the decreasing S/G #1 Level. • Enters 19000-C. • Insures all immediate actions are performed per 19000-C. • Directs operator actions per the 19000-C direction. • Ensures proper communication between crewmembers. • Transitions to 19030-C due to secondary High Radiation OR uncontrolled level rise on S/G #4. • Directs the isolation of S/G #4 per 19030-C • Directs the maximum rate cooldown per 19030-C • Transitions to 19131-C (Note: will probably transition on step 14 due to the ruptured S/G pressure lowering and is not 250 psig above intact S/G's
	RO	<p><u>Actions:</u></p> <ul style="list-style-type: none"> • Verify Rx Trip (RO) • Verify turbine trip. (BOP) • Verify power to AC emergency busses. (BOP) • Check if SI Actuated. (RO) • Verify Feedwater isolation. (BOP) • Verify MLB indications for both trains of ECCS equipment aligning for injection phase. (RO) • Verify containment isolation Phase A actuated. (RO) • MDAFW Pumps running. (BOP) • SG blowdown isolated (BOP) • TDAFW pump running. (BOP) • Verify ECCS pumps running: CCPs, SI, RHR. (RO) • Verify 2 CCW pumps running on each train. (RO) • Verify 2 NSCW pumps running on each train. (RO) • Verify containment ventilation isolation (CVI). (RO) • Check if MSLIVs should be isolated. (RO/BOP) • Check containment spray not required. (RO) • Verify DG running. (BOP) • Verify ECCS flows. (RO) • Verify total AFW flow greater than 570 GPM. (BOP) • Verify ECCS alignment on MLBs. (RO)

Event Description: Reactor Trip response. S/G tube rupture loop #4 with ARV (1-PV-3030) failed open.

Simulator operator (CUE): When crew request that the failed open ARV on loop #4 be manually isolated, inform them that HP prohibits entry into the area due to the radiation levels.

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • Verify RCS temperatures. (RO/BOP) • Identify ruptured S/G on uncontrolled level rise or secondary high radiation (BOP)