

Appendix D

Scenario Outline

Form ES-D-1

Facility: Quad Cities Scenario No.: **2016 NRC Scenario 1** Op-Test No.: ILT 14-1
 Examiners: _____ Operators: _____

Initial Conditions:

The plant is operating at 75% power.
 RCIC steam line is isolated.

Turnover: Return RCIC to the standby lineup.

Event No.	Malf. No.	Event Type*	Event Description
1	None	BOP N	Re-pressurize the RCIC Steam Lines
2	SW07B	BOP C	The 1B RBCCW Pump degrades (QCOP 3700-02)
3	FW06B	ATC I	Feedwater Flow Transmitter Failure
4	PC04G	SRO	Drywell-Torus Vacuum Breaker fails open TS
5	RR01A	ATC R	1A Recirc Pump Trip / Emergency Power Reductions (QCOA 0202-04) TS
6	RR11A	CREW M	LOCA- Recirc Loop A Discharge Pipe Break TAF-Blowdown (QGA 100/200/500-1)
7	ED03B/ED04B	ATC C	Loss of Reactor Feed Pumps
8	DG04A	BOP C	U-1 EDG fails to auto start
9	HP01/RC01	CREW C	HPCI Startup and Trip / RCIC Trip

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

ES-301-4 Quantitative attributes:

Total Malfunctions (5-8): **8**
 Malfunction(s) after EOP (1-2): **E7, 8, & 9**
 Abnormal Events (2-4): **E2, 3, 4, & 5**
 Major Transient(s) /E-Plan entry (1-2): **E6**
 EOPs (1-2): **QGA 100 & 200**
 EOP Contingencies (0-2): **QGA 100/500-1**
 Critical Tasks (2-3): **3**

ES-301-5 Quantitative attributes:

BOP Normal: **E1**
 ATC Reactivity (1 per set): **E5**
 BOP I/C (4 per set): **E2 & 8**
 ATC I/C (4 per set): **E3 & 7**
 SRO-I I/C (4 per set inc 2 as ATC):
E2, 3, 5, 7, 8, 9
 SRO Tech Spec (2 per set): **E4 & 5**
 ALL Major Transients (2 per set) **E6**

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Scenario Outline

Form ES-D-1

Facility: Quad Cities Scenario No.: **2016 NRC Scenario 2** Op-Test No.: ILT 14-1

Examiners: _____ Operators: _____

Initial Conditions:

The plant is operating at 50% power. Power was lowered due to Load Following for Grid Stability. Work on the Nelson-345KV Junction is completed. The Unit is returning to full power. 1B Service Water Pump and 1A Stator Cooling Water pump are out of service for repair.

Turnover:

Reverse Main condenser flow and raise power to 100% per ReMA instructions.

Event No.	Malf. No.	Event Type*	Event Description
1	None	BOP N	Reverse Main Condenser flow
2	None	ATC R	Raise power after Load Following
3	RD02R2255	ATC C	Recoverable Stuck Rod / Raise CRD Drive Pressure (QCOA 0300-02)
4	RM05B	SRO	"B" Drywell Rad Monitor Upscale Failure TS
5	NM10A	ATC I	RBM Channel 7 fails high TS
6	dihs15401 close	BOP C	SJAE suction valves fail shut. BOP recovers them by QOA 901-7 A-14 actions.
7	TU02A	BOP C	Main Turbine high vibration (Leading to Turbine Trip)
8	RD 13A (Hydraulic ATWS)	Crew M	ATWS. No rod motion. The Crew will take actions per QGA 101 to control reactor power, level and pressure. The crew will utilize Level/Power control (EPG Contingency #5) to lower power.
9	RP10A(B)	ATC C	The Group III (RWCU) fails to actuate. The ATC will manually isolate RWCU.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

ES-301-4 Quantitative attributes:

Total Malfunctions (5-8): **6**
 Malfunction(s) after EOP (1-2): **E9**
 Abnormal Events (2-4): **E3, 5, 6, & 7**
 Major Transient(s) /E-Plan entry (1-2): **E8**
 EOPs (1-2): **QGA 100 and 101**
 EOP Contingencies (0-2): **1**
 Critical Tasks (2-3): **4**

ES-301-5 Quantitative attributes:

BOP Normal: **E1**
 ATC Reactivity (1 per set): **E2**
 BOP I/C (4 per set): **E6 & 7**
 ATC I/C (4 per set): **E3, 5 & 9**
 SRO-I I/C (4 per set inc 2 as ATC):
E3, 5, 6, 7, 9
 SRO Tech Spec (2 per set): **E4 & 5**
 ALL Major Transients (2 per set) **E8**

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Scenario Outline

Form ES-D-1

Facility: Quad Cities Scenario No.: **2016 NRC Scenario 3** Op-Test No.: ILT 14-1

Examiners: _____ Operators: _____

Initial Conditions:

The plant is operating at 100% power. Maintaining full power. 1B Service Water Pump and 1A Stator Cooling Water pump are out of service for repair.

Turnover:

Swap running EHC pumps for upcoming maintenance.

Event No.	Malf. No.	Event Type*	Event Description
1	None	BOP N	Swap running EHC pumps per QCOP 5650-01 Step F.4
2	SW02A (degraded)	BOP C	1A Service Water pump degrades resulting in swapping to standby pump per QCAN 912-1 B-3.
3	None (cued)	BOP C	1C RFP bearing failure requiring shutdown of the 1C RFP
4	None	ATC R	Emergency power reduction, per QCGP 3-1 step F.1, to secure 1C RFP
5	NM08A	ATC I	APRM channel 1 fails "As Is" during Emergency Power reduction TS
6	zdihs11300rm(1)	BOP C	RCIC spurious start and subsequent manual trip from MCR TS
7	HP12 HP13 CR01 CR02	CREW M	Fuel failure and HPCI steam line break. Crew enters QGA 300 and transitions to QGA 500-1 when two areas exceed Max Safe radiation levels.
8	NM03A-D NM07A-H	ATC I	SRMs and IRMs fail to automatically insert. The ATC will manually insert them per QCGP 2-3 and QCOP 0700-01 guidance

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

ES-301-4 Quantitative attributes:

Total Malfunctions (5-8): **6**
 Malfunction(s) after EOP (1-2): **E8**
 Abnormal Events (2-4): **E2, 3, 5, & 6**
 Major Transient(s) /E-Plan entry (1-2): **E7**
 EOPs (1-2): **QGA 100, 300, and 500-1**
 EOP Contingencies (0-2): **1**
 Critical Tasks (2-3): **2**

ES-301-5 Quantitative attributes:

BOP Normal: **E1**
 ATC Reactivity (1 per set): **E4**
 BOP I/C (4 per set): **E2, 3, & 6**
 ATC I/C (4 per set): **E5 & 8**
 SRO-I I/C (4 per set inc 2 as ATC): **E2,3,5,6,8**
 SRO Tech Spec (2 per set): **E5 & 6**
 ALL Major Transients (2 per set) **E7**

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Scenario Outline

Form ES-D-1

Facility: Quad Cities Scenario No.: **2016 NRC Scenario 4** Op-Test No. ILT 14-1

Examiners: _____ Operators: _____

Initial Conditions:

The plant is currently at 75% power and holding load per Generation Dispatch.

Turnover: Perform the Core Spray Monthly surveillance for the 1B Core Spray pump, and QCOS 1600-04, Weekly Primary Containment Oxygen Concentration from the 901-56 panel.

Event No.	Malf. No.	Event Type*	Event Description
1	None	BOP N	Perform Core Spray Monthly Surveillance (1B Core Spray pump)
2	DIHS124AS6B	BOP C	Failure of 1B CAM to start for surveillance. TS
3	FW17C DIHS13302	ATC C	1C Condensate Pump trip w/failure of standby pump to auto-start.
4	None	SRO	SSMP Room Cooler inoperable. TS
5	DIHS156041A LOHS156041A	BOP C	1A Gland Exhauster trip.
6	MC08	ATC R	Loss of Main Condenser vacuum / Emergency Power Reduction
7	RP02 RP03	ATC C	Electric ATWS (ARI inserts control rods) QGA 101.
8	MS04B	CREW M	Main Steam Line break inside the Drywell. QGA 100 and QGA 200.
9	DIHS11001S17B RH19AR	CREW C	Failure of Drywell Sprays (S-17B and RHR 23A valve). Blowdown QGA 500-1

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

ES-301-4 Quantitative attributes:Total Malfunctions (5-8): **7**Malfunction(s) after EOP (1-2): **E8 & 9**Abnormal Events (2-4): **E2, 3, 5, 6**Major Transient(s) /E-Plan entry (1-2): **E8**EOPs (1-2): **QGA 100, 200**EOP Contingencies (0-2): **QGA 500-1**Critical Tasks (2-3): **2**ES-301-5 Quantitative attributes:BOP Normal: **E1**ATC Reactivity (1 per set): **E6**BOP I/C (4 per set): **E2 & 5**ATC I/C (4 per set): **E3 & 7**SRO-I I/C (4 per set inc 2 as ATC): **E2,3,5,7**SRO Tech Spec (2 per set): **E2 & 4**ALL Major Transients (2 per set) **E8**