

**FINAL OUTLINES FOR THE
DRESDEN INITIAL EXAMINATION - MARCH 2008**

Facility: <u>Dresden</u>		Date of Examination: <u>3/3/08</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>2008-301</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, S	Verify Off-Site Power Sources Available Generic.2.1.31
Conduct of Operations	M, S	Verify Acceptance Criteria met for the Acoustic Monitor Based on Test Results Generic.2.1.7
Equipment Control	N, S	Verify HPCI Discharge Line Temperature Monitoring Calculation Generic.2.2.12
Radiation Control	D, P, S	CCSW Activity Calculation Generic.2.3.11
Emergency Plan		
<p>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.</p>		
<p>* Type Codes & Criteria:</p> <p>(C)ontrol room, (S)imulator, or Class(R)oom</p> <p>(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)</p> <p>(N)ew or (M)odified from bank (≥ 1)</p> <p>(P)revious 2 exams (≤ 1; randomly selected)</p>		

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Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>2008-301</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, S	Review Off-Site Power Sources Available Paperwork Generic.2.1.31
Conduct of Operations	N, S	Reportability Determination Generic.2.1.1
Equipment Control	D, S	Verify SBLC Tank Heater Surveillance Generic.2.2.12
Radiation Control	D, P, S	CCSW Activity Calculation Generic.2.3.11
Emergency Plan	N, S	Determine Emergency Classification Generic.2.4.38
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		
* Type Codes & Criteria:		
(C)ontrol room, (S)imulator, or Class(R)oom		
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)		
(N)ew or (M)odified from bank (≥ 1)		
(P)revious 2 exams (≤ 1 ; randomly selected)		

Facility Name: Dresden		Date of Exam: 3/3/08																
Tier	Group	RO K/A Category Points											SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	4	N/A		4	20	3	4	7		
	2	1	1	1	N/A			2	1	N/A		1	7	2	1	3		
	Tier Totals	4	4	4	N/A			5	5	N/A		5	27	5	5	10		
2. Plant Systems	1	2	2	2	3	2	3	2	2	3	2	3	26	3	2	5		
	2	1	2	1	1	1	1	1	1	1	1	1	12	0	1	3		
	Tier Totals	3	4	3	4	3	4	3	3	4	3	4	38	4	4	8		
3. Generic Knowledge and Abilities Categories				1	2	3	4						10	1	2	3	4	7
				3	2	2	3							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 outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
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 associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, 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 shall be selected. 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.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (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 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.

ES-401		BWR Examination Outline							Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	0 3						Thermal limits	3.6	1	
295003 Partial or Complete Loss of AC / 6			0 4				Ground isolation	3	1	
295004 Partial or Total Loss of DC Pwr / 6		0 3					D.C. bus loads	3.3	1	
295005 Main Turbine Generator Trip / 3				0 7			A.C. electrical distribution	3.3	1	
295006 SCRAM / 1					0 4		Reactor pressure	4.1	1	
295016 Control Room Abandonment / 7				0 4			A.C. electrical distribution	3.1	1	
295018 Partial or Total Loss of CCW / 8						01.1 4	Knowledge of system status criteria which require the notification of plant personnel.	2.5	1	
295019 Partial or Total Loss of Inst. Air / 8		0 3				01.0 2	Reactor feedwater; Knowledge of operator responsibilities during all modes of plant operation.	3.2; 3	2	
295021 Loss of Shutdown Cooling / 4					0 5		Reactor vessel metal temperature	3.4	1	
295023 Refueling Acc / 8			0 2				interlocks associated with fuel handling equipment	3.4	1	
295024 High Drywell Pressure / 5		1 5					Containment spray logic: Plant-Specific	3.8	1	
295025 High Reactor Pressure / 3						01.0 3	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	1	
295026 Suppression Pool High Water Temp. / 5					0 2		Suppression pool level	3.8	1	
295027 High Containment Temperature / 5							Not Applicable		0	
295028 High Drywell Temperature / 5	0 1						Reactor water level measurement	3.5	1	
295030 Low Suppression Pool Wtr Lvl / 5						01.2 5	Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.	2.8	1	
295031 Reactor Low Water Level / 2					0 3		Reactor pressure	4.2	1	
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1				0 4			SBLC	4.5	1	
295038 High Off-site Release Rate / 9	0 2						Protection of the general public	4.2	1	
600000 Plant Fire On Site / 8			0 4				Actions contained in the abnormal procedure for plant fire on site	2.8	1	
K/A Category Totals:	3	3	3	3	4	4	Group Point Total:		20	

ES-401		BWR Examination Outline							Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
295002 Loss of Main Condenser Vac / 3		0 6					Condensate system	2.6	1	
295007 High Reactor Pressure / 3									0	
295008 High Reactor Water Level / 2									0	
295009 Low Reactor Water Level / 2									0	
295010 High Drywell Pressure / 5						04 04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4	1	
295011 High Containment Temp / 5									0	
295012 High Drywell Temperature / 5									0	
295013 High Suppression Pool Temp. / 5									0	
295014 Inadvertent Reactivity Addition / 1									0	
295015 Incomplete SCRAM / 1				0 5			Rod worth minimizer: Plant-Specific	2.5	1	
295017 High Off-site Release Rate / 9	0 2						Protection of the general public	3.8	1	
295020 Inadvertent Cont. Isolation / 5 & 7									0	
295022 Loss of CRD Pumps / 1									0	
295029 High Suppression Pool Wtr Lvl / 5									0	
295032 High Secondary Containment Area Temperature / 5									0	
295033 High Secondary Containment Area Radiation Levels / 9					0 2		Equipment operability	3.1	1	
295034 Secondary Containment Ventilation High Radiation / 9				0 2			Process radiation monitoring system	3.9	1	
295035 Secondary Containment High Differential Pressure / 5									0	
295036 Secondary Containment High Sump/Area Water Level / 5			0 4				Pumping secondary containment sumps	3.1	1	
500000 High CTMT Hydrogen Conc. / 5									0	
K/A Category Totals:	1	1	1	2	1	1	Group Point Total:		7	

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)										Form ES-401-1			
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection Mode	0 8	0 1										A.C. electrical power; Pumps	3.5; 3.5	2
205000 Shutdown Cooling							0 3					Recirculation loop temperatures	3.3	1
206000 HPCI						0 2				0 2		D.C. power: BWR-2, 3, 4; Flow controller: BWR-2, 3, 4	3.3; 4	2
207000 Isolation (Emergency) Condenser				0 2								Automatic initiation: BWR-2, 3	4.2	1
209001 LPCS					0 1							Indications of pump cavitation	2.6	1
209002 HPCS												Not Applicable		0
211000 SLC							0 4					Valve operations	3.6	1
212000 RPS				0 1								System redundancy and reliability	3.4	1
215003 IRM									0 1			Meters and recorders	3.3	1
215004 Source Range Monitor									0 3			RPS status	3.6	1
215005 APRM / LPRM		0 2										APRM channels	2.6	1
217000 RCIC												Not Applicable		0
218000 ADS											01, 23	Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
223002 PCIS/Nuclear Steam Supply Shutoff	2 0											A.C. distribution: Plant-Specific	2.8	1
239002 SRVs						0 3						A.C. power: Plant-Specific	2.7	1
259002 Reactor Water Level Control												Loss of any number of main steam flow inputs	3.3	1
261000 SGTS			0 5			0 4						Secondary containment radiation/ contamination levels; Process radiation monitoring	3.2; 2.9	2
262001 AC Electrical Distribution					0 2							Breaker control; Knowledge of system purpose and/or function.	2.6; 2.8	2
262002 UPS (AC/DC)									0 1			Transfer from preferred to alternate source	2.8	1
263000 DC Electrical Distribution			0 2									Components using D.C. control power (i.e. breakers)	3.5	1
264000 EDGs										0 5		Transfer of emergency generator (with load) to grid	3.6	1
300000 Instrument Air				0 2								Cross-over to other air systems	3	1
400000 Component Cooling Water											01, 32	High/low surge tank level; Ability to explain and apply system limits and precautions.	2.8; 3.4	2
														0
K/A Category Totals:	2	2	2	3	2	3	2	2	3	2	3	Group Point Total:		26

ES-401	BWR Examination Outline													Form ES-401-1	
Plant Systems - Tier 2/Group 2 (RO)															
E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)		IR	#
201001 CRD Hydraulic															0
201002 RMCS															0
201003 Control Rod and Drive Mechanism															0
201004 RSCS															0
201005 RCIS															0
201006 RWM															0
202001 Recirculation		0 2											MG sets: Plant-Specific	3.2	1
202002 Recirculation Flow Control					0 1								Fluid coupling: BWR-3, 4	2.8	1
204000 RWCU									0 5				Reactor water temperature	2.8	1
214000 RPIS			0 3										RMCS: Plant-Specific	3.1	1
215001 Traversing In-core Probe															0
215002 RBM															0
216000 Nuclear Boiler Inst.										0 2			Channel select controls	3.3	1
219000 RHR/LPCI: Torus/Pool Cooling Mode								0 4					Valve openings	3.1	1
223001 Primary CTMT and Aux.															0
226001 RHR/LPCI: CTMT Spray Mode															0
230000 RHR/LPCI: Torus/Pool Spray Mode							0 9						Emergency generator loading	3.3	1
233000 Fuel Pool Cooling/Cleanup															0
234000 Fuel Handling Equipment															0
239001 Main and Reheat Steam															0
239003 MSIV Leakage Control															0
241000 Reactor/Turbine Pressure Regulator															0
245000 Main Turbine Gen. / Aux.						0 5							Stator water cooling	2.9	1
256000 Reactor Condensate		0 1											System pumps	2.7	1
259001 Reactor Feedwater															0
268000 Radwaste												01 26	Knowledge of the purpose and function of major system components and controls.	3.2	1
271000 Offgas															0
272000 Radiation Monitoring															0
286000 Fire Protection		0 9											Emergency generator rooms: Plant-Specific	3.2	1
288000 Plant Ventilation															0
290001 Secondary CTMT															0
290003 Control Room HVAC					0 1								System initiations/reconfiguration: Plant-Specific	3.1	1
290002 Reactor Vessel Internals															0
K/A Category Totals:	1	2	1	1	1	1	1	1	1	1	1	1	Group Point Total:		12

ES-401	BWR Examination Outline							Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						04.48	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4	1
295003 Partial or Complete Loss of AC / 6									0
295004 Partial or Total Loss of DC Pwr / 6					04		System lineups	3.3	1
295005 Main Turbine Generator Trip / 3									0
295006 SCRAM / 1									0
295016 Control Room Abandonment / 7									0
295018 Partial or Total Loss of CCW / 8									0
295019 Partial or Total Loss of Inst. Air / 8									0
295021 Loss of Shutdown Cooling / 4					02		RHR/shutdown cooling system flow	3.4	1
295023 Refueling Acc / 8									0
295024 High Drywell Pressure / 5									0
295025 High Reactor Pressure / 3									0
295026 Suppression Pool High Water Temp. / 5					03		Reactor pressure	4	1
295027 High Containment Temperature / 5									0
295028 High Drywell Temperature / 5									0
295030 Low Suppression Pool Wtr Lvl / 5						02.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
295031 Reactor Low Water Level / 2						04.04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1									0
295038 High Off-site Release Rate / 9									0
600000 Plant Fire On Site / 8						04.25	Knowledge of fire protection procedures.	3.4	1
K/A Category Totals:	0	0	0	0	3	4	Group Point Total:		7

ES-401		BWR Examination Outline							Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
295002 Loss of Main Condenser Vac / 3					0 4		Offgas system flow	2.9	1	
295007 High Reactor Pressure / 3									0	
295008 High Reactor Water Level / 2									0	
295009 Low Reactor Water Level / 2									0	
295010 High Drywell Pressure / 5									0	
295011 High Containment Temp / 5									0	
295012 High Drywell Temperature / 5									0	
295013 High Suppression Pool Temp. / 5					0 1		Suppression pool temperature	4	1	
295014 Inadvertent Reactivity Addition / 1									0	
295015 Incomplete SCRAM / 1									0	
295017 High Off-site Release Rate / 9									0	
295020 Inadvertent Cont. Isolation / 5 & 7									0	
295022 Loss of CRD Pumps / 1									0	
295029 High Suppression Pool Wtr Lvl / 5									0	
295032 High Secondary Containment Area Temperature / 5									0	
295033 High Secondary Containment Area Radiation Levels / 9						03.1 0	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1	
295034 Secondary Containment Ventilation High Radiation / 9									0	
295035 Secondary Containment High Differential Pressure / 5									0	
295036 Secondary Containment High Sump/Area Water Level / 5									0	
500000 High CTMT Hydrogen Conc. / 5									0	
K/A Category Totals:	0	0	0	0	2	1	Group Point Total:		3	

ES-401	BWR Examination Outline										Form ES-401-1			
Plant Systems - Tier 2/Group 1 (SRO)														
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection														0
205000 Shutdown Cooling Mode														0
206000 HPCI								1				Loss of control oil pressure: BWR-2, 3, 4	3.5	1
207000 Isolation (Emergency) Condenser														0
209001 LPCS								0				Inadequate system flow	3.2	1
209002 HPCS														0
211000 SLC											02.12	Knowledge of surveillance procedures.	3.4	1
212000 RPS														0
215003 IRM														0
215004 Source Range Monitor											01.12	Ability to apply technical specifications for a system.	4	1
215005 APRM / LPRM														0
217000 RCIC														0
218000 ADS														0
223002 PCIS/Nuclear Steam Supply Shutoff														0
239002 SRVs														0
259002 Reactor Water Level Control														0
261000 SGTS														0
262001 AC Electrical Distribution														0
262002 UPS (AC/DC)														0
263000 DC Electrical Distribution														0
264000 EDGs								0				Loss of A.C. power	4.1	1
300000 Instrument Air														0
400000 Component Cooling Water														0
K/A Category Totals:	0	0	0	0	0	0	0	0	0	0	2	Group Point Total:		5

ES-401	BWR Examination Outline										Form ES-401-1			
Plant Systems - Tier 2/Group 2 (SRO)														
E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														0
201002 RMCS														0
201003 Control Rod and Drive Mechanism														0
201004 RSCS														0
201005 RCIS														0
201006 RWM														0
202001 Recirculation												02.22 Knowledge of limiting conditions for operations and safety limits.	4.1	1
202002 Recirculation Flow Control														0
204000 RWCU														0
214000 RPIS														0
215001 Traversing In-core Probe														0
215002 RBM														0
216000 Nuclear Boiler Inst.														0
219000 RHR/LPCI: Torus/Pool Cooling Mode														0
223001 Primary CTMT and Aux.												High drywell pressure	4.3	1
226001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode														0
233000 Fuel Pool Cooling/Cleanup														0
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control														0
241000 Reactor/Turbine Pressure Regulator												04.07 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.4	1
245000 Main Turbine Gen. / Aux.														0
256000 Reactor Condensate														0
259001 Reactor Feedwater														0
268000 Radwaste														0
271000 Offgas														0
272000 Radiation Monitoring														0
286000 Fire Protection														0
288000 Plant Ventilation														0
290001 Secondary CTMT														0
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
K/A Category Totals:	0	0	0	0	0	0	0	0	1	0	0	2	Group Point Total:	3

Facility Name:Dresden		Date of Exam:3/3/08		RO		SRO-Only	
Category	K/A #	Topic	IR	#	IR	#	
1. Conduct of Operations	2.1. 10	Knowledge of conditions and limitations in the facility license.	2.7	1			
	2.1. 17	Ability to make accurate, clear and concise verbal reports.	3.5	1			
	2.1. 24	Ability to obtain and interpret station electrical and mechanical drawings.	2.8	1			
	2.1.						
	2.1. 22	Ability to determine Mode of Operation.			3.3	1	
	2.1. 33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.			4	1	
	Subtotal				3		2
2. Equipment Control	2.2. 26	Knowledge of refueling administrative requirements.	2.5	1			
	2.2. 34	Knowledge of the process for determining the internal and external effects on core reactivity.	2.8	1			
	2.2.						
	2.2.						
	2.2. 11	Knowledge of the process for controlling temporary changes.			3.4	1	
	2.2. 23	Ability to track limiting conditions for operations.			3.8	1	
Subtotal				2		2	
3. Radiation Control	2.3. 04	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	2.5	1			
	2.3. 10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1			
	2.3.						
	2.3.						
	2.3.						
	2.3. 11	Ability to control radiation releases.			3.2	1	
Subtotal				2		1	
4. Emergency Procedures / Plan	2.4. 01	Knowledge of EOP entry conditions and immediate action steps.	4.3	1			
	2.4. 10	Knowledge of annunciator response procedures.	3	1			
	2.4. 15	Knowledge of communications procedures associated with EOP implementation.	3	1			
	2.4.						
	2.4. 06	Knowledge symptom based EOP mitigation strategies.			4	1	
	2.4. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.			4	1	
	Subtotal				3		2
Tier 3 Point Total					10		7