2010 DRESDEN NUCLEAR POWER STATION

INITIAL EXAMINATION

OUTLINE SUBMITTAL

Exelon Generation Company, LLC
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450-9765

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Exelon Nuclear

November 13, 2009

NOV 06 2009

SVPLTR: #09-0051

Regional Administrator, Region III
U. S. Nuclear Regulatory Commission
2443 Warrenville Road
Lisle, IL 60532-4352

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
Docket Nos. 50-237 and 50-249

Subject: Submittal of Initial Operator Licensing Examination Outlines

Enclosed are the examination outlines supporting the Initial License Examination at Dresden Nuclear Power Station. The examinations are scheduled for the weeks of March 08, 2010 through March 19, 2010.

This submittal includes all appropriate Examination Standard forms and outlines in accordance with NUREG-1021, "Operator Licensing Examination Standards", revision 9 supplement 1.

In accordance with NUREG 1021, Revision 9, supplement 1, Section ES-201, "Initial Operator Licensing Examination Process," please ensure that these materials are withheld from public disclosure until after the examinations are complete.

Should you have any questions concerning this letter, please contact Ms. Marri Marchionda, Regulatory Assurance Manager, at 815-416-2800. For questions concerning examination outlines, please contact Mr. Frank Ferrero at 815-416-2620.

Respectfully,

Tim Hanley
Site Vice President
Dresden Nuclear Power Station

NOV 06 2009

Enclosures: (Hand delivered to Chief Examiner Region III)

Examination Security Agreements (Form ES-201-3)
Administrative Topics Outline (Form ES-301-1)
Control Room/In-Plant Systems Outline (Form ES-301-2)
BWR Examination Outline (Forms ES-401-1)
Generic Knowledge and Abilities Outline (Tier 3) (Form ES-401-3)
Scenario Outlines (Form ES-D-1)
Record of Rejected K/As (Form ES-401-4)
Examination Outline Quality Checklist (Form ES-201-2)
Transient and Event Checklist (Form ES-301-5)

cc: (without enclosures)
Chief, NRC Operator Licensing Branch
NRC Senior Resident Inspector - Dresden Nuclear Power Station

NOV 06 2009

Facility: Dresden		Date of Examination: 3/8/10		
Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.			
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.			
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: ✓(1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form ✓(2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) ✓(4) the number of new or modified tasks meets or exceeds the minimums specified on the form ✓(5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: ✓(1) the tasks are distributed among the topics as specified on the form ✓(2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name / Signature	Date
a. Author	FRANK FERRERO	10-29-9
b. Facility Reviewer (*)	GLEN MORROW	10-30-09
c. NRC Chief Examiner (#)	CARL MOORE	11/12/09
d. NRC Supervisor	Hironori Peterson	11/12/09

NOTE: # Independent NRC Reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines.

Facility: Dresden Date of Examination: 3/8/10

Examination Level: RO ☒ SRO ☐ Operating Test Number: 2010-301

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, S	Perform Assist NSO Daily Log For U1 and 2/3 Condensate Storage Tank Inventory Calculations Generic.2.1.18
Conduct of Operations	D, P, R	Verify Acceptance Criteria Met For Accoustic Monitor Generic.2.1.7
Equipment Control	N, R	Review Security Diesel Generator Loaded Surveillance Generic.2.2.12
Radiation Control	M, R	Select Personnel For Radiation Work Generic.2.3.4
Emergency Procedures/Plan		

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: Dresden Date of Examination: 3/8/10

Examination Level: RO ☐ SRO ☒ Operating Test Number: 2010-301

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, P, R	Reactivation Of An SRO License Generic.2.1.4
Conduct of Operations	N, R	Authorize a Waiver of 10 CFR 26 Work Hour Limits Generic.2.1.5
Equipment Control	D, R	Verify Semi-Annual HRSS AFU Operability Test Generic.2.2.12
Radiation Control	M, R	Select Personnel For Radiation Work Generic.2.3.4
Emergency Procedures/Plan	N, S	Determine Emergency Classification And Fill Out NARS Form 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: Dresden	Date of Examination: 3/8/10
Exam Level: RO ☒ SRO-I ☐ SRO-U ☐	Operating Test Number: 2010-301

Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. RECIRC - Shutdown Pump (202001.A4.01)	D, L, S	1
b. CORE SPRAY - Perform Pump Surveillance Test, With Pump Trip (209001.A4.01)	A, D, L, S	2
c. MAIN STEAM - Unisolate One Line Using Preferred Method (239001.A4.01)	D, S	3
d. ISO COND - Startup, With Failure Of The M/U System (207000.A4.01)	A, D, P, S	4
e. PCIS - Verify Group 2 Isolation, With Incomplete Isolation (223002.A4.01)	A, L, M, S	5
f. EDG - Perform Surveillance Testing, With Scram (264000.A4.05)	A, D, S	6
g. TIPS - Perform TIP Test in Manual Mode (215001.A4.03)	N, S	7
h. SBGT - Post Maintenance Testing, With Auto Initiation (261000.A2.13)	A, D, P, S	9
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. CRD - Vent Scram Air Header (295037.A1.05)	E, D, R	1
j. ISO COND - Valve In Local Sightglass (207000.A3.01)	D, R	4
k. AUX POWER - Rack Out 4KV Breaker (262001.G.4.35)	D	6

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 ✓ / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 ✓ / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 ✓ / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 ✓ / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 ✓ / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 ✓ / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 ✓ / ≥ 1 / ≥ 1
(S)imulator	

Facility: Dresden Date of Examination: 3/8/10

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test Number: 2010-301

Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b. CORE SPRAY - Perform Pump Surveillance Test, With Pump Trip (209001.A4.01)	A, D, L, S	2
c. MAIN STEAM - Unisolate One Line Using Preferred Method (239001.A4.01)	D, S	3
d. ISO COND - Startup, With Failure Of The M/U System (207000.A4.01)	A, D, P, S	4
e. PCIS - Verify Group 2 Isolation, With Incomplete Isolation (223002.A4.01)	A, L, M, S	5
f. EDG - Perform Surveillance Testing, With Scram (264000.A4.05)	A, D, S	6
g. TIPS - Perform TIP Test in Manual Mode (215001.A4.03)	N, S	7
h. SBGT - Post Maintenance Testing, With Auto Initiation (261000.A2.13)	A, D, P, S	9
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. CRD - Vent Scram Air Header (295037.A1.05)	E, D, R	1
j. ISO COND - Valve In Local Sightglass (207000.A3.01)	D, R	4
k. AUX POWER - Rack Out 4KV Breaker (262001.G.4.35)	D	6

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Dresden Date of Examination: 3/8/10

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test Number: 2010-301

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b. CORE SPRAY - Perform Pump Surveillance Test, With Pump Trip (209001.A4.01)	A, D, EN, L, S	2
c.		
d. ISO COND - Startup, With Failure Of The M/U System (207000.A4.01)	A, D, P, S	4
e. PCIS - Verify Group 2 Isolation, With Incomplete Isolation (223002.A4.01)	A, L, M, S	5
f.		
g.		
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. CRD - Vent Scram Air Header (295037.A1.05)	E, D, R	1
j.		
k. AUX POWER - Rack Out 4KV Breaker (262001.G.4.35)	D	6

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3✓
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4✓
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1✓
(EN)gineered safety feature	- / - / ≥ 1✓ (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1✓
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1✓
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2✓ (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1✓
(S)imulator	

ES-301 Transient and Event Checklist Form ES-301-5

Facility: Dresden | Date of Exam: 3/8/10 | Operating Test Number: 2010-301

APPLICANT	EVENT TYPE	Scenarios 1 CREW POSITION SRO	1 ATC	1 BOP	2 SRO	2 ATC	2 BOP	3 SRO	3 ATC	3 BOP	4 SRO	4 ATC	4 BOP	TOTAL	MINIMUM(*) R	I	U
SRO-I #1 #4 ☒	RX	1												1	1	1	0
	NOR	2												1	1	1	1
	I/C	3, 4 5, 6				1, 2, 4								7	4	4	2
	MAJ	7, 8				7, 8				7, 8				6	2	2	1
	TS	4, 6												2	0	2	2
SRO-I #2 #5 ☒	RX		1											1	1	1	0
	NOR							1						1	1	1	1
	I/C		4, 5				3, 5, 6	2, 4						7	4	4	2
	MAJ		7, 8				7, 8	5, 6						6	2	2	1
	TS							3, 4						2	0	2	2
SRO-I #3 #6 ☒	RX													0	1	1	0
	NOR			2					1					2	1	1	1
	I/C			3, 6	1, 2, 3 4, 5, 6				2, 4					10	4	4	2
	MAJ			7, 8	7, 8				5, 6					6	2	2	1
	TS				3, 4									2	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient in the ATC position. If an Instant SRO additionally serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

ES-301 Transient and Event Checklist Form ES-301-5

Facility: Dresden | Date of Exam: 3/8/10 | Operating Test Number: 2010-301

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO #1 ☒	RX		1											1	1	1	0
	NOR													0	1	1	1
	I/C		4, 5				3, 5, 6							5	4	4	2
	MAJ		7, 8				7, 8							4	2	2	1
	TS													0	0	2	2
RO #2 ☒	RX													0	1	1	0
	NOR			2										1	1	1	1
	I/C			3, 6		1, 2, 4								5	4	4	2
	MAJ			7, 8		7, 8								4	2	2	1
	TS													0	0	2	2
SRO-U ☒	RX	1												1	1	1	0
	NOR	2												1	1	1	1
	I/C	3, 4 5, 6			1, 2, 3 4, 5, 6									9	4	4	2
	MAJ	7, 8			7, 8									4	2	2	1
	TS	4, 6			3, 4									4	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient in the ATC position. If an Instant SRO additionally serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility Name: Dresden Date of Exam: 3/8/10

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	4	3	3	N/A			4	3	N/A		3	20	4		3		7		
	2	1	1	1				2	1			1	7	2		1		3		
	Tier Totals	5	4	4				6	4			4	27	6		4		10		
2. Plant Systems	1	3	3	2	3	2	2	2	3	2	2	2	26	3		2		5		
	2	1	1	1	1	1	2	1	1	1	1	1	12	0	2	1		3		
	Tier Totals	4	4	3	4	3	4	3	4	3	3	3	38	5		3		8		
3. Generic Knowledge and Abilities Categories		1		2		3		4		10		1	2	3	4	7				
		3		3		2		2				2	2	2	1					

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 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 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. 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' 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					03		Actual core flow	3.3	1
295003 Partial or Complete Loss of AC / 6		04					A.C. electrical loads	3.4	1
295004 Partial or Total Loss of DC Pwr / 6	04						Effect of battery discharge rate on capacity	2.8	1
295005 Main Turbine Generator Trip / 3		08					A.C. electrical distribution.:	3.2	1
295006 SCRAM / 1				04			Recirculation system	3.1	1
295016 Control Room Abandonment / 7						01.20	Ability to interpret and execute procedure steps.	4.6	1
295018 Partial or Total Loss of CCW / 8					05		System pressure	2.9	1
295019 Partial or Total Loss of Inst. Air / 8						01.30	Ability to locate and operate components, including local controls.	4.4	1
295021 Loss of Shutdown Cooling / 4				04			Alternate heat removal methods	3.7	1
295023 Refueling Acc / 8	01						Radiation exposure hazards	3.6	1
295024 High Drywell Pressure / 5			06				Reactor SCRAM	4.0	1
295025 High Reactor Pressure / 3						04.04	Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	4.5	1
295026 Suppression Pool High Water Temp. / 5			01				Emergency/normal depressurization	3.8	1
295027 High Containment Temperature / 5							Not Applicable to Dresden		0
295028 High Drywell Temperature / 5				01			Drywell spray: Mark-I&II	3.8	1
295030 Low Suppression Pool Wtr Lvl / 5					01		Suppression pool level	4.1	1
295031 Reactor Low Water Level / 2	02						Natural circulation: Plant-Specific	3.8	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1			05				Cold shutdown boron weight: Plant-Specific	3.2	1
295038 High Off-site Release Rate / 9	03						Meteorological effects on off-site release	2.8	1
600000 Plant Fire On Site / 8		03					Motors	2.5	1
700000 Generator Voltage and Electric Grid Disturbances / 6				01			Grid frequency and voltage	3.6	1
K/A Category Totals:	4	3	3	4	3	3	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
295007 High Reactor Pressure / 3	01						Pump shutoff head	2.9	1
295008 High Reactor Water Level / 2									0
295009 Low Reactor Water Level / 2									0
295010 High Drywell Pressure / 5				02			Drywell floor and equipment drain sumps	3.6	1
295011 High Containment Temp / 5							Not Applicable to Dresden		0
295012 High Drywell Temperature / 5		01					Drywell ventilation	3.4	1
295013 High Suppression Pool Temp. / 5									0
295014 Inadvertent Reactivity Addition / 1									0
295015 Incomplete SCRAM / 1									0
295017 High Off-site Release Rate / 9						01.14	Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.	3.1	1
295020 Inadvertent Cont. Isolation / 5 & 7									0
295022 Loss of CRD Pumps / 1				01			CRD hydraulic system	3.1	1
295029 High Suppression Pool Wtr Lvl / 5									0
295032 High Secondary Containment Area Temperature / 5					02		Equipment operability	3.3	1
295033 High Secondary Containment Area Radiation Levels / 9			04				Personnel evacuation	4.0	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:	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		
System # / Name	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	1 3											Drywell pressure	3.9	1
205000 Shutdown Cooling										0 1		SDC/RHR pumps	3.7	1
206000 HPCI		0 4						0 9				Turbine control circuits: BWR-2, 3, 4; Low condensate storage tank level: BWR-2, 3, 4	2.5; 3.5	2
207000 Isolation (Emergency) Condenser				0 3							01. 31	Filling of the system: BWR-2, 3; Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	3.3; 4.6	2
209001 LPCS						0 1						A.C. power	3.4	1
209002 HPCS												Not Applicable to Dresden		0
211000 SLC								0 5				Loss of SBLC tank heaters	3.1	1
212000 RPS		0 1										RPS motor-generator sets	3.2	1
215003 IRM			0 5									APRM: Plant-Specific	3.7	1
215004 Source Range Monitor						0 2						24/48 volt D.C. power	3.1	1
215005 APRM / LPRM							0 7				01. 27	APRM (gain adjustment factor); Knowledge of system purpose and/or function.	3; 3.9	2
217000 RCIC												Not Applicable to Dresden		0
218000 ADS					0 1							ADS logic operation	3.8	1
223002 PCIS/Nuclear Steam Supply Shutoff									0 1			System indicating lights and alarms	3.4	1
239002 SRVs			0 2									Reactor over pressurization	4.2	1
259002 Reactor Water Level Control								0 5				Loss of applicable plant air systems	3.2	1
261000 SGTS							0 2					Primary containment pressure	3.1	1
262001 AC Electrical Distribution	0 3											Off-site power sources	3.4	1
262002 UPS (AC/DC)				0 1								Transfer from preferred power to alternate power supplies	3.1	1
263000 DC Electrical Distribution	0 4											Ground detection	2.6	1
264000 EDGs				0 1	0 6							Emergency generator trips (normal); Load sequencing	3.5; 3.4	2
300000 Instrument Air		0 1							0 2			Instrument air compressor; Air temperature	2.8; 2.9	2
400000 Component Cooling Water										0 1		CCW indications and control	3.1	1
														0
K/A Category Totals:	3	3	2	3	2	2	2	3	2	2	2	Group Point Total:		26

ES-401	BWR Examination Outline											Form ES-401-1		
	Plant Systems - Tier 2/Group 2 (RO)													
System # / Name	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	#
201001 CRD Hydraulic								01				Pumps trips	3.2	1
201002 RMCS														0
201003 Control Rod and Drive Mechanism														0
201004 RSCS												Not Applicable to Dresden		0
201005 RCIS												Not Applicable to Dresden		0
201006 RWM							03					Latched group indication: P-Spec(Not-BWR6)	2.9	1
202001 Recirculation										06		Oil pumps	2.7	1
202002 Recirculation Flow Control														0
204000 RWCU														0
214000 RPIS														0
215001 Traversing In-core Probe				01								Primary containment isolation: Mark-I&II(Not-BWR1)	3.4	1
215002 RBM														0
216000 Nuclear Boiler Inst.						01						A.C. electrical distribution	3.1	1
219000 RHR/LPCI: Torus/Pool Cooling Mode														0
223001 Primary CTMT and Aux.					01							Vacuum breaker/relief operation	3.1	1
226001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode														0
233000 Fuel Pool Cooling/Cleanup		02										RHR pumps	2.8	1
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control												Not Applicable to Dresden		0
241000 Reactor/Turbine Pressure Regulator			19									Turbine inlet pressure	2.7	1
245000 Main Turbine Gen. / Aux.														0
256000 Reactor Condensate														0
259001 Reactor Feedwater									01			RFP auto start: Plant-Specific	3.3	1
268000 Radwaste														0
271000 Offgas											01.32	Ability to explain and apply system limits and precautions.	3.8	1
272000 Radiation Monitoring														0
286000 Fire Protection														0
288000 Plant Ventilation	01											A.C. electrical	2.6	1
290001 Secondary CTMT						04						Primary containment system	3.9	1
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
														0
K/A Category Totals:	1	1	1	1	1	2	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									0
295003 Partial or Complete Loss of AC / 6					01		Cause of partial or complete loss of A.C. power	3.7	1
295004 Partial or Total Loss of DC Pwr / 6									0
295005 Main Turbine Generator Trip / 3									0
295006 SCRAM / 1					06		Cause of reactor SCRAM	3.8	1
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									0
295023 Refueling Acc / 8									0
295024 High Drywell Pressure / 5									0
295025 High Reactor Pressure / 3									0
295026 Suppression Pool High Water Temp. / 5					01		Suppression pool water temperature	4.2	1
295027 High Containment Temperature / 5							Not Applicable to Dresden		0
295028 High Drywell Temperature / 5						01. 06	Ability to manage the control room crew during plant transients.	4.8	1
295030 Low Suppression Pool Wtr Lvl / 5									0
295031 Reactor Low Water Level / 2						04. 34	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.	4.1	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1					03		SBLC tank level	4.4	1
295038 High Off-site Release Rate / 9									0
600000 Plant Fire On Site / 8						04. 27	Knowledge of "fire in the plant" procedures.	3.9	1
700000 Generator Voltage and Electric Grid Disturbances / 6									0
K/A Category Totals:	0	0	0	0	4	3	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
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						04. 01	Knowledge of EOP entry conditions and immediate action steps.	4.8	1
295014 Inadvertent Reactivity Addition / 1									0
295015 Incomplete SCRAM / 1					0 1		Reactor power	4.3	1
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									0
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 3		Cause of the high water level	3.8	1
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)

System # / Name	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								1 5				Loop selection logic failure: Plant-Specific	4.2	1
205000 Shutdown Cooling Mode														0
206000 HPCI														0
207000 Isolation (Emergency) Condenser														0
209001 LPCS								0 9				Low suppression pool level	3.3	1
209002 HPCS														0
211000 SLC														0
212000 RPS											04. 29	Knowledge of the emergency plan.	4.4	1
215003 IRM														0
215004 Source Range Monitor														0
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 3				Loss of reactor water level input	3.7	1
261000 SGTS														0
262001 AC Electrical Distribution														0
262002 UPS (AC/DC)														0
263000 DC Electrical Distribution											02. 23	Ability to track Technical Specification limiting conditions for operations.	4.6	1
264000 EDGs														0
300000 Instrument Air														0
400000 Component Cooling Water														0
														0
K/A Category Totals:	0	0	0	0	0	0	0	3	0	0	2	Group Point Total:		5

ES-401	BWR Examination Outline												Form ES-401-1	
	Plant Systems - Tier 2/Group 2 (SRO)													
System # / Name	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	#
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
202002 Recirculation Flow Control														0
204000 RWCU								03				Flow control valve failure	2.9	1
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.														0
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														0
245000 Main Turbine Gen. / Aux.														0
256000 Reactor Condensate								16				High demineralizer differential pressure	2.8	1
259001 Reactor Feedwater														0
268000 Radwaste														0
271000 Offgas														0
272000 Radiation Monitoring														0
286000 Fire Protection											02.05	Knowledge of the process for making design or operating changes to the facility.	3.2	1
288000 Plant Ventilation														0
290001 Secondary CTMT														0
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
														0
K/A Category Totals:	0	0	0	0	0	0	0	2	0	0	1	Group Point Total:		3

Facility Name:Dresden Date of Exam:3/8/10

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1. 07	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.4	1		
	2.1. 13	Knowledge of facility requirements for controlling vital/controlled access.	2.5	1		
	2.1. 18	Ability to make accurate, clear, and concise logs, records, status boards, and reports.	3.6	1		
	2.1.					
	2.1. 37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.			4.6	1
	2.1. 40	Knowledge of refueling administrative requirements.			3.9	1
	Subtotal			3		2
2. Equipment Control	2.2. 02	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.6	1		
	2.2. 13	Knowledge of tagging and clearance procedures.	4.1	1		
	2.2. 41	Ability to obtain and interpret station electrical and mechanical drawings.	3.5	1		
	2.2.					
	2.2. 25	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.			4.2	1
	2.2. 40	Ability to apply Technical Specifications for a system.			4.7	1
	Subtotal			3		2
3. Radiation Control	2.3. 11	Ability to control radiation releases.	3.8	1		
	2.3. 12	Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.2	1		
	2.3.					
	2.3.					
	2.3. 06	Ability to approve release permits.			3.8	1
	2.3. 14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.			3.8	1
	Subtotal			2		2
4. Emergency Procedures / Plan	2.4. 13	Knowledge of crew roles and responsibilities during EOP usage.	4.0	1		
	2.4. 19	Knowledge of EOP layout, symbols, and icons.	3.4	1		
	2.4.					
	2.4.					
	2.4.					
	2.4. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.			4.4	1
	Subtotal			2		1
Tier 3 Point Total				10		7

Scenario Outline

Station: Dresden Generating Station Scenario No.: ILT-N-1 Class ID: 2010-301

Evaluators	Operators	/ crew position
		/ ATC
		/ BOP
		/ CRS

Initial Conditions: 91% power.

Turnover: Lower Power With Recirc Flow.
Switching Orders Received To Remove 345KV L0302 From Service.

Event No.	Malf. No.	Event Type*		Event Description
1	NONE	R	ATC	RECIRC - Lower Reactor Power using Recirculation Flow.
2	NONE	N	BOP	SWITCHYARDS - Remove 345KV L0302 Powerton From Service.
3	N33	C	BOP	INST AIR - Instrument Air Compressor Trip.
4	RDFAILF5	I	ATC	CRD - RPIS failure for rod F-05. [T]
5	RLLMLS	I	ATC	FW - FWLC Controller Drifts High.
6	ICSPDFT	I	BOP	ISO COND - Inadvertent Initiation. [T]
7	NP2	M	TEAM	Instrument Air System Leak / Team Takes a Manual Scram.
8	I21 K23 K40	M	TEAM	Steam Leak inside the Drywell & Loss of Bus 23-1 & 28, Losing Ability to Spray Drywell / Team Emergency Depressurizes.

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

Scenario Outline

Station: Dresden Generating Station Scenario No.: ILT-N-2 Class ID: 2010-301

Evaluators	Operators	/ crew position
		/ ATC
		/ BOP
		/ CRS

Initial Conditions: Full Power.

Turnover: Maintain Power Per BPO Direction.

Event No.	Malf. No.	Event Type*		Event Description
1	RRMASDND	I	ATC	RECIRC - Master Recirc Flow Controller Fails Downscale.
2	RDFILTB	C	ATC	CRD - 2B Pump Suction Filter Plugging, Must Swap.
3	SER1589 SER0710 T18	C	BOP	EDG - Diesel Generator Inop Due to Cooling Water Pump Failure. [T]
4	B15 NVM100BP	I	ATC	NBI - B Med Range Level Inst Fails Low with Partial Half Scram. [T]
5	K50	C	BOP	H2 SEAL OIL – Main Seal Oil Pump Trip / Failure Of Emergency Seal Oil Pump To Auto Start.
6	Q01	C	BOP	RBCCW - Pump Trip.
7	SER1784 WRPPDSH1 SER1735 SER0369 SER0322 RRMPMAHI RRMPMBHI	M	TEAM	Loss of RBCCW System / Team Takes a Manual Scram.
8	B12 SER1026 SER1060 AW4	M	TEAM	ATWS - Electrical, ARI Unsuccessful / Team Takes Actions To Insert Rods.

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

Scenario Outline

Station: Dresden Generating Station Scenario No.: ILT-N-3 Class ID: 2010-301

Evaluators	Operators	/ crew position
		/ ATC
		/ BOP
		/ CRS

Initial Conditions: 2% Power
Startup On Hold For REMA Re-evaluation By QNE.

Turnover: Remove 'B' FWRV From Service After Assuming Shift.

Event No.	Malf. No.	Event Type*		Event Description
1	NONE	N	ATC	FW - Remove 'B' FWRV From Service.
2	H21	C	ATC	FW - Cond/Cond Bstr Pump Trip with Failure of Standby to Auto Start.
3	NONE	T	CRS	CONTAINMENT - Secondary Containment Doors Found Open.[T]
4	NII12POT	I	ATC	NI - IRM Channel Fails Upscale with Half Scram. [T]
5	J33	M	TEAM	Loss of EHC System / Team Takes a Manual Scram.
6	F41 RLMFAFC RLMFBFC RLMLFFC	M	TEAM	Recirc System Leak and Loss of All Feedwater Reg Valves / Team Emergency Depressurizes Due to Lowering RPV Level.

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