

**EXAMINATION OUTLINE SUBMITTAL AND COMMENTS
FOR THE DRESDEN INITIAL EXAMINATION - MARCH 2008**

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

www.exeloncorp.com

October 17, 2007

SVPLTR 07-0048

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

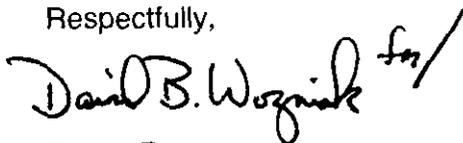
Enclosed are the examination outlines supporting the Initial License Examination at Dresden Nuclear Power Station. The examinations are scheduled for the weeks of March 3, 2008 through March 14, 2008.

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

In accordance with NUREG 1021, Revision 9, 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 Mr. Jim Ellis, Regulatory Assurance Manager, at 815-416-2800. For questions concerning examination outlines, please contact Mr. Frank Ferrero at 815-416-2620.

Respectfully,



Danny Bost
Site Vice President
Dresden Nuclear Power Station

OCT 25 2007

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

Facility: Dresden		Date of Examination: 3/3/08		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	7	10	km Z
	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.	7	10	km Z
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	7	10	km Z
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	7	10	km Z
2. S I M U L A T O R	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.	7	10	km Z
	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.	7	10	km Z
	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.	7	10	km Z
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	7	10	km Z
	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	7	10	km Z
	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.	7	10	km Z
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	7	10	km Z
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	7	10	km Z
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	7	10	km Z
	d. Check for duplication and overlap among exam sections.	7	10	km Z
	e. Check the entire exam for balance of coverage.	7	10	km Z
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	7	10	km Z

	Printed Name / Signature	Date
a. Author	<u>FRANK FERRERA</u>	<u>10-15-07</u>
b. Facility Reviewer (*)	<u>HAL DOOD</u>	<u>10-15-07</u>
c. NRC Chief Examiner (#)	<u>David W. Reesor</u> / <u>John R. McNally</u> / <u>Gregory M. Child</u>	<u>10-30-07</u>
d. NRC Supervisor	<u>Hiroaki Peterson</u>	<u>10/30/07</u>

NOTE: # Independent NRC Reviewer initial items in Column "c"; chief examiner concurrence required.

COPY

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 3/3/08 + 3/11/08 of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Frank Ferrero	Instructor/Exam Author	[Signature]	10-8-07		
2.	HAL DODD	Operations Serv Mgr / Fac Rep	[Signature]	10/15/07		
3.	Joe Rugh	OTPS	[Signature]	10/16/07		
4.	Michael Parcell	Contractor/Exam Author	[Signature]	10/21/07		
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

NOTES:

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.2.1.25
Equipment Control	N, S	Verify Reversal of Diesel Generator Cooling Water Flow Generic.2.2.12
Radiation Control	D, P, S	CCSW Activity Calculation Generic.2.3.11
Emergency 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: <ul style="list-style-type: none"> (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: <u>Dresden</u>		Date of Examination: <u>3/3/08</u>
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: <u>Dresden</u>		Date of Examination: <u>3/3/08</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>2008-301</u>
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. Injection of SBLC System (211000.A4.08)	A, D, P, S	1
b. Start and Secure a Reactor Feed Pump (259001.A4.02)	A, N, S	2
c. Perform an Emergency Depressurization (218000.A4.01)	A, D, S	3
d. Shutdown The Isolation Condenser (207000.A4.05)	D, S	4
e. Verify Spurious Group 3 Isolation (223002.A4.01)	A, D, L, S	5
f. Crosstie Bus 23-1 and Bus 33-1 (262001.A4.01)	N, S	6
g. Drive TIP Detectors to Isolation Position (215001.A4.03)	A, D, P, S	7
h. Start SBT System (261000.A4.02)	D, L, S	9
In-Plant Systems [®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Locally Pull ARI Fuses to Reset ATWS/ARI Circuit (295037.EA1.03)	D, E	1
j. Manual Fill of Unit 2 EDG Day Tank (Generic.2.1.30)	D, R	6
k. Valve in Control Room Emergency Breathing Air Supply (600000.A2.10)	D	8
© 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	
(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: <u>Dresden</u>		Date of Examination: <u>3/3/08</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>2008-301</u>
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. Injection of SBLC System (211000.A4.08)	A, D, P, S	1
b. Start and Secure a Reactor Feed Pump (259001.A4.02)	A, N, S	2
c.		
d. Shutdown The Isolation Condenser (207000.A4.05)	D, S	4
e. Verify Spurious Group 3 Isolation (223002.A4.01)	A, D, L, S	5
f. Crosstie Bus 23-1 and Bus 33-1 (262001.A4.01)	N, S	6
g. Drive TIP Detectors to Isolation Position (215001.A4.03)	A, D, P, S	7
h. Start SBT System (261000.A4.02)	D, L, S	9
In-Plant Systems [®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Locally Pull ARI Fuses to Reset ATWS/ARI Circuit (295037.EA1.03)	D, E	1
j. Manual Fill of Unit 2 EDG Day Tank (Generic.2.1.30)	D, R	6
k. Valve in Control Room Emergency Breathing Air Supply (600000.A2.10)	D	8
@ 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	
(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: 3/3/08				Operating Test Number: 2008-301											
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	
<input checked="" type="checkbox"/> RO	RX		1											1	1	1	0
<input checked="" type="checkbox"/> SRO-I	NOR											1		1	1	1	1
<input type="checkbox"/> SRO-U	I/C		2,4				3,4,6					3,5		7	4	4	2
<input type="checkbox"/>	MAJ		7,8				7,8					6,7		6	2	2	1
	TS													0	0	2	2
<input type="checkbox"/> RO	RX	1				1								2	1	1	0
<input type="checkbox"/> SRO-I (Odd)	NOR							1						1	1	1	1
<input checked="" type="checkbox"/> SRO-U	I/C	2,3,4 5,6				2,5		2,3,4,5						11	4	4	2
<input type="checkbox"/>	MAJ	7,8				7,8		6,7						6	2	2	1
	TS	2,5,6						2,3						5	0	2	2
<input type="checkbox"/> RO	RX				1									1	1	1	0
<input type="checkbox"/> SRO-I (Even)	NOR													0	1	1	1
<input checked="" type="checkbox"/> SRO-U	I/C			3,5,6	2,3,4 5,6			2,4						10	4	4	2
<input type="checkbox"/>	MAJ			7,8	7,8			6,7						6	2	2	1
	TS				3,4									2	0	2	2
<input type="checkbox"/> RO	RX														1	1	0
<input type="checkbox"/> SRO-I	NOR														1	1	1
<input type="checkbox"/> SRO-U	I/C														4	4	2
<input type="checkbox"/>	MAJ														2	2	1
	TS														0	2	2

Instructions:

- 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.
- 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.
- 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: 3/3/08																
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	4	3	7		
	2	1	1	2	N/A			1	1	N/A		1	7	2	1	3		
	Tier Totals	4	4	5	N/A			4	5	N/A		5	27	6	4	10		
2. Plant Systems	1	2	2	2	3	2	3	2	2	3	2	3	26	3	2	5		
	2	1	1	1	1	1	2	1	1	1	1	1	12	0	1	3		
	Tier Totals	3	3	3	4	3	5	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						10	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 4						Limiting cycle oscillation: Plant-Specific	2.5	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						02.2 5	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	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 6			Neutron monitoring system	4.1	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 1				Increased drywell cooling	3.5	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	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	2	1	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 4							Heat removal (transfer) mechanisms	2.8	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							0 1					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						01, 27	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							0 2				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	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 1						Select matrix power	2.5	1
201003 Control Rod and Drive Mechanism														0
201004 RSCS														0
201005 RCIS														0
201006 RWM														0
202001 Recirculation														0
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											0 28	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	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						04.49	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					05		Reactor vessel metal temperature	3.3	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					13		Need for emergency plant shutdown	3.8	1	
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 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					01.3 3		Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4	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 5				Loss of control oil pressure: BWR-2, 3, 4	3.5	1
207000 Isolation (Emergency) Condenser														0
209001 LPCS								0 6				Inadequate system flow	3.2	1
209002 HPCS														0
211000 SLC														0
212000 RPS														0
215003 IRM														0
215004 Source Range Monitor											01 33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4	1
215005 APRM / LPRM														0
217000 RCIC														0
218000 ADS														0
223002 PCIS/Nuclear Steam Supply Shutoff														0
239002 SRVs											04 06	Knowledge symptom based EOP mitigation strategies.	4	1
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 6				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	3	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	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												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.								0.7					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												02.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	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	

Facility: <u>Dresden</u>		Scenario No: <u>ILT-N-1</u>		Op-Test No: <u>2008-301</u>
Examiners: _____		Operators: _____		
_____		_____		
_____		_____		
<u>Initial Conditions:</u> Rx Power ~ 2%.				
<u>Turnover:</u> Continue with Unit startup per DGP 1-1.				
Event No.	Malf. No.	Event Type*		Event Description
1	NONE	R	NSO SRO	Raise power using Control Rods
2	RDFAILG2	C	NSO SRO	RPIS Failure For Rod G-02 ^T
3	N33	C	ANSO SRO	Instrument Air Compressor Trip / Start Standby
4	NII12POT	I	NSO SRO	IRM channel fails upscale
5	ADS3BSD ADS3BBN	C	SRO	Target Rock Bellows Failure ^T
6	CSV4A SCAFILOF	C	ANSO SRO	Core Spray System Develops Low Keep Fill Pressure ^T
7	I21	M	TEAM	Steam Leak in Drywell
8	RODST I22	M	TEAM	Several control rods remain withdrawn (ATWS) The leak in drywell gets worse

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

Facility: <u>Dresden</u>		Scenario No: <u>ILT-N-2</u>		Op-Test No: <u>2008-301</u>
Examiners: _____		Operators: _____		
_____		_____		
_____		_____		
<u>Initial Conditions:</u> Rx Power ~ 75%.				
<u>Turnover:</u> Reduce power with Recirc flow per DGP 3-1, to accommodate TSO request.				
Event No.	Malf. No.	Event Type*		Event Description
1	NONE	R	NSO SRO	Reduce power with Recirc flow
2	RDFCFLO	I	NSO SRO	CRD Flow Controller Fails Low
3	SER1589 SER0710 T18	C	ANSO SRO	U2 Emergency Diesel Generator Inoperable due to cooling water pump failure ^T
4	HPINIT	I	ANSO SRO	Spurious HPCI Initiation ^T
5	RDPPATRP	C	NSO SRO	CRD Pump Trip
6	ADS3CBN ADS3CSD	C	ANSO SRO	Spurious ERV Opening
7	H33/H34	M	TEAM	Loss of Feedwater Causing a Manual Scram
8	AT1 NVM100AP NVML29AP NVML29BP NVM106BP NVML112P	M	TEAM	Loss of level indication / Flooding

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

Facility: <u>Dresden</u>		Scenario No: <u>ILT-N-3</u>		Op-Test No: <u>2008-301</u>	
Examiners: _____			Operators: _____		
_____			_____		
_____			_____		
<u>Initial Conditions:</u> Rx Power ~ 90%.					
<u>Turnover:</u> Swap RBCCW Pumps, maintain load per TSO direction.					
Event No.	Malf. No.	Event Type*		Event Description	
1	NONE	N	ANSO SRO	Swap RBCCW pumps	
2	RODL06DI	I	NSO SRO	Control Rod Begins to drift in ^T	
3	PCVDMD14	I	ANSO SRO	Drywell to Torus differential pressure controller failure ^T	
4	RRMASDND	I	NSO SRO	Master Recirc Flow Controller fails downscale	
5	HP6 HP7	C	ANSO SRO	2A circ water pump trip	
6	HP5	M	TEAM	Loss of Main Condenser Vacuum Causing a Manual Scram	
7	CSBRKSEV	M	TEAM	Lowering Torus level from ECCS suction line break	

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

DRESDEN 2008 ILT EXAM OUTLINE COMMENTS

OPERATING TEST

JPMS

ADMIN

1. "Verify Acceptance Criteria Met for the Acoustic Monitor Based on Test Results"
 - The 2007 exam outline had a JPM by the same title. Other than a change in the K/A, what other modifications will be made to make this JPM different?

Modified the components that must be identified with out of specification readings.

2. "Verify Reversal of Emergency Diesel Generator Cooling Water Flow"
 - The 2007 exam outline had a JPM by the same title, but the 2008 exam list this as a NEW JPM.
 - The same K/A has been used on the last three exams for Admin JPMS. This doesn't appear to be a random selection.

K/A (Generic 2.2.12) remained the same but JPM was replaced with "Verify HPCI Discharge Line Temperature Monitoring Calculation".

3. "CCSW Activity Calculation"
 - A JPM by the same title has appeared on the 2006 and 2004 exams. This doesn't appear to be a random selection.

No changes were made.

4. "Determine Emergency Classification"
 - This same JPM, with minor variations, has appeared on the last three exams.

JPM was changed to include completion of NARS form.

CONTROL ROOM/IN-PLANT SYSTEMS

1. "Start SBTG"

- The last three exams have involved operation of operation of SBTG. Suggest finding a different system for this safety function.

JPM was replaced with "Align Charcoal Adsorber Filters in Parallel Mode of Operation [Off Gas System]"

2. "Valve in Control Room Emergency Breathing Air"

- Used in the 2006 exam under a different K/A and Safety Function
- There doesn't appear to be a direct tie between the K/A and the JPM.

K/A was changed to reflect applicability to Safety Function.

3. "Manual Fill of the Unit 2 EDG Day Tank"

- A generic K/A is listed for this JPM. Isn't there a system specific K/A?

JPM was replaced with "Manual Fill of the Unit 3 EDG Day Tank", was written with alternate path and included a system specific K/A.

SIMULATOR SCENARIOS

SCENARIO 1

1. RPIS malfunction has been used on last two exams. Recommend replacing with some other rod control malfunction (e.g., rod withdrawal beyond bank/program position).

Event/malfunction was replaced with "Control Rod Drive Overtravel"

2. Target Rock Bellows failure used on last exam. There are minimal response actions for the BOP operator.

Event/malfunction were eliminated.

SCENARIO 2 (renumbered as scenario 3)

1. Spurious HPCI Initiation was used on 2006 exam. Recommend replacing HPCI failure during performance of a pump surveillance (e.g., pump failure to generate enough flow, HPCI line break due to water hammer, or min flow fail fails open etc)

Event/malfunction replaced with HPCI isolation failure.

2. What is the cause for failure of level indicators? Is there a reasonable common cause?

Event/malfunctions modified by notification (initial condition) of possible circuit card manufacturing defect.

3. Spurious ERV opening was also used in 2006 exam.

Event/malfunction eliminated.

SCENARIO 3 (*renumbered as scenario 2*)

1. Loss of Circ Water/Loss of Vacuum has been used on last two exams.
Recommend initiating loss of vacuum in another manner (e.g., tube plugging, screen clogging, tube failures)

Event/malfunction changed to Cribhouse intake clogging

2. Might be able to tie in a reactivity manipulation (controlled downpower) with degrading plant conditions.

No change made, but will evaluate during validation.

WRITTEN EXAM

No Comments