

Facility: Dresden Nuclear Power Station, Units 2 and 3														Date of Exam: April 19 – 30, 2021					
Tier	Group	RO K/A Category Points												SRO-Only Points					
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2	G*	Total			
1. Emergency and Abnormal Plant Evolutions	1	3	3	3	N/A			3	4	N/A			4	20	4	3	7		
	2	2	1	1	N/A			1	1	N/A			1	7	1	2	3		
	Tier Totals	5	4	4	N/A			4	5	N/A			5	27	5	5	10		
2. Plant Systems	1	2	3	3	2	3	3	2	2	2	2	2	26	3	2	5			
	2	1	1	1	2	1	1	1	1	1	1	1	12	0	1	3			
	Tier Totals	3	4	4	4	4	4	3	3	3	3	3	38	4	4	8			
3. Generic Knowledge and Abilities Categories					1		2		3		4		10		1	2	3	4	7
					2		3		3		2				2	2	1	2	

- Note: 1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outline sections (i.e., except for one category in Tier 3 of the SRO-only section, the “Tier Totals” in each K/A category shall not be less than two). (One Tier 3 radiation control K/A is allowed if it is replaced by a K/A from another Tier 3 category.)
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points, and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the outline. Systems or evolutions that do not apply at the facility should be deleted with justification. Operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible. Sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7. The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics’ IRs for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above. If fuel-handling equipment is sampled in a category other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. (Note 1 does not apply.) Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

G* Generic K/As

- * These systems/evolutions must be included as part of the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan. They are not required to be included when using earlier revisions of the K/A catalog.
- ** These systems/evolutions may be eliminated from the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan.

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions—Tier 1/Group 1 (RO)						Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
295001 (APE 1) Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4					04		AA2.04 – Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Individual jet pump flows: Not BWR 1&2 (CFR 41.10 / 43.5 /45.13)	3.0	1 (1)
295003 (APE 3) Partial or Complete Loss of AC Power / 6						01.07	G2.1.7 – Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (CFR: 41.5 / 43.5 / 45.12, 45.13)	4.4	1 (2)
295004 (APE 4) Partial or Total Loss of DC Power / 6	04						AK1.04 – Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: Effect of battery discharge rate on capacity (CFR: 41.8 to 41.10)	2.8	1 (3)
295005 (APE 5) Main Turbine Generator Trip / 3		05					AK2.05 – Knowledge of the interrelations between the MAIN TURBINE GENERATOR TRIP and the following: Extraction steam system (CFR 41.7 / 45.8)	2.6	1 (4)
295006 (APE 6) Scram / 1			02				AK3.02 – Knowledge of the reasons for the following responses as they apply to SCRAM: Reactor power response (CFR: 41.5 / 45.6)	4.1*	1 (5)
295016 (APE 16) Control Room Abandonment / 7				09			AA1.09 – Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Isolation/emergency condenser: Plant specific (CFR: 41.7 / 45.6)	4.0	1 (6)
295018 (APE 18) Partial or Complete Loss of CCW / 8					04		AA2.04 – Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: System flow (CFR: 41.10 / 43.5 / 45.13)	2.9	1 (7)
295019 (APE 19) Partial or Complete Loss of Instrument Air / 8						04.08	G2.4.8 – Knowledge of how abnormal operating procedures are used in conjunction with EOPs. (CFR: 41.10 / 43.5 / 45.13)	3.8	1 (8)
295021 (APE 21) Loss of Shutdown Cooling / 4	01						AK1.01 – Knowledge of the operational implications of the following concepts as they apply to LOSS OF SHUTDOWN COOLING: Decay heat (CFR: 41.8 to 41.10)	3.6	1 (9)
295023 (APE 23) Refueling Accidents / 8		04					AK2.04 – Knowledge of the interrelations between REFUELING ACCIDENTS and the following: RMCS (CFR 41.7 / 45.8)	3.2	1 (10)
295024 High Drywell Pressure / 5			07				EK3.07 – Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Drywell venting (CFR: 41.5 / 45.6)	3.5	1 (11)
295025 (EPE 2) High Reactor Pressure / 3				01			EA1.01 – Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: Main steam line drains (CFR: 41.7 / 45.6)	2.9	1 (12)

295026 (EPE 3) Suppression Pool High Water Temperature / 5					01	EA2.01 – Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool water temperature (CFR: 41.10 / 43.5 / 45.13)	4.1*	1 (13)
295027 (EPE 4) High Containment Temperature (Mark III Containment Only) / 5								
295028 (EPE 5) High Drywell Temperature (Mark I and Mark II only) / 5					01.23	G2.1.23 – Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 41.10 / 43.5 / 45.2 / 45.6)	4.3	1 (14)
295030 (EPE 7) Low Suppression Pool Water Level / 5	02					EK1.02 – Knowledge of the operational implications of the following concepts as they apply to LOW SUPPRESSION POOL WATER LEVEL: Pump NPSH (CFR: 41.8 to 41.10)	3.5	1 (15)
295031 (EPE 8) Reactor Low Water Level / 2		09				EK2.09 – Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Recirculation system: Plant specific (CFR 41.7 / 45.8)	3.3	1 (16)
295037 (EPE 14) Scram Condition Present and Reactor Power Above APRM Downscale or Unknown / 1			05			EK3.05 – Knowledge of the reasons for the following responses as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Cold shutdown boron weight: Plant specific (CFR: 41.5 / 45.6)	3.2	1 (17)
295038 (EPE 15) High Offsite Radioactivity Release Rate / 9				06		EA1.06 – Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Plant ventilation (CFR: 41.7 / 45.6)	3.5	1 (18)
600000 (APE 24) Plant Fire On Site / 8					06	AA2.06 – Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Need for pressurizing the control room (recirculation mode) (CFR: 41.10 / 43.5 / 45.13)	2.5	1 (19)
700000 (APE 25) Generator Voltage and Electric Grid Disturbances / 6					04.45	G2.4.45 – Ability to prioritize and interpret the significance of each annunciator or alarm. (CFR: 41.10 / 43.5 / 45.3 / 45.12)	4.1	1 (20)
K/A Category Totals:	3	3	3	3	4	4	Group Point Total:	20

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions—Tier 1/Group 2 (RO)						Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
295002 (APE 2) Loss of Main Condenser Vacuum / 3	04						AK1.04 – Knowledge of the operational implications of the following concepts as they apply to LOSS OF MAIN CONDENSER VACUUM: Increased off gas flow (CFR: 41.8 to 41.10)	3.0	1 (21)
295007 (APE 7) High Reactor Pressure / 3									
295008 (APE 8) High Reactor Water Level / 2									
295009 (APE 9) Low Reactor Water Level / 2									
295010 (APE 10) High Drywell Pressure / 5									
295011 (APE 11) High Containment Temperature (Mark III Containment only) / 5									
295012 (APE 12) High Drywell Temperature / 5		01					AK2.01 – Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell ventilation (CFR 41.7 / 45.8)	3.4	1 (22)
295013 (APE 13) High Suppression Pool Temperature. / 5			01				AK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression pool cooling operation (CFR: 41.5 / 45.6)	3.6	1 (23)
295014 (APE 14) Inadvertent Reactivity Addition / 1									
295015 (APE 15) Incomplete Scram / 1									
295017 (APE 17) Abnormal Offsite Release Rate / 9				05			AA1.05 – Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: SPDS: Plant specific (CFR: 41.7 / 45.6)	2.7	1 (24)
295020 (APE 20) Inadvertent Containment Isolation / 5 & 7						04.46	G2.4.46 – Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12)	4.2	1 (25)
295022 (APE 22) Loss of Control Rod Drive Pumps / 1									
295029 (EPE 6) High Suppression Pool Water Level / 5									
295032 (EPE 9) High Secondary Containment Area Temperature / 5									
295033 (EPE 10) High Secondary Containment Area Radiation Levels / 9					03		EA2.03 – Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Cause of high area radiation (CFR: 41.10 / 43.5 / 45.13)	3.7	1 (26)
295034 (EPE 11) Secondary Containment Ventilation High Radiation / 9									
295035 (EPE 12) Secondary Containment High Differential Pressure / 5	01						EK1.01 – Knowledge of the operational implications of the following concepts as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment integrity (CFR: 41.8 to 41.10)	3.9	1 (27)

295036 (EPE 13) Secondary Containment High Sump/Area Water Level / 5										
500000 (EPE 16) High Containment Hydrogen Concentration / 5										
K/A Category Point Totals:	2	1	1	1	1	1	Group Point Total:			7

ES-401	BWR Examination Outline Plant Systems—Tier 2/Group 1 (RO)											Form ES-401-1		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
203000 (SF2, SF4 RHR/LPCI) RHR/LPCI: Injection Mode		03										K2.03 – Knowledge of electrical power supplies to the following: Initiation logic (CFR: 41.7)	2.7*	1 (28)
205000 (SF4 SCS) Shutdown Cooling			03									K3.03 – Knowledge of the effect that loss or malfunction of the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) will have on following: Reactor temperatures (moderator, vessel, flange) (CFR: 41.7 / 45.4)	3.8	1 (29)
206000 (SF2, SF4 HPCIS) High-Pressure Coolant Injection				19								K4.19 – Knowledge of HIGH-PRESSURE COOLANT INJECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic transfer of HPCI pump suction: BWR-2,3,4 (CFR: 41.7)	3.7	1 (30)
207000 (SF4 IC) Isolation (Emergency) Condenser					09							K5.09 – Knowledge of the operational implications of the following concepts as they apply to ISOLATION (EMERGENCY) CONDENSER: Cooldown rate BWR-2,3 (CFR: 41.5 / 45.3)	3.7	1 (31)
						08						K6.08 – Knowledge of the effect that a loss or malfunction of the following will have on the ISOLATION (EMERGENCY) CONDENSER: DC power: BWR-2,3 (CFR: 41.7 / 45.7)	3.5	1 (32)
209001 (SF2, SF4 LPCS) Low-Pressure Core Spray							03					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating LOW PRESSURE CORE SPRAY SYSTEM controls including: Reactor water level (CFR: 41.5 / 45.5)	3.8	1 (33)
209002 (SF2, SF4 HPCS) High-Pressure Core Spray														
211000 (SF1 SLCS) Standby Liquid Control								02				A2.02 – Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Failure of explosive valves to fire (CFR: 41.5 / 45.6)	3.6	1 (34)
212000 (SF7 RPS) Reactor Protection									07			A3.07 – Ability to monitor automatic operations of the REACTOR PROTECTION SYSTEM including: SCRAM air header pressure (CFR: 41.7 / 45.7)	3.6	1 (35)
215003 (SF7 IRM) Intermediate-Range Monitor										03		A4.03 – Ability to manually operate and/or monitor in the control room: IRM range switches (CFR: 41.7 / 45.5 to 45.8)	3.6	1 (36)
215004 (SF7 SRMS) Source-Range Monitor											02 44	G2.2.44 – Ability to interpret control room indications to verify the status and operation of a system and understand how operator actions and directives affect plant and system conditions. (CFR: 41.5 / 43.5 / 45.12)	4.2	1 (37)

215005 (SF7 PRMS) Average Power Range Monitor/Local Power Range Monitor	16	02									<p>K1.16 – Knowledge of the physical connections and/or cause-effect relationships between AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM and the following: Flow converter/comparator network: Plant specific (CFR: 41.2 to 41.9 / 45.7 to 45.8)</p> <p>K2.02 – Knowledge of electrical power supplies to the following: APRM channels (CFR: 41.7)</p>	3.3	1 (38)
217000 (SF2, SF4 RCIC) Reactor Core Isolation Cooling													
218000 (SF3 ADS) Automatic Depressurization			01								<p>K3.01 – Knowledge of the effect that loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on following: Restoration of reactor water level after a break that does not depressurize the reactor when required (CFR: 41.7 / 45.4)</p>	4.4*	1 (40)
223002 (SF5 PCIS) Primary Containment Isolation/Nuclear Steam Supply Shutoff				08							<p>K4.08 – Knowledge of PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF design feature(s) and/or interlocks which provide for the following: Manual defeating of selected isolations during specified emergency conditions (CFR: 41.7)</p>	3.3	1 (41)
					08						<p>K6.08 – Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF: Reactor protection system (CFR: 41.7 / 45.7)</p>	3.5	1 (42)
239002 (SF3 SRV) Safety Relief Valves				02							<p>K5.02 – Knowledge of the operational implications of the following concepts as they apply to RELIEF/SAFETY VALVES: Safety function of SRV operation (CFR: 41.5 / 45.3)</p>	3.7	1 (43)
259002 (SF2 RWLCS) Reactor Water Level Control					02						<p>A1.02 – Ability to predict and/or monitor changes in parameters associated with operating the REACTOR WATER LEVEL CONTROL SYSTEM controls including: Reactor feedwater flow (CFR: 41.5 / 45.5)</p>	3.6	1 (44)
261000 (SF9 SGTS) Standby Gas Treatment							14				<p>A2.14 – Ability to (a) predict the impacts of the following on the STANDBY GAS TREATMENT SYSTEM; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: High system pressure: Plant specific (CFR: 41.5 / 45.6)</p>	3.0	1 (45)
								02			<p>A3.02 – Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: Fan start (CFR: 41.7 / 45.7)</p>	3.2	1 (46)
262001 (SF6 AC) AC Electrical Distribution								02			<p>A4.02 – Ability to manually operate and/or monitor in the control room: Synchroscope, including understanding of running and incoming voltages (CFR: 41.7 / 45.5 to 45.8)</p>	3.4	1 (47)

262002 (SF6 UPS) Uninterruptable Power Supply (AC/DC)	19																			K1.19 – Knowledge of the physical connections and/or cause-effect relationships between UNINTERRUPTABLE POWER SUPPLY (AC/DC) and the following: Power range neutron monitoring system: Plant Specific (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.1	1 (48)
263000 (SF6 DC) DC Electrical Distribution	01																			K2.01 – Knowledge of electrical power supplies to the following: Major DC loads (CFR: 41.7)	3.1	1 (49)
																				01 19	G2.1.19 – Ability to use plant computers to evaluate system or component status. (CFR: 41.10 / 45.12)	3.9
264000 (SF6 EGE) Emergency Generators (Diesel/Jet) EDG		03																		K3.03 – Knowledge of the effect that loss or malfunction of the EMERGENCY GENERATORS (DIESEL/JET) will have on following: Major loads powered from electrical buses fed by the emergency generators (CFR: 41.7 / 45.4)	4.1*	1 (51)
300000 (SF8 IA) Instrument Air				13																K5.13 – Knowledge of the operational implications of the following concepts as they apply to the INSTRUMENT AIR SYSTEM: Filters (CFR: 41.5 / 45.3)	2.9	1 (52)
400000 (SF8 CCS) Component Cooling Water					01															K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the COMPONENT COOLING WATER SYSTEM: Valves (CFR: 41.7 / 45.7)	2.7	1 (53)
510000 (SF4 SWS*) Service Water (Normal and Emergency)																						
K/A Category Point Totals:		2	3	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	Group Point Total:		26

ES-401		BWR Examination Outline Plant Systems—Tier 2/Group 2 (RO)											Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
201001 (SF1 CRDH) CRD Hydraulic				10								K4.10 – Knowledge of CONTROL ROD DRIVE HYDRAULIC SYSTEM design feature(s) and/or interlocks which provide for the following: Control of rod movement (HCU directional control valves) (CFR: 41.7)	3.1	1 (54)
201002 (SF1 RMCS) Reactor Manual Control							04					A1.04 – Ability to predict and/or monitor changes in parameters associated with operating the REACTOR MANUAL CONTROL SYSTEM controls including: Overall reactor power. (CFR: 41.5 / 45.5)	3.6	1 (55)
201003 (SF1 CRDM) Control Rod and Drive Mechanism														
201004 (SF7 RSCS) Rod Sequence Control														
201005 (SF1, SF7 RCIS) Rod Control and Information														
201006 (SF7 RWMS) Rod Worth Minimizer														
202001 (SF1, SF4 RS) Recirculation								12				A2.12 – Ability to (a) predict the impacts of the following on the RECIRCULATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of reactor feedwater (CFR: 41.5 / 45.6)	3.6	1 (56)
202002 (SF1 RSCTL) Recirculation Flow Control														
204000 (SF2 RWCU) Reactor Water Cleanup														
214000 (SF7 RPIS) Rod Position Information														
215001 (SF7 TIP) Traversing In-Core Probe														
215002 (SF7 RBMS) Rod Block Monitor									03			A3.03 – Ability to monitor automatic operations of the ROD BLOCK MONITOR SYSTEM including: Alarm and indicating lights: BWR-3,4,5 (CFR: 41.7 / 45.7)	3.1	1 (57)
216000 (SF7 NBI) Nuclear Boiler Instrumentation														
219000 (SF5 RHR SPC) RHR/LPCI: Torus/Suppression Pool Cooling Mode														
223001 (SF5 PCS) Primary Containment and Auxiliaries										10		A4.10 – Ability to manually operate and/or monitor in the control room: Drywell nitrogen makeup: Mark I, II (CFR: 41.7 / 45.5 to 45.8)	3.2	1 (58)
226001 (SF5 RHR CSS) RHR/LPCI: Containment Spray Mode														
230000 (SF5 RHR SPS) RHR/LPCI: Torus/Suppression Pool Spray Mode											04 31	G2.4.31 – Knowledge of annunciator alarms, indications, or response procedures. (CFR: 41.10 / 45.3)	4.2	1 (59)

233000 (SF9 FPCCU) Fuel Pool Cooling/Cleanup	01																		K1.01 – Knowledge of the physical connections and/or cause-effect relationships between FUEL POOL COOLING AND CLEANUP and the following: Shutdown cooling system: Plant specific (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.6	1 (60)
234000 (SF8 FH) Fuel-Handling Equipment																					
239001 (SF3, SF4 MRSS) Main and Reheat Steam																					
239003 (SF9 MSVLCS) Main Steam Isolation Valve Leakage Control																					
241000 (SF3 RTPRS) Reactor/Turbine Pressure Regulating																					
245000 (SF4 MTGEN) Main Turbine Generator/Auxiliary																					
256000 (SF2 CDS) Condensate	01																		K2.01 – Knowledge of electrical power supplies to the following: System pumps (CFR: 41.7)	2.7*	1 (61)
259001 (SF2 FWS) Feedwater																					
268000 (SF9 RW) Radwaste																					
271000 (SF9 OG) Offgas																					
272000 (SF7, SF9 RMS) Radiation Monitoring			05																K3.05 – Knowledge of the effect that a loss or malfunction of the RADIATION MONITORING SYSTEM will have on the following: Offgas system (CFR: 41.5 / 45.3)	3.5	1 (62)
286000 (SF8 FPS) Fire Protection																					
288000 (SF9 PVS) Plant Ventilation																					
290001 (SF5 SC) Secondary Containment				01															K4.01 – Knowledge of SECONDARY CONTAINMENT design feature(s) and/or interlocks which provide for the following: Personnel access without breaching secondary containment: Plant specific (CFR: 41.7)	3.5	1 (63)
290003 (SF9 CRV) Control Room Ventilation					01														K5.01 – Knowledge of the operational implications of the following concepts as they apply to CONTROL ROOM HVAC: Airborne contamination (e.g. radiological, toxic gas, smoke) control (CFR: 41.5 / 45.3)	3.2	1 (64)
290002 (SF4 RVI) Reactor Vessel Internals						17													K6.17 – Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR VESSEL INTERNALS: TIP (CFR: 41.7 / 45.7)	2.5	1 (65)
51001 (SF8 CWS*) Circulating Water																					
K/A Category Point Totals:	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Group Point Total:		12

600000 (APE 24) Plant Fire On Site / 8					13		AA2.13 – Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Need for emergency plant shutdown (CFR: 41.10 / 43.5 / 45.13)	3.8	1 (82)
700000 (APE 25) Generator Voltage and Electric Grid Disturbances / 6									
K/A Category Totals:					4	3	Group Point Total:		7

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions—Tier 1/Group 2 (SRO)						Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
295002 (APE 2) Loss of Main Condenser Vacuum / 3									
295007 (APE 7) High Reactor Pressure / 3									
295008 (APE 8) High Reactor Water Level / 2									
295009 (APE 9) Low Reactor Water Level / 2									
295010 (APE 10) High Drywell Pressure / 5						01.32	G2.1.32 – Ability to explain and apply system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	4.0	1 (83)
295011 (APE 11) High Containment Temperature (Mark III Containment only) / 5									
295012 (APE 12) High Drywell Temperature / 5									
295013 (APE 13) High Suppression Pool Temperature. / 5									
295014 (APE 14) Inadvertent Reactivity Addition / 1									
295015 (APE 15) Incomplete Scram / 1									
295017 (APE 17) Abnormal Offsite Release Rate / 9									
295020 (APE 20) Inadvertent Containment Isolation / 5 & 7									
295022 (APE 22) Loss of Control Rod Drive Pumps / 1						02	AA2.02 – Ability to determine and interpret the following as they apply to LOSS OF CRD PUMPS: CRD system status (CFR: 41.10 / 43.5 / 45.13)	3.4	1 (84)
295029 (EPE 6) High Suppression Pool Water Level / 5									
295032 (EPE 9) High Secondary Containment Area Temperature / 5									
295033 (EPE 10) High Secondary Containment Area Radiation Levels / 9									
295034 (EPE 11) Secondary Containment Ventilation High Radiation / 9									
295035 (EPE 12) Secondary Containment High Differential Pressure / 5									
295036 (EPE 13) Secondary Containment High Sump/Area Water Level / 5									
500000 (EPE 16) High Containment Hydrogen Concentration / 5						04.21	G2.4.21 – Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc. (CFR: 41.7 / 43.5 / 45.12)	4.6	1 (85)
K/A Category Point Totals:					1	2	Group Point Total:		3

262002 (SF6 UPS) Uninterruptable Power Supply (AC/DC)									01											A2.01 – Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (AC/DC); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Under voltage (CFR: 41.5 / 43.5 / 45.6)	2.8	1 (90)	
263000 (SF6 DC) DC Electrical Distribution																							
264000 (SF6 EGE) Emergency Generators (Diesel/Jet) EDG																							
300000 (SF8 IA) Instrument Air																							
400000 (SF8 CCS) Component Cooling Water																							
510000 (SF4 SWS*) Service Water (Normal and Emergency)																							
K/A Category Point Totals:																				3	2	Group Point Total:	5

Facility: Dresden Nuclear Power Station, Units 2 and 3			Date of Exam: April 19 – 30, 2021			
Category	K/A #	Topic	RO		SRO-only	
			IR	#	IR	#
1. Conduct of Operations	2.1.1	Knowledge of conduct of operations requirements. (CFR: 41.10 / 45.13)	3.8	1 (66)		
	2.1.15	Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc. (CFR: 41.10 / 45.12)	2.7	1 (67)		
	2.1.13	Knowledge of facility requirements for controlling vital/controlled access. (CFR: 41.10 / 43.5 / 45.9 / 45.10)			3.2	1 (94)
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management. (CFR: 41.1 / 43.6 / 45.6)			4.6	1 (95)
	Subtotal			2		2
2. Equipment Control	2.2.6	Knowledge of the process for making changes to procedures. (CFR: 41.10 / 43.3 / 45.13)	3.0	1 (68)		
	2.2.13	Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13)	4.1	1 (69)		
	2.2.43	Knowledge of the process used to track inoperable alarms. (CFR: 41.10 / 43.5 / 45.13)	3.0	1 (70)		
	2.2.5	Knowledge of the process for making design or operating changes to the facility. (CFR: 41.10 / 43.3 / 45.13)			3.2	1 (96)
	2.2.21	Knowledge of pre- and post-maintenance operability requirements. (CFR: 41.10 / 43.2)			4.1	1 (97)
	Subtotal			3		2
3. Radiation Control	2.3.5	Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. (CFR: 41.11 / 41.12 / 43.4 / 45.9)	2.9	1 (71)		
	2.3.7	Ability to comply with radiation work permit requirements during normal or abnormal conditions. (CFR: 41.12 / 45.10)	3.5	1 (72)		
	2.3.14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. (CFR: 41.12 / 43.4 / 45.10)	3.4	1 (73)		
	2.3.15	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. (CFR: 41.12 / 43.4 / 45.9)			3.1	1 (98)
	Subtotal			3		1

4. Emergency Procedures / Plan	2.4.12	Knowledge of general operating crew responsibilities during emergency operations. (CFR: 41.10 / 45.12)	4.0	1 (74)		
	2.4.26	Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage. (CFR: 41.10 / 43.5 / 45.12)	3.1	1 (75)		
	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines. (CFR: 41.10 / 43.5 / 45.13)			4.4	1 (99)
	2.4.30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. (CFR: 41.10 / 43.5 / 45.11)			4.1	1 (100)
	Subtotal				2	
Tier 3 Point Total				10		7

Facility Name:Dresden Date of Exam:4/19/21							
Q#	Category	K/A #	Topic	RO		SRO-Only	
				IR	#	IR	#
35	1. Conduct of Operations	2.1. 01	Knowledge of conduct of operations requirements.	3.8	1	4.2	
10		2.1. 15	Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc.	2.7	1	3.4	
		2.1.					
		2.1.					
86		2.1. 13	Knowledge of facility requirements for controlling vital/controlled access.	2.5		3.2	1
91		2.1. 37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3		4.6	1
		Subtotal			2		2
31	2. Equipment Control	2.2. 06	Knowledge of the process for making changes to procedures.	3.0	1	3.6	
24		2.2. 13	Knowledge of tagging and clearance procedures.	4.1	1	4.3	
63		2.2. 43	Knowledge of the process used to track inoperable alarms.	3.0	1	3.3	
		2.2.					
76		2.2. 05	Knowledge of the process for making design or operating changes to the facility.	2.2		3.2	1
92		2.2. 21	Knowledge of pre- and post-maintenance operability requirements.	2.9		4.1	1
		Subtotal			3		2
64	3. Radiation Control	2.3. 05	Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	2.9	1	2.9	
32		2.3. 07	Ability to comply with radiation work permit requirements during normal or abnormal conditions.	3.5	1	3.6	
9		2.3. 14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	1	3.8	
		2.3.					
		2.3.					
85		2.3. 15	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	2.9		3.1	1
		Subtotal			3		1
61	4. Emergency Procedures / Plan	2.4. 12	Knowledge of general operating crew responsibilities during emergency operations.	4.0	1	4.3	
62		2.4. 26	Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage.	3.1	1	3.6	
		2.4.					
		2.4.					
94		2.4. 16	Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines.	3.5		4.4	1
83		2.4. 30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	2.7		4.1	1
		Subtotal			2		2
Tier 3 Point Total					10		7