

Facility: Monticello Scenario No.: NRC Scenario **1** Op-Test No.: 2018-301
 Examiners: _____ Operators: _____

Initial Conditions: 100% Power

1AR XFMR is OOS for an oil leak

12 CRD Pump is OOS for motor replacement

Turnover: Place the Standby Service Water Pump in service**Critical Tasks:****CT-1:** Scram the reactor when no CRD pump is running and the second accumulator low pressure alarm is received.**CT-16:** Inhibit ADS to avoid auto initiation that would result in a violation of cooldown rate or a loss of adequate core cooling.**CT-22:** When RPV water level can NOT be maintained >-149", Emergency Depressurize the reactor.

Event No.	Malf No.	Event Type*	Event Description
1	N/A	N BOP	BOP operator will place 11 SW Pump in service for vibration readings and secure 12 SW Pump IAW the Operations B Manual.
2	CH06_061	C – OATC R - OATC TS – CRS	Control Rod 26-27 will begin drifting in. The OATC will take actions to fully insert and disarmed the Control Rod to prevent further drifting. The CRS will evaluate TSs for an inoperable Control Rod.
3	SW01A SW08	C - BOP	11 RBCCW Pump will trip and 12 RBCCW pump will fail to auto start. The BOP operator will take action to manually start the standby pump.
4	RC02	C – BOP TS - CRS	RCIC will inadvertently initiate and inject into the RPV. The BOP will take action to remove RCIC from service. The CRS will evaluate Technical Specifications.
5	ED05E	C - Crew	A 15 Bus Lockout will occur causing a loss of power to the only available CRD Pump. The Crew will insert a manual scram for the loss of CRD flow.
6	RR01A	C – Crew M - Crew	Following the scram, a LOCA will occur along with a trip of both Reactor Feed Pumps. The crew will be forced to use steam driven pumps for RPV injection.
7	HP02 HP03	M – Crew Post/C - OATC	HPCI will fail to automatically start on high DW pressure. Shortly after HPCI is manually initiated, it will trip on high exhaust pressure. RCIC can be placed back in service but will not maintain RPV level above TAF which will required the crew to perform an Emergency Depressurization.

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

Facility: Monticello Scenario No.: NRC Scenario **2** Op-Test No.: 2018-301
 Examiners: _____ Operators: _____

Initial Conditions: 17% Power with Plant Startup in progress
 12 Stator Water Cooling Pump is OOS for motor replacement
 12 CRD Pump is OOS for motor replacement

Turnover:

Transfer RPV Level Control to the first Main Feedwater Reg Valve
 Raise reactor power to 25% with control rods.

Critical Tasks:

CT-10 Manually scram the reactor if a design basis earthquake has occurred and has been verified by:

- All three Panel C-06 earthquake annunciators in alarm And One of the following:
 - Actually having felt the indications OR
 - By confirmation from outside agencies

CT-26 When torus water level can NOT be maintained above -3.3', execute Emergency Depressurization per C.5-2002.

Event No.	Malf No.	Event Type*	Event Description
1	N/A	N - BOP	BOP will transfer RPV level control from the Low Flow Feedwater Reg Valve to the first Main Feedwater Reg Valve.
2	N/A	R - OATC	The OATC will continue with the startup withdraw sequence and raise power from 17% to 21%
3	CH02_053	C - OATC	When the OATC attempts to withdraw the second control rod, it will fail to move. The OATC will raise drive water pressure to move the control rod.
4	C-03-A21	C – BOP TS - CRS	When power reaches ~ 21%, an alarm will be received indicating that a Core Spray Valve is leaking. Out plant actions will be unsuccessful in stopping the leak and the BOP will isolate A Core Spray. The CRS will evaluate Tech Specs.
5	NI17A	I – OATC TS - CRS	RBM A will experience an Upscale/INOP failure. The OATC will bypass the RBM A and the CRS will evaluate Tech Spec.
6	C-06-C13 SW03A	C - BOP	An Operational Basis Earthquake will be felt in the Control Room and will result in the tripping of #11 Service Water Pump. The standby Service Water Pump will fail to automatically start and the BOP will manually start the standby pump.
7	C-06-C18	M - Crew	A design basis earthquake will occur forcing the crew to insert a manual scram. Following the scram, an unisolable torus leak will occur. The crew will be required to perform an emergency depressurization.
8	01-S054-01	C – BOP/Post	The BOP will recognize that the D SRV failed to open for the ED and open additional SRVs until a total of 3 are verified open.

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

Facility: Monticello Scenario No.: NRC Scenario **3** Op-Test No.: 2018-301
 Examiners: _____ Operators: _____

Initial Conditions: 100%

12 Stator Water Cooling Pump is OOS for motor replacement
 11 Service Water Pump is OOS for motor replacement

Turnover:

Perform Test 0141 (RB-Torus Vacuum Breaker Check)

Critical Tasks:

CT-45: During failure to scram conditions with reactor power above 4.0%, terminate and prevent injection from all sources except SBLC, RCIC, and CRD until level lowers to at least -33".

CT-47: During failure to scram conditions with a critical reactor, insert control rods using one or more methods contained within C.5-3101 to achieve reactor shutdown under all conditions.

Event No.	Malf No.	Event Type*	Event Description
1	02-S74-01	N – BOP TS - CRS	BOP will perform Test 0141. The second vacuum breaker tested will fail open. The CRS will evaluate Tech Specs for an inoperable vacuum breaker.
2	FW20A	C – OATC	The 'A' MFRV will lockup. The OATC will take action to unlock the MFRV and restore RPV Water Level Control to automatic.
3	MC04B	C - BOP	The 'A' SJAE steam supply PCV will fail closed. The BOP will take action to restore steam and reset the air ejector.
4	MC03	R - OATC	While the BOP is restoring the SJAE, degrading condenser vacuum will require the OATC to reduce Recirc flow to maintain condenser vacuum.
5	AP07	I – BOP TS - CRS	The ADS Timer will inadvertently initiate and the BOP will take action to inhibit the timer. The CRS will evaluate Tech Specs for an inoperable ADS system.
6	ED14	Crew	Grid frequency will begin to degrade eventually requiring the crew to insert a reactor scram prior to the Main Turbine tripping.
7	CH16	M - Crew	When the reactor is scrammed for the degrading grid, multiple control rods will fail to insert. The crew will take action IAW the Failure to Scram procedure to lower power and insert control rods.
8	SL01A/B	C/Post - OATC	While the crew is taking failure to scram actions the first SBLC pump that the OATC attempts to start will fail. The OATC will be successful in starting the second pump.

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

Appendix D

Scenario Outline

Form ES-D-1

Facility: Monticello Scenario No.: NRC Scenario **4** Op-Test No.: 2018-301
 Examiners: _____ Operators: _____

Initial Conditions: 87%

HPCI is OOS ready to be restored
 11 Service Water Pump is OOS for motor replacement

Turnover:

Pressurize HPCI Steam Lines and restore to operable status

Critical Tasks:

CT-8: Scram the reactor in response to core oscillations as indicated by:

- LPRM HI or DOWNSCALE alarms in a wide area of the core that repeatedly alarm, then clear.
- LPRM indications on the RBM ODA displays indicate an oscillation.
- APRM recorders indicate a peak-to-peak oscillation greater than 10% that is not attributable to pressure or Recirc flow control problems.

CT-33: When a primary system is discharging into the secondary containment through an unisolable break, perform an Emergency Depressurization per C.5-2002 when max safe operating values are exceeded in two or more areas.

Event No.	Malf No.	Event Type*	Event Description
1	N/A	N - BOP	BOP operator will use the Operations Manual to pressurize the HPCI steam lines. The CRS will declare HPCI operable.
2	HP01 HP07 HP08	C – BOP C – BOP TS - CRS	After restoring HPCI to operable status, the system will auto initiate to the low speed stop. The BOP will perform a rapid shutdown of HPCI. Additionally, a steam leak will occur in the HPCI room. The isolation valves will fail to automatically isolate and the BOP will manually isolate the system. The CRS will evaluate Tech Specs with HPCI isolated.
3	02-A12P1-U	TS - CRS	The 11 Recirc pump will experience a runback, the scoop tube will fail to lock and it will stop at its 30% speed setting. The plant will be in the unanalyzed region of the P-F Map and the OATC will reduce reactor power using control rods to exit. The CRS will evaluate Tech Specs for unbalanced recirc flows.
4 & 5	03S72-01	I – OATC R - OATC	When the OATC attempts to insert control rods for rapid power reduction, the normal method of rod insertion will fail. The OATC will be required to insert control rods using the emergency method.
6	02-A12P1-U	C - OATC	The 12 Recirc Pump will experience a runback, the scoop tube will fail to lock and it will stop at its 45% speed setting. The plant will end up in Region 2 of the P-F Map and Neutron Flux Oscillations will begin. The OATC will insert a reactor scram.
7	CH22A/B	M - Crew	When the reactor scram is inserted, the SDV Vent & Drain Valves will fail to close resulting in rapidly rising radiation levels in the Reactor Building.
8	03-S61-01 03-S45-04	Post - Crew	The OATC will attempt to reset the scram signal to isolate the SDV. The scram will fail to reset and the crew will perform a Blowdown when two areas reach Max Safe rad levels.

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