Final Submittal

VOGTLE OP RETAKE EXAM
50-424 & 50-425/2003-301

MAY 8, 2003

1. As Given Simulator Scenario Operator Actions ES-D-2

Facility: Vogtle Electric Generating Plant Scenario No.: 2 Op-Test No.: 301-2003
Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions:
Rx Power ~~47%~~ 100 and increasing , EOL, Procedure 12004-C in progress
Rods in auto

Turnover:
1A MDAFW out of service for lube schedule

Event No.	Malf. No.	Event Type*	Event Description
1		**R** (RO, BOP)	Ramp up unit by approximately 5% per procedure
2	CV12	**I** (RO)	VCT LT 185 Fails Hi
~~3~~	~~FW02C~~	~~**C** (BOP)~~	~~1C Main Feed Reg valve oscillates, requiring manual control~~
4	CV04	**C** (RO)	Loss of cooling to the Letdown Hx, requiring manual control
5	~~GE09~~ PT505	**C** (BOP)	Load Rejection ~~(May trip Turbine or Rx manually per AOP)~~ with impulse pressure xmtr failing high.
6	FW06	**MT**	Feed break inside containment
Post MT			Automatic Feedwater isolation fails, HV 8801B thermals out when being closed, 1BMDAFW fails to auto start
			Scenario ends when primary and secondary plant are stable.

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

Facility: Vogtle Electric Generating Plant Scenario No.: 1 Op-Test No.: 301-2003
Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions:
Rx Power 100%, EOL, Rod Operability Testing in progress with CB C and D left to do.

Turnover:
1A MDAFW out of service

Event No.	Malf. No.	Event Type*	Event Description
1	GE05	R (RO, SRO)	~~Abnormal H_2 Pressure~~ - leaking causes crew to rampdown. At approximately 95% power, fix leak.
2 1		N (RO)	Complete Rod Operability Test
3 2	~~RD09~~ Rod stick	C (RO, SRO)	~~Control Rod Urgent Failure~~ - On CB D, Gp 2 when pulling bank D. Tech Spec for SRO
4	Needs development	I (RO)	**Failure of 1-PT-0131 high** - Causes Letdown High Pressure alarm and fails open 1-PV-0131, ~~Letdown~~ Pressure Control Valve. Causes pressure ~~to go low and a~~ high flowrate.
5 3	EL10	C (SRO)	**480VAC Switchgear Fault**- Fault switchgear that feeds HV-8801A (BIT valve) Tech Spec for SRO. Begin to slowly ramp in RCS leak at Examiners descretion.
6 4	TU02	C (BOP)	**Main turbine vibration** which leads to the requirement to lower turbine load. Will continue until crew is forced to use rods which, at this point will not drive CB D. This should lead to a manual Rx trip.
7 5	ES02/1 & RC04	MT	**ATWS followed by Small Break LOCA**
POST MT			**1A HHSI pump fails to start, HV-8801B fails to open.**

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

Facility: Vogtle **Scenario No:** 1 **Op-Test No:** _____

Examiners: George Hopper **Operators:** Clint Hartfield (SRO)

_____ John Covington (RO surrogate)

_____ Tim Harris (BOP surrogate)

Initial Conditions:
Unit 1 is at 75% Reactor Power at EOL. Power had been held at 70% power to replace HDP #2. The HDP has been returned to service. 1A MDAFWP is out of service. Metal filings were found a pump oil sample. The pump has been tagged to inspect the pump bearings. It has been out of service for 10 hours of an expected 56-hour outage. LCO 3.7.5, condition B is in effect.

Turnover:

1. _____ UOP 12004-C, Power Operation step 4.1.45 has been completed. Reactor Power is being held at 75% while temperature and vibration on HDP #2 is being measured.

2. _____ OSP 14410-1, Control Rod Operability Test is in progress. The surveillance has been completed for all Shutdown Banks and Control Banks A and B. You are to complete the surveillance for Control Banks C and D.

3. _____ Once 14410-1 and HDP monitoring is complete, you are to begin a power ramp to return to 100% power in accordance with 12004-C, step 4.1.46.

4. _____

5. _____

6. _____

7. _____

Initial Conditions:
Unit 1 is at 75% Reactor Power at EOL. Power had been held at 70% power to replace HDP #2. The HDP has been returned to service. 1A MDAFWP is out of service. Metal filings were found a pump oil sample. The pump has been tagged to inspect the pump bearings. It has been out of service for 10 hours of an expected 56-hour outage. LCO 3.7.5, condition B is in effect.

Turnover:

_____ UOP 12004-C, Power Operation step 4.1.45 has been completed. Reactor Power is being held at 75% while temperature and vibration on HDP #2 is being measured.

_____ OSP 14410-1, Control Rod Operability Test is in progress. The surveillance has been completed for all Shutdown Banks and Control Banks A and B. You are to complete the surveillance for Control Banks C and D.

_____ Once 14410-1 and HDP monitoring is complete, you are to begin a power ramp to return to 100% power in accordance with 12004-C, step 4.1.46.

Event No.	Action No.	Event Type*	Event Description
1.		N	Perform OSP 14410-1, Control Rod Operability Test.
2.	Malf RD 12H	C (SRO)	Control Bank D, rod D4 fails to move during completion of OSP 14410-1, Control Rod Operability Test.
3.	Malf EL 10G	C (SRO)	Loss of power to 1AB15, 1ABB, and 1ABD resulting in a loss of power to BIT isolation valve 1-HV-8801A. Tech Spec for SRO.
4.	Malf TU 02	C (BOP)	Main Turbine Vibration leads to the requirement to reduce power.
5.	Malf ES 01 ES 02 RC 05D	MT	Failure of automatic and manual reactor trip followed by a small break LOCA. **CRITICAL TASK**
POST MT			CCP 1A fails to start, 1HV 8801B fails to open. **CRITICAL TASK**

PREINSERTS:

Initial Conditions:

- ❑ Ensure Exam Security per 60008-C, EXAMINATION SECURITY PROGRAM
- ❑ Base IC 20
- ❑ Ensure Information Board in Control Room is updated
- ❑ Shift sign in and reactivity briefing sheets provided
- ❑ RO & BOP Name plates on Panel D
- ❑ Check EOP's, AOP's, UOP's, SOP's used in the last scenario clear of marks
- ❑ Correct AFD sheet

Select to following QMCB positions:

- ❑ IPC is Mode 1
- ❑ Check Control Rod Group Step Counters
- ❑ Ensure all QPCP and QHVC recorders running in auto
- ❑ Place CLEARANCE HOLD TAG on:
  - ❑ Train "A" MDAFWP **1HS-5131A PTL**
  - ❑ Train "A" MDAFW Discharge valve **1HS-5137A CLOSED**
  - ❑ Train "A" MDAFW Discharge valve **1HS-5139A CLOSED**
  - ❑ Train "A" MDAFW CST #2 Suction valve **1HS-5119 CLOSED**
- ❑ Place CAUTION TAG for the PRNI HIGH FLUX TRIP SETPOINT AT 90%
- ❑ Place BATP train "A" in STOP
- ❑ Place BATP train "B" in AUTO
- ❑ shut down "A" CCW
- ❑ Start "B" CCW

Insert the following ACTIONS:

MALFUNCTIONS:

- ☐ **AF 02B** Train A MDAFWP trip _____
- ☐ **ES 01** Failure of the Automatic Reactor Trip _____
- ☐ **ES 02** Failure of the Manual Reactor Trip _____
- ☐ **CV 06A** CCP 1A trip _____
- ☐ **RD 12H** CBD rod D4 fails to move _____

ANN OVERRIDES:

- ☐ **None**

REMOTE:

- ☐ **SF 01 Train "A" SFPC to OOS** _____
- ☐ **SF 02 Train "B" SFPC to inservice** _____

OVERRIDE POT:

- ☐ **None**

OVERRIDE METER:

- ☐ **None**

SWITCHES:

- ☐ Train "A" MDAFW CST #2 Suction valve **1HS-5119A CLOSED**

_____

- ☐ Train "A" MDAFW Discharge valve **1HS-5137A CLOSED**

_____

- ❑ Train "A" MDAFW Discharge valve **1HS-5139A CLOSED**

_____

- ❑ BIT Isolation Valve **1HS 8801B CLOSED**

_____

OVERRIDE LAMP:

- ❑ Train "A" MDAFW CST #2 Suction valve **1HS-5119A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5137A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5137A WHITE** set DIGITAL VALUE **OFF**

_____

- ❑ Train "A" MDAFW Discharge valve **1HS-5139A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5139A WHITE** set DIGITAL VALUE **OFF**

_____

OP Test No. _____ **Scenario No.** 1 **Event No.** 1 & 2

Event Description: Control Bank D, rod D4 fails to move during completion of OSP 14410-1, Control Rod Operability Test.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Declare rod D4 untrippable and enter **LCO 3.1.4, condition A**.
		❑ Request the performance of 14005-1, Shutdown Margin Calculation within 1 hr.
		❑ Be in mode 3 within 6 hours if the rod cannot be declared trippable
	RO	❑ Complete OSP 14410-1, Control Rod Operability Test for Control Banks C and D. Identify rod D4 fails to move.
	BOP	❑ none
	Crew	❑ Initiate maintenance

OP Test No.	_____	Scenario No.	1	Event No.	1 & 2

Event Description: Control Bank D, rod D4 fails to move during completion of OSP 14410-1, Control Rod Operability Test.

Action	Instructions
Preloaded	I&C reports a blown lift coil fuse. The fuse cannot be replaced until after troubleshooting the circuit.

Notes:

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OP Test No. _____ **Scenario No.** 1 **Event No.** 3

Event Description: Loss of power to 1AB15, 1ABB, and 1ABD resulting in a loss of power to BIT isolation valve 1-HV-8801A. Tech Spec for SRO.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Recognize entry into **LCO 3.8.9, condition A** (8 hours to restore)
	RO	❑ Identify loss of power to ECCS valves
	BOP	❑ Recognize loss of 480v. swgr. 1AB15, MCC 1ABB and 1ABD
		❑ Reference ARP 17036-1 and Electrical One Line Drawings to determine affected equipment
	Crew	❑

OP Test No. _____ **Scenario No.** 1 **Event No.** 3

Event Description: Loss of power to 1AB15, 1ABB, and 1ABD resulting in a loss of power to BIT isolation valve 1-HV-8801A. Tech Spec for SRO.

Action	**Instructions**
Malf EL 10G	Opens 1AB15-01, supply to 1AB15 **NOTE 5**

Notes:

5. 1X3D-AA-E16A (1AB15), 1X3D-AA-F16A (1ABB), 1X3D-AA-F11A/B (1ABD)
6.
7.
8.

OP Test No. _____ **Scenario No.** 1 **Event No.** 4

Event Description: Main Turbine Vibration leads to reactor/turbine trip.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Direct a reactor/turbine trip as vibration approaches the turbine trip setpoint (12 mil).
	RO	❑ Recognize the attempt to trip the reactor was not successful
	BOP	❑ Reference ATSI computer display to determine alarm was due to turbine vibration
		❑ Reference ARP 17020 and SOP 13800
		❑ Manually trip the turbine
	Crew	❑

OP Test No. _____ **Scenario No.** 1 **Event No.** 4

Event Description: Main Turbine Vibration leads to reactor/turbine trip.

Action	**Instructions**
TU 02	Ramp to 50% over 300 seconds

Notes:

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OP Test No. _____ **Scenario No.** 1 **Event No.** 5

Event Description: Failure of automatic and manual reactor trip followed by a small break LOCA with no BIT flow available.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ **Enter E-0 (19000) Reactor Trip or SI and at step 1 transition to FR-S.1 (19211), ATWT**
		❑ Direct the BOP to verify AFW pumps running
		❑ Direct the RO to emergency borate
		❑ Direct the RO verify CVI
		❑ Direct the BOP to maintain AFW flow greater than 1260gpm
		❑ Direct someone to isolate all RCS dilution paths
		❑ Direct the RO to verify RCS temperature stable
		❑ Direct the RO to verify CETCs are less than 1200°F

SRO

- Direct the RO to verify the reactor is subcritical
- **Transition from FR-S.1 to E-0 step 1**
- Direct the BOP to verify power to the 1-E busses
- Direct the RO to check if SI is actuated
- Direct the BOP to verify FWI
- Direct the RO to verify SI is aligning and CIA is actuated
- Direct the BOP to verify AFW pumps running and SGBD is isolated
- Direct the RO to verify ECCS pumps, CCW pumps, and NSCW pumps and Containment Coolers are running
- Direct the RO to verify CVI

SRO

- ❑ Direct BOP to check MSLI is not required
- ❑ Direct the RO to verify Containment Spray not required
- ❑ Direct the BOP to verify the EDGs running
- ❑ Direct the RO to verify ECCS flows
- ❑ Direct the BOP to verify AFW flow greater than 570gpm or SG level greater than 10%
- ❑ Direct the RO to verify ECCS alignment is correct
- ❑ Direct the RO to verify RCS temperature stable or trending to 557°F
- ❑ Direct the RO to verify the PORVs, Block Valves, and Pzr spray valves operable
- ❑ Direct the RO to shut down the RCPs if RCS pressure is less than 1375psig

SRO

- Direct the RO to verify ACCW is in service
- Direct the BOP to verify the SG secondary pressure boundaries and the SG tubes are intact
- **Direct the RO to determine if the RCS is intact and transition to E-1 Loss of Reactor or Secondary Coolant (19010)**
- Direct the RO to shut down the RCPs if RCS pressure is less than 1375psig
- Direct the RO to verify ACCW is in service
- Direct the BOP to verify the SG secondary pressure boundaries and the SG tubes are intact
- Direct the RO to verify the PORVs and Block Valves operable
- Direct the RO to check ECCS termination criteria

SRO

- ❑ Direct the RO to shutdown the RHR pumps if RCS pressure is greater than 300 psig
- ❑ Direct the BOP to shutdown the EDGs and reenergize the stub busses
- ❑ Direct the RO to verify Cold Leg Recirc capability
- ❑ **Transition to ES-1.2 Post LOCA Cooldown and Depressurization (19012)**
- ❑ Direct the RO to Reset SI and CIA
- ❑ Direct the BOP to establish instrument air to containment
- ❑ Direct the BOP to verify all busses are energized form offsite power
- ❑ Direct the RO to deenergize the PZR heaters and shutdown the RHR pumps
- ❑ Direct the RO and BOP to initiate a cooldown

RO

- ❑ Attempt to trip the reactor and begin to manually insert control rods
- ❑ emergency borate
- ❑ verify CVI
- ❑ verify RCS temperature stable
- ❑ verify CETCs are less than 1200°F
- ❑ verify the reactor is subcritical
- ❑ check if SI is actuated
- ❑ verify SI is aligning and CIA is actuated
- ❑ verify ECCS pumps running, identify CCP 1A tripped

RO

- verify CCW pumps, and NSCW pumps and Containment Coolers are running
- verify CVI
- verify Containment Spray not required
- verify ECCS flows, identify no BIT flow
- verify ECCS alignment is correct, identify the BIT cannot be opened
- verify RCS temperature stable or trending to 557°F verify the PORVs, Block Valves, and Pzr spray valves operable
- shut down the RCPs if RCS pressure is less than 1375psig
- verify ACCW is in service
- determine the RCS is not intact and transition to E-1 Loss of Reactor or Secondary Coolant (19010)

RO

- shut down the RCPs if RCS pressure is less than 1375psig
- verify ACCW is in service
- verify the PORVs and Block Valves operable
- verify the ECCS termination criteria cannot be met
- shutdown the RHR pumps if RCS pressure is less than 300 psig
- verify Cold Leg Recirc capability
- Reset SI and CIA
- deenergize the PZR heaters and shutdown the RHR pumps
- initiate a cooldown

BOP

- ❑ Trip the turbine
- ❑ verify AFW pumps running
- ❑ maintain AFW flow greater than 1260gpm
- ❑ verify power to the 1-E busses
- ❑ verify FWI
- ❑ verify AFW pumps running and SGBD is isolated
- ❑ check MSLI is not required
- ❑ verify the EDGs running
- ❑ Verify AFW flow greater than 570gpm or SG level greater than 10%
- ❑ Verify the SG secondary pressure boundaries and the SG tubes are intact

BOP

- Verify the SG secondary pressure boundaries and the SG tubes are intact
- shutdown the EDGs and reenergize the stub busses
- establish instrument air to containment
- verify all busses are energized from offsite power
- initiate a cooldown

Crew

- Dispatch operator to open the Reactor Trip Breakers

OP Test No. _____ **Scenario No.** 1 **Event No.** 5

Event Description: Failure of automatic and manual reactor trip followed by a small break LOCA with no BIT flow available.

Action	**Instructions**
Malf RC 05D	Set severity to 3% after step 7 of S-1 (19211-C)

Notes:

13. If someone was dispatched to locally open the Reactor Trip Breakers, **remove Malfunction ES 01 after 4 minutes.**

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16.

Facility: Vogtle **Scenario No:** 2 **Op-Test No:** _____

Examiners: _____ **Operators:** John Covington (SRO surrogate)

George Hopper Clint Hartfield (RO)

_____ Tim Harris (BOP surrogate)

Initial Conditions:
Unit 1 is at 100% Reactor Power at EOL. 1A MDAFWP is out of service. Metal filings were found a pump oil sample. The pump has been tagged to inspect the pump bearings. It has been out of service for 10 hours of an expected 56 hour outage. LCO 3.7.5, condition B is in effect.

Turnover:

1. _____ UOP 12004-C, section 4.3 is currently in effect.

2. _____ Reduce reactor power to less than 95% in accordance with step 5.3.1.1 of 14540-1. OSP 14540-1, Main Turbine Valve Stroke Test surveillance is due. The quarterly performance is due which requires reactor power to be less than 95%.

3. _____ AMSAC has been bypassed for a surveillance that is being performed by I&C and engineering.

4. _____

5. _____

6. _____

7. _____

8. _____

Initial Conditions:
Unit 1 is at 100% Reactor Power at EOL. 1A MDAFWP is out of service. Metal filings were found a pump oil sample. The pump has been tagged to inspect the pump bearings. It has been out of service for 10 hours of an expected 56 hour outage. LCO 3.7.5, condition B is in effect.

Turnover:

_____ UOP 12004-C, section 4.3 *is currently in effect.*

_____ Reduce reactor power to less than 95% in accordance with step 5.3.1.1 of 14540-1. OSP 14540-1, Main Turbine Valve Stroke Test surveillance is due. The quarterly performance is due which requires reactor power to be less than 95%.

_____ AMSAC has been bypassed for a surveillance that is being performed by I&C and engineering.

Event No.	Action No.	Event Type*	Event Description
1.	none	R (RO BOP)	Reduce reactor power to less than 95% in accordance with step 5.3.1.1 of 14540-1, and then perform section 5.3
2.	CV 12	I (RO)	VCT Level Transmitter 1LT-185 fails high
3.	CV 04	C (RO)	TE-130 fails low resulting in a loss of cooling to CVCS Letdown HX. Requires manual control.
4.	GE 09 TU 19A	C (BOP)	Generator load rejection coincident with Turbine impulse pressure transmitter 1PT-505 failing high. **CRITICAL TASK**
5.	FW 06C	MT	SG #3 Main Feedwater Line break inside containment
POST MT			Auto CIA fails, 1HV 8801B fails to shut, Train B MDAFWP fails to auto start

PREINSERTS:

Initial Conditions:

- ☐ Ensure Exam Security per 60008-C, EXAMINATION SECURITY PROGRAM
- ☐ Base IC 19
- ☐ Ensure Information Board in Control Room is updated
- ☐ Shift sign in and reactivity briefing sheets provided
- ☐ RO & BOP Name plates on Panel D
- ☐ Check EOP's, AOP's, UOP's, SOP's used in the last scenario clear of marks
- ☐ Correct AFD sheet

Select to following QMCB positions:

- ☐ IPC is Mode 1
- ☐ Check Control Rod Group Step Counters
- ☐ Ensure all QPCP and QHVC recorders running in auto
- ☐ Place Clearance Hold Tag on:
  - ☐ Train "A" MDAFWP **1HS-5131A PTL**
  - ☐ Train "A" MDAFW Discharge valve **1HS-5137A CLOSED**
  - ☐ Train "A" MDAFW Discharge valve **1HS-5139A CLOSED**
  - ☐ Train "A" MDAFW CST #2 Suction valve **1HS-5119 CLOSED**
- ☐ ROD BANK SELECTOR SWITCH selected to **1HS-40041 MANUAL**

Insert the following ACTIONS:

MALFUNCTIONS:

- ❑ **AF 02B** Train A MDAFWP trip _____
- ❑ **ES 20A** Block auto CIA train A _____
- ❑ **ES 20B** Block auto CIA train B _____

ANN OVERRIDES:

- ❑ **None**

REMOTE:

- ❑ **None**

OVERRIDE POT:

- ❑ **None**

OVERRIDE METER:

- ❑ **None**

SWITCHES:

- ❑ Train "A" MDAFW CST #2 Suction valve **1HS-5119A CLOSED**
  _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5137A CLOSED**
  _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5139A CLOSED**
  _____
- ❑ Override TV-129 to Demin Position
  _____

OVERRIDE LAMP:

- ❑ Train "A" MDAFW CST #2 Suction valve **1HS-5119A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5137A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5137A WHITE** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5139A GREEN** set DIGITAL VALUE **OFF** _____
- ❑ Train "A" MDAFW Discharge valve **1HS-5139A WHITE** set DIGITAL VALUE **OFF** _____

OP Test No. _____ **Scenario No.** 2 **Event No.** 1

Event Description: Reduce reactor power to less than 95% in accordance with step 5.3.1.1 of 14540-1

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Brief crew on power reduction
		❑ Direct operators to reduce power to less than 95%
		❑ Refer to UOP 12004-C. Power Operation
	RO	❑ Borate RCS and insert control rods to maintain T_{avg} on Program and AFD on Target
	BOP	❑ Reduces turbine load per SOP 13800-1
	Crew	❑ None

OP Test No. _____ **Scenario No.** 2 **Event No.** 1

Event Description: Reduce reactor power to less than 95% in accordance with step 5.3.1.1 of 14540-1.

Action	**Instructions**

Notes:

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OP Test No. _____ **Scenario No.** 2 **Event No.** 2

Event Description: VCT Level Transmitter 1LT-185 fails high

Time	Position	Applicants Actions or Behaviors
	SRO	◻ Initiate maintenance
	RO	◻ Verify VCT auto makeup starts at 30% on 1LT-112
		◻ Place 1-LV-112A to the VCT position
	BOP	◻ None
	Crew	◻ Recognize VCT LoLo Level Auto Swap to RWST is inoperable.
		◻ Monitor VCT level on Plant Computer

OP Test No. _____ **Scenario No.** 2 **Event No.** 2

Event Description: VCT Level Transmitter 1LT-185 fails high

Action	**Instructions**
Malf CV 12	**NOTE 5**

Notes:

5. LV-112A modulates to the HUT

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OP Test No. _____ **Scenario No.** 2 **Event No.** 3

Event Description: TE-130 fails low resulting in a loss of cooling to CVCS Letdown HX and a failure of the automatic demin divert function.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Initiate maintenance
	RO	❑ Isolate letdown or take manual control of 1-TIC-130 to control letdown temperature less than 115°F
		❑ Recognize the Letdown Demin Bypass Valve 1HS-129 did not automatically divert and then manually place the handswitch to the "VCT" position.
		❑ Refer to ARP 17007 ALBF01
		❑ Verify Letdown has diverted around the CVCS demins
	BOP	❑ None
	Crew	❑ None

OP Test No. _____ **Scenario No.** 2 **Event No.** 3

Event Description: TE-130 fails low resulting in a loss of cooling to CVCS Letdown HX and a failure of the automatic demin divert function.

Action	**Instructions**
Malf CV 04	

Notes:

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OP Test No. _____ **Scenario No.** 2 **Event No.** 4

Event Description: Generator load rejection coincident with Turbine impulse pressure transmitter 1PT-505 failing high.

Time	Position	Applicants Actions or Behaviors
	SRO	❑ Go to AOP 18012-C for the load rejection
		❑ Go to AOP 18001-C for the turbine impulse pressure failure
	RO	❑ Identify effects of 1PT-505 failure on Rod Control and place rods in manual
		❑ Insert control rods to restore T_{avg}/T_{ref}
		❑ Adjust RCS boron concentration as necessary to maintain control rods above the insertion limit
		❑ Verify P-7 and P-13 status lights are not illuminated

BOP

- ❑ Verify Turbine runback is not required
- ❑ Place turbine load control in STANDBY and verify load stabilizes
- ❑ Identify 1PT-505 failure
- ❑ Place steam dumps in the Steam Pressure Mode
- ❑ Reset C-7

Crew

- ❑ Stabilize reactor power, reactor temperature, and turbine load to shut the steam dumps

OP Test No. _____ **Scenario No.** 2 **Event No.** 4

Event Description: Generator load rejection coincident with Turbine impulse pressure transmitter 1PT-505 failing high.

Action		**Instructions**
Malf GE 09	Set severity to **30%**	
Malf TU 19A	Set severity to **100%**	

Notes:

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OP Test No. _____ **Scenario No.** 2 **Event No.** 5

Event Description: Main Feedwater Line break inside containment

Time	Position	Applicants Actions or Behaviors
	SRO	❑ **Enter E-0 (19000) Reactor Trip or SI**
		❑ Direct RO verify the reactor is tripped
		❑ Direct the BOP to verify the turbine is tripped and all 1_E busses are energized
		❑ Direct the RO to verify SI is actuated
		❑ Direct the BOP to verify FWI
		❑ Direct the RO to verify ECCS equipment is aligning
		❑ Direct RO to actuate CIA
		❑ Direct RO and BOP to manually align CIA valves when auto or manual alignment does not occur

SRO

- ❑ Direct the BOP to verify AFW pumps running and SGBD is isolated
- ❑ Direct the RO to verify ECCS pumps, CCW pumps, NSCW pumps, and Containment Coolers are running
- ❑ Direct the RO to verify CVI has aligned
- ❑ Direct the BOP to verify MSLI has actuated
- ❑ Direct the RO to verify Containment Spray is not required
- ❑ Direct the BOP to verify the EDGs are running
- ❑ Direct the RO to verify ECCS flow
- ❑ Direct the BOP to verify AFW flow greater than 570gpm or SG levels greater than 10% (32%)Direct the RO to verify proper ECCS alignment
- ❑ Direct the RO to verify RCS temperature trending to 557°F

SRO

- ☐ Direct the RO to verify PORV, Block valve and Pzr Spray valve operability
- ☐ Direct the RO to shutdown the RCPs if RCS pressure is less than 1375psig
- ☐ Direct the RO to verify ACCW is in service
- ☐ Direct the BOP to verify SG secondary pressure boundaries are not intact
- ☐ **Transition to E-2 (19020) Faulted Steam Generator Isolation**
- ☐ Direct BOP to verify SG #3 MSIV and BSIV are shut
- ☐ Direct BOP to verify SG #3 MFIV and BFIV are shut
- ☐ Direct BOP to isolate AFW to SG # 3
- ☐ Direct BOP to verify SG # 3 ARV and SGBD are isolated

SRO

- **Transition to ES-1.1 (19011) SI Termination if SI Termination Criteria are met, transition to E-1 (19010) Loss of Reactor or Secondary Coolant if SI criteria are not met.**

- Direct RO to stop RCPs if RCS Pressure is less than 1375psig

- Direct BOP to verify SG #3 is isolated

- Direct BOP to control intact SG levels between 10%(32%) and 65%

- Direct BOP to verify no indications of secondary activity

- Direct RO to verify PORV and Block Valve operability

- **Transition to ES-1.1 (19011) SI Termination when SI Termination Criteria are met**

- Direct RO to reset SI and CIA

- Direct BOP to restore instrument air to containment

SRO ☐ Direct RO to shutdown all but 1 CCP and establish normal charging flow path.

☐ Direct the RO to shut the CCP discharge header crosstie valve 1HV 8438 and start the 1A CCP

RO

- ❑ verify the reactor is tripped
- ❑ verify SI is actuated
- ❑ verify ECCS equipment is aligning
- ❑ attempt to actuate CIA, and manually align when actuation does not occur
- ❑ verify ECCS pumps, CCW pumps, NSCW pumps, and Containment Coolers are running
- ❑ verify CVI has aligned
- ❑ verify Containment Spray is not required
- ❑ shutdown the RCPs if RCS pressure is less than 1375psig
- ❑ verify ECCS flow
- ❑ verify proper ECCS alignment

- ❑ verify RCS temperature trending to 557°F
- ❑ verify PORV, Block valve and Pzr Spray valve operability
- ❑ verify ACCW is in service
- ❑ stop RCPs if RCS Pressure is less than 1375psig
- ❑ verify PORV and Block Valve operability
- ❑ reset SI and CIA
- ❑ Shutdown all but 1 CCP and establish normal charging flow path
- ❑ Recognize BIT cannot be isolated because 1HV 8801B cannot be shut.
- ❑ Shut the CCP discharge header crosstie valve 1HV 8438 and start the 1A CCP

BOP

- ❑ verify the turbine is tripped and all 1-E busses are energized
- ❑ verify FWI
- ❑ manually align CIA valves when auto or manual alignment does not occur
- ❑ verify AFW pumps running and SGBD is isolated
- ❑ verify MSLI has actuated
- ❑ verify the EDGs are running
- ❑ verify AFW flow greater than 570gpm or SG levels greater than 10% (32%)
- ❑ verify SG secondary pressure boundaries are not intact
- ❑ verify SG #3 MSIV and BSIV are shut
- ❑ verify SG #3 MFIV and BFIV are shut

- ❑ isolate AFW to SG # 3
- ❑ verify SG # 3 ARV and SGBD are isolated
- ❑ verify SG #3 is isolated
- ❑ control intact SG levels between 10%(32%) and 65%
- ❑ verify no indications of secondary activity
- ❑ restore instrument air to containment

Crew ❑ Recognize Adverse Containment conditions

OP Test No. _____	**Scenario No.** 2	**Event No.** 5

Event Description: Main Feedwater Line break inside containment

Action	**Instructions**
Malf FW 06C	Ramp to 100% in 300 seconds
Switches	After SI is actuated override BIT Discharge isolation valve **1HS8801B OPEN**
Override lamp	When SI flow is being terminated and the the RO places the handswitch for BIT Discharge isolation valve 1HS8801B to the CLOSE position, then insert the following LAMPS and the ANN OVERRIDE to simulate the breaker tripping. BIT Discharge isolation valve **1HS8801B GREEN** set DIGITAL VALUE **OFF** BIT Discharge isolation valve **1HS8801B RED** set DIGITAL VALUE **OFF**
ANN OVERRIDE	**ALB 37 D01** set to **ON**

Notes:

17.

18.

19.

20.