

Facility: <u>Dresden Generating Station</u>	Scenario No.: <u>2020-301 ILT-N-2</u>	Op-Test No.: <u>2020-301</u>	
<b>Examiners</b> <hr/> <hr/> <hr/>	<b>Operators</b> <hr/> <hr/> <hr/>	<b>/ crew position</b> <hr/> <b>/ ATC</b> <hr/> <b>/ BOP</b> <hr/> <b>/ CRS</b> <hr/>	
<b>Initial Conditions:</b> <u>Unit 2 is performing a startup and is at 5% Power</u> <u>Continuing with startup by raising power with control rods</u>			
<b>Turnover:</b> <u>Swap SGBT Trains Primary/Standby per DOP 7500-01</u>			
<b>Critical Tasks:</b> <u>RPV-5.1 - With a reactor scram required and the reactor not shutdown, take action per DEOP 400-5, Failure to Scram, to reduce power by inserting control rods within 15 minutes.</u> <u>RPV-5-4 - Per DEOP 400-5, Failure to Scram, with a reactor scram required, the reactor not shutdown, and the automatic ADS timer initiated, inhibit ADS before an automatic actuation occurs. (Not applicable if conditions for ADS initiation are not met)</u> <u>PC-1.1 - While executing DEOP 200-1, Primary Containment Control, when drywell pressure exceeds 9 psig and only if operating within the safe region of the drywell spray initiation limit (DSIL), initiate drywell sprays within 15 minutes.</u> <u>PC-1.2 - After initiating drywell sprays per the primary containment pressure or temperature legs of DEOP 200-1, Primary Containment Control, terminate drywell sprays before drywell pressure drops to &lt; 0 psig. (May not be applicable if scenario does not run long enough).</u>			
<b>Event No.</b>	<b>Malf. No.</b>	<b>Event Type*</b>	<b>Event Description #</b>
1	NONE	N    BOP	(New) - SGBT - Swap trains Primary/Standby
2	NONE	R    ATC	CRD - Reactivity, Raise Power Using Control Rods
3	NONE	C    BOP	(New) - INST AIR - Compressor, Swap Due To Oil Leak
4	B02	C / T    ATC / CRS	(New) - RPS - MG Set, Trips / Re-energize From Reserve Power
5	Q22	C    BOP	(New) - SERV WATER - Pump, Trip Due To Overcurrent
6	RRMASUPD	I / T    ATC / CRS	(New) – NI - APRM Fail Upscale with Half Scram
7	F41 RODE####ST	M    ALL	(New) - Manual Scram – LOCA in drywell (New) ATWS – 7 Stuck rods (4 rods will be able to moved, QNE determination will be needed to determine if the Reactor will stay shutdown)
8	H31 H32 H33 H34 HPAOPASF	C    ALL C    ALL	Loss of RFPs (New) - HPCI – Auto-start failure
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)ech Spec # (New) – Event not used on previous 2 NRC Exams,    (Pre) – Event used on previous 2 NRC Exams			

Scenario No.:   3  Operating Test No:   2020-301  **Narrative Summary**

Event #	Description
1	<b>SBGT - Swap trains Primary/Standby:</b> The BOP operator will swap the SBGT lineup, changing 2/3A from Primary to Standby; and 2/3B from Standby to Primary, per DOP 7500-01.
2	<b>CRD - Reactivity, Raise Power Using Control Rods:</b> The NSO, as directed by the SRO, continues the power ascension for unit startup by control rod withdrawal.
3	<b>INST AIR - Compressor, Swap Due To Oil Leak:</b> The 3C IAC develops an oil leak and must be secured. The team will start a standby IAC, and secure the 3C IAC.
4	<b>RPS - MG Set, Trips / Re-energize From Reserve Power:</b> The Team receives a report that the Engineering department determined that EPAs 2B-1 and 2B-2 are inoperable. The CRS determines Tech Spec requirements, and then a trip of RPS EPA 2B-1 causes a loss of RPS Bus A. The Team will reenergize RPS Bus A from reserve power and begin restoration of affected systems to a normal condition.
5	<b>SERV WATER - Pump, Trip Due To Overcurrent:</b> The 2B Service Water pump trips on overload. The Team will start a standby pump.
6	<b>NI – APRM Fails Upscale with Half Scram:</b> APRM 2 will spuriously fail upscale, resulting in a half scram on RPS A. The CRS will review Tech Spec requirements. The ATC will bypass APRM2 and reset the half scram.
7	<b>Manual Scram – LOCA in drywell, followed by ATWS with stuck rods:</b> A LOCA in the DW causes DW pressure to increase. The Team manually scrams the reactor prior to an automatic scram. Seven rods stay out due to being stuck. Four of them can be inserted. QNE determination is needed to determine if the reactor will remain shutdown under all conditions.
8	<b>FW – Loss of Feed Pumps:</b> A loss of all high capacity high pressure feed due to loss of RFP's with a failure of HPCI to auto-start. The Crew will take action to manually start HPCI.

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<b>Examiners</b>    	<b>Operators</b> / crew position  / ATC / BOP / CRS
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**Initial Conditions:** Unit 2 is performing a startup and is at 5% Power  
Continuing with startup by raising power with control rods

**Turnover:** Transfer MCC 28-7/29-7 from Bus 28 to Bus 29

**Critical Tasks:** RPV-5.1 - With a reactor scram required and the reactor not shutdown, take action per DEOP 400-5, Failure to Scram, to reduce power by inserting control rods within 15 minutes.  
RPV-5.4 - Per DEOP 400-5, Failure to Scram, with a reactor scram required, the reactor not shutdown, and the automatic ADS timer initiated, inhibit ADS before an automatic actuation occurs. (Not applicable if conditions for ADS initiation are not met)  
PC-1.1 - While executing DEOP 200-1, Primary Containment Control, when drywell pressure exceeds 9 psig and only if operating within the safe region of the drywell spray initiation limit (DSIL), initiate drywell sprays within 15 minutes.  
PC-1.2 - After initiating drywell sprays per the primary containment pressure or temperature legs of DEOP 200-1, Primary Containment Control, terminate drywell sprays before drywell pressure drops to < 0 psig. (May not be applicable if scenario does not run long enough).

  

Event No.	Malf. No.	Event Type*	Event Description #
1	NONE	N    BOP	(New) - AUX POWER – MCC, Transfer MCC 28-7/29-7 from Bus 28 to Bus 29
2	NONE	R    ATC	CRD - Reactivity, Raise Power Using Control Rods
3	NONE	C    BOP	(New) - INST AIR - Compressor, Swap Due To Oil Leak
4	B02	C / T    ATC / CRS	(New) - RPS - MG Set, Trips / Re-energize From Reserve Power
5	Q22	C    BOP	(New) - SERV WATER - Pump, Trip Due To Overcurrent
6	RRMASUPD	I / T    ATC / CRS	(New) – NI - APRM Fail Upscale with Half Scram
7	I21	M    ALL	(New) - Manual Scram – LOCA in drywell
8	RODE###ST	C    ALL	(New) ATWS – 7 Stuck rods (4 rods will be able to moved, QNE determination will be needed to determine if the Reactor will stay shutdown)

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)ech Spec  
# (New) – Event not used on previous 2 NRC Exams,      (Pre) – Event used on previous 2 NRC Exams

Scenario No.: 3Operating Test No: 2020-301**Narrative Summary**

Event #	Description
1	<b>AUX POWER - MCC, Transfer MCC 28-7/29-7 From Bus 28 To Bus 29:</b> The BOP will transfer power to MCC 28-7/29-7 from Bus 28 to Bus 29
2	<b>CRD - Reactivity, Raise Power Using Control Rods:</b> The NSO, as directed by the SRO, continues the power ascension for unit startup by control rod withdrawal.
3	<b>INST AIR - Compressor, Swap Due To Oil Leak:</b> The 3C IAC develops an oil leak and must be secured. The team will start a standby IAC, and secure the 3C IAC.
4	<b>RPS - MG Set, Trips / Re-energize From Reserve Power:</b> The Team receives a report that the Engineering department determined that EPAs 2B-1 and 2B-2 are inoperable. The CRS determines Tech Spec requirements, and then a trip of RPS EPA 2B-1 causes a loss of RPS Bus A. The Team will reenergize RPS Bus A from reserve power and begin restoration of affected systems to a normal condition.
5	<b>SERV WATER - Pump, Trip Due To Overcurrent:</b> The 2B Service Water pump trips on overload. The Team will start a standby pump.
6	<b>NI – APRM Fails Upscale with Half Scram:</b> APRM 2 will spuriously fail upscale, resulting in a half scram on RPS A. The CRS will review Tech Spec requirements. The ATC will bypass APRM2 and reset the half scram.
7	<b>Manual Scram – LOCA in drywell, followed by ATWS with stuck rods:</b> A LOCA in the DW causes DW pressure to increase. The Team manually scrams the reactor prior to an automatic scram. Seven rods stay out due to being stuck. Four of them can be inserted. QNE determination is needed to determine if the reactor will remain shutdown under all conditions.
8	<b>FW – Loss of Feed Pumps:</b> A loss of all high capacity high pressure feed due to loss of RFP's with a failure of HPCI to auto-start. The Crew will take action to manually start HPCI.

## Appendix D

## Scenario Outline

Form ES-D-1

Facility: <u>Dresden Generating Station</u>	Scenario No.: <u>2020-301 ILT-N-4</u>	Op-Test No.: <u>2020-301</u>
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<b>Examiners</b>    	<b>Operators</b> / crew position  / ATC  / BOP  / CRS
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**Initial Conditions:**    Unit 2 is at 100% Power  
2A EHC Pump OOS

**Turnover:**            Swap TBCCW pumps per DOP 3800-01  
Exercise CRDs A-06, D-09, and N-08 per DOS 0300-01

**Critical Tasks:**        RPV-1.1 - If the RPV level trend is not reversible with an RPV injection source lined up with a pump running, initiate emergency depressurization with RPV water level between the Top-of-Active Fuel and the Minimum Steam Cooling RPV Water Level or within 2½ minutes after TAF is reached, whichever is later.  
RPV-1.2 - When high and low pressure systems are available for RPV injection, do not stop or divert injection from the RPV until level is restored to above the Top-of-Active Fuel (TAF).  
RPV-1.5 - Per DEOP 100, RPV Control, with the automatic ADS timer initiated, inhibit ADS before an automatic actuation occurs.  
RPV-2.1 - When conditions are met per DEOP 400-2, Emergency Depressurization, within 15 minutes the minimum number of available SRV's required for emergency depressurization (MNSRED) are opened.  
PC-1.1 - While executing DEOP 200-1, Primary Containment Control, when drywell pressure exceeds 9 psig and only if operating within the safe region of the drywell spray initiation limit (DSIL), initiate drywell sprays within 15 minutes.

  

Event No.	Malf. No.	Event Type*	Event Description #
1	NONE	N      BOP	(New) – TBCCW – Swap TBCCW pumps
2	RODXXXST	C      ATC	(New) - CRD - Control Rod, Stuck And Requires Higher Pressure To Move
3	RLMRFPB	C      ATC	(New) - FW - Recirc Runback, Due To Loss of RFP
4	RMARMPFAILF(1) RMARMPFAILD(1) VRMISO42A VRMISO42B MRGFPB	I / T      BOP / CRS	(New) - PRM – RB Fuel Pool Channel B Rad detector fails upscale causing RB Vent to isolate with failure of 2 isolation dampers to close. CRS will reference Tech Specs.
5	HDD3202C2 HDD3202O2 HDD3202S2	R      ATC	(New) - FW - HP Heater trip (Reactivity move)
6	ICTUBLK	C / T      BOP / CRS	(New) - ISO COND - System, Tube Leak
7	F41	M      ALL	MANUAL SCRAM - Recirc leak in Drywell
8	RLMFAFC RLMFBFC RLMLFFC HPPMPDG	C      ALL C      ALL M      ALL	(New) - Loss of All Feedwater Reg Valves  HPCI degraded  EMERGENCY DEPRESSURIZE - On Lowering Reactor Water Level

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (T)ech Spec  
# (New) – Event not used on previous 2 NRC Exams,      (Pre) – Event used on previous 2 NRC Exams

Scenario No.: 4Operating Test No: 2020-301

## Narrative Summary

Event #	Description
1	<b>TBCCW – Swap TBCCW pumps:</b> The BOP will start 2A TBCCW pump and secure 2B TBCCW pump per DOP 3800-01.
2	<b>CRD - Control Rod, Stuck And Requires Higher Pressure To Move:</b> ATC will perform monthly rod exercising. The first rod will perform as expected. The second rod will stick requiring drive water pressure to be increased to >325 psid in order for the rod to move.
3	<b>FW - Recirc Runback, Due To Loss of RFP:</b> The 2B RFP loses oil pressure and trips. Insufficient feedwater flow causes RPV level to drop and the crew to respond to a Recirc runback. ATC will insert CRAM rods to reduce the FCL below the MELLLA boundary.
4	<b>PRM – RB Fuel Pool upscale, with failure of 2 RB Vent Dampers to close.</b> The RB Fuel Pool Channel B Rad detector will fail upscale causing RB Vent to isolate. 2 of the RB Vent Isolation Dampers will fail to close. The BOP will be able to close the dampers manually. The CRS will reference the Tech Specs.
5	<b>High Pressure Feedwater Heater trip (Reactivity move):</b> 2D2 Feedwater Heater extraction valve fails closed. The crew will address the loss of feedwater heating and evaluate which region of feedwater heating they are operating in. The ATC will reduce power by 60 MWe with core flow.
6	<b>ISO COND - System, Tube Leak:</b> The Isolation Condenser develops a tube leak and must be isolated. With the Isolation Condenser inoperable the CRS will reference Tech Specs.
7	<b>MANUAL SCRAM - Recirc leak in Drywell:</b> A leak will develop in the Recirc line causing Drywell pressure to rise. The crew may take scram prep actions per DGP 02-03, but will manually scram the reactor by 1.5 psig in the Drywell. Drywell pressure will rise above 9 psig and this drives the crew to spray the Drywell.
8	<b>EMERGENCY DEPRESSURIZE - On Lowering Reactor Water Level Due To Recirc System Leak, Loss of All Feedwater Reg Valves, and HPCI being degraded:</b> After the crew stabilizes the plant following the manual scram the Recirc leak will get bigger, the FWRVs will fail closed and with HPCI degraded (malfunction put in during scenario setup), Reactor water level will lower. When RWL reaches TAF (-170”) the crew will enter DEOP 0400-02, Emergency Depressurization, and blowdown the reactor.