

FERMI RE-TAKE
INITIAL LICENSE EXAM

OCTOBER 15, 2001

ES-201-2

“Examination Outline Quality Checklist
with the Written Exam Outline”

William T. O'Connor, Jr.
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Detroit Edison



A DTE Energy Company

July 27, 2001
NRC-01-0056

M. E. Bielby
Region III
U. S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, Illinois 60532-4351

Dear Mr. Bielby,

The attached Examination Outline, a computer diskette and hard copy form, are provided in support of the licensing examination at the Fermi 2 Nuclear Power Plant scheduled to commence on October 15, 2001.

The outline was generated in accordance with ES-401, Attachment 1.

Additionally, find attached Form ES-201-1, "Examination Outline Quality Assurance Checklist," with the facility portion completed.

To maintain examination security and integrity, the examination outline shall be withheld from public disclosure until after the examination is complete.

Should you have any questions regarding any aspect of the licensing examinations, please contact Kirk Snyder at (734) 586-4896.

4409

Sincerely,

Attachments

July 2001

Facility:		Date of Examination:		
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 per ES-401.	D	W	MGB
	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.	D	W	MGB
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	D	W	MGB
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	D	W	MGB
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, 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; ensure 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 over successive 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: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.		N/A	
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.			
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.			
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.			
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.	N/A	NA	NA
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	D	W	MGB
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	D	W	MGB
	d. Check for duplication and overlap among exam sections.	N/A	NA	NA
	e. Check the entire exam for balance of coverage.	N/A	NA	NA
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	D	W	MGB
Printed Name / Signature				
a. Author		Michael Dawcet		Date
b. Facility Reviewer (*)		Kirk Snyder		7-25-01
c. NRC Chief Examiner (#)		Michael E Bielby		7-25-01
d. NRC Supervisor		David E. Hillis		8/8/01
Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.				

Facility:		Date of Exam:		Exam Level:		R0							
Tier	Group	K/A Category Points										Point Total	
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4		G *
1. Emergency & Abnormal Plant Evolutions	1	0	3	2				3	2			3	13
	2	4	4	3				2	2			4	19
	3	1	0	2				0	1			0	4
	Tier Totals	5	7	7				5	5			7	36
2. Plant Systems	1	5	3	3	2	3	1	3	3	2	1	2	28
	2	2	2	2	3	3	2	0	1	0	2	2	19
	3	0	0	0	1	0	0	0	1	1	1	0	4
	Tier Totals	7	5	5	6	6	3	3	5	3	4	4	51
3. Generic Knowledge and Abilities						Cat 1	Cat 2	Cat 3	Cat 4				
						5	2	2	4	13			
<p>Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).</p> <p>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 exam must total 100 points.</p> <p>3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.</p> <p>4. Systems/evolutions within each group are identified on the associated outline.</p> <p>5. The shaded areas are not applicable to the category/tier.</p> <p>6.* The generic 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.</p> <p>7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.</p>													

ES-401 BWR RO Examination OutlineForm ES-401-2 (R8, S1)
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
295005 Main Turbine Generator Trip / 3		01					Interrelations with RPS	3.8	1
295006 SCRAM / 1					01		Determine/interpret reactor power	4.5	1
295007 High Reactor Pressure / 3				03			Operate/monitor RCIC	3.4	1
295009 Low Reactor Water Level / 2						x	2.1.12 Ability to apply Tech specs for a system	2.9	1
295010 High Drywell Pressure / 5			02				Increased drywell cooling	3.4	1
295014 Inadvertent Reactivity Addition / 1						x	2.2.34 Knowledge of the process for determining the internal and external effects on core reactivity.	2.8	1
295015 Incomplete SCRAM / 1		07		08			K2.07 - Interrelations with CRD mechanism A1.08 - Operate/monitor Process computer/ERIS/SPDS	3.3 2.7	2
295024 High Drywell Pressure / 5		19					Operational implications of feedwater and condensate	2.9	1
295025 High Reactor Pressure / 3					04		Determine/interpret suppression pool level	3.9	1
295031 Reactor Low Water Level / 2						x	2.4.1 Knowledge of EOP entry conditions and immediate action steps	4.3	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1			01				Reasons for the response of recirc pump trip/runback	4.1	1
500000 High Containment Hydrogen Conc. / 5				02			Operate/monitor primary containment oxygen instrumentation	3.3	1
K/A Category Totals:	0	3	2	3	2	3	Group Point Total:		13

ES-401 BWR RO Examination Outline Form ES-401-2 (R8, S1)
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4		03					Interrelations with reactor water level	3.6	1
295002 Loss of Main Condenser Vacuum / 3		05					Interrelations with feedwater system	2.6	1
295003 Partial or Complete Loss of AC Pwr / 6			06				Reason for the response of containment isolation	3.7	1
295004 Partial or Complete Loss of DC Pwr / 6						x	2.1.28 Knowledge of the purpose and function of major system components and controls	3.2	1
295008 High Reactor Water Level / 2							Not used		
295012 High Drywell Temperature / 5	02					x	2.4.18 Knowledge of the specific bases for EOPs. K1.02 Operation implications of reactor power level control	2.7 3.1	2
295013 High Suppression Pool Temp. / 5						x	2.4.22 bases for prioritizing safety functions during AOP/EOP	3.0	1
295016 Control Room Abandonment / 7					06		Determine /interpret cooldown rate	3.3	1
295017 High Off-site Release Rate / 9	02						Operation implications of protection of the public	3.8	1
295018 Partial or Complete Loss of CCW / 8							Not used		
295019 Part. or Comp. Loss of Inst. Air / 8			03				Reason for the response of service air isolations	3.2	1
295020 Inadvertent Cont. Isolation / 5 & 7		10					Interrelations between drywell equipment/floor drain sumps	2.9	1
295022 Loss of CRD Pumps / 1				02			Operate/monitor RPS	3.6	1
295026 High Suppression Pool Water Temp. / 5							Not used		
295028 High Drywell Temperature / 5					04		Determine /interpret drywell pressure	4.1	1
295029 High Suppression Pool Water Level / 5				04			Operate/monitor RCIC	3.4	1
295030 Low Suppression Pool Water Level / 5	03						Operation implications of heat capacity	3.8	1
295033 High Sec. Cont. Area Rad. Levels / 9						x	2.4.46 ability to verify alarms are consistent with plant conditions	3.5	1
295034 Sec. Cont. Ventilation High Rad. / 9			03				Reason for the response of personnel evacuation	4.0	1
295038 High Off-site Release Rate / 9		09					Interrelations of PASS	2.9	1
600000 Plant Fire On Site / 8	01						Fire classifications by type	2.5	1
K/A Category Point Totals:	4	4	3	2	2	4	Group Point Total:		19

ES-401 BWR RO Examination OutlineForm ES-401-2 (R8, S1)
Emergency and Abnormal Plant Evolutions - Tier 1/Group 3

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
295021 Loss of Shutdown Cooling / 4			02				Knowledge of the reasons for the following: Feeding and bleeding reactor vessel	3.3	1
295023 Refueling Accidents / 8			03				Knowledge of the reasons for the following responses: Ventilation isolation	3.3	1
295032 High Secondary Containment Area Temperature / 5							Not used		
295035 Secondary Containment High Differential Pressure / 5					02		Ability to determine and/or interpret the following : Offsite release rate	2.8	1
295036 Secondary Containment High Sump/Area Water Level / 5	01						Knowledge of the operational implications of the following: Radiation Releases	2.9	1
K/A Category Point Totals:	1		2		1		Group Point Total:		4

ES-401 BWR RO Examination Outline Form ES-401-2 (R8, S1)
Plant Systems - Tier 2/Group 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)	Imp.	Points
201001 CRD Hydraulic	09		02									K1.09 physical connections/relationships with plant air systems K3.02 effect that a loss or malfunction on reactor water level	3.1 2.6	
201002 RMCS	04											connections and/or cause-effect relationships with rod block monitor	3.5	
202002 Recirculation Flow Control						01						effect of a loss or malfunction of of AC power	2.8	
203000 RHR/LPCI: Injection Mode					01			04				K5.01 operation implications of testable check valves A2.04 predict the impacts and control the outcome of a loss of AC power	2.7 3.5	
206000 HPCI					02							Operational implications of turbine shaft sealing	2.8	
209001 LPCS										03		Manually operate /monitor injection valves	3.7	
211000 SLC		01					02					K2.01 electrical power supplies to SLC pumps A1.02 monitor explosive valve indication	2.9 3.8	
212000 RPS		02										K2.02 power supplies to trip system cabinets	2.7	
215003 IRM									02			2.1.27 system purpose or function	2.8	
215004 SRM									04			Monitor auto operation of alarms	3.3	
215005 APRM / LPRM		02										Monitor auto operation of rod block status	3.6	
216000 Nuclear Boiler Instrumentation												Knowledge of power supplies	2.6	
217000 RCIC								03				2.4.3 ability to identify post accident instrumentation	3.5	
218000 ADS			02									predict the impacts and control the outcome of a valve closure	3.4	
223001 Primary CTMT and Auxiliaries				01								effect of a loss or malfunction will have on the ability to depressurize the reactor	4.5	
223002 PCIS/Nuclear Steam Supply Shutoff	08							01				Design features which provide for absorption of energy release after a LOCA	3.7	
239002 SRVs					05							K1.08 connection to SDC/RHR A2.01 predict the impacts and control the outcome of a loss of AC power	3.4 3.2	
241000 Reactor/Turbine Pressure Regulator	22		08									Operational implications of discharge quencher	3.7	
259001 Reactor Feedwater				06								K1.22 connection/relation to turbine trip K3.08 malfunction effect on control valves	3.4 3.7	
259002 Reactor Water Level Control	03											Design features or interlocks which provide for RFP lubrication	2.5	
261000 SGTS							02					Relation to reactor water level	3.8	
264000 EDGs							01					Predict or monitor changes in primary CTMT pressure	3.1	
												Predict or monitor changes in lube oil temp	3.0	
K/A Category Point Totals:	5	3	3	2	3	1	3	3	2	1	2	Group Point Total:		28

ES-401 BWR RO Examination OutlineForm ES-401-2 (R8, S1)
Plant Systems - Tier 2/Group 2

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)	Imp.	Points
201003 Control Rod and Drive Mechanism					03							Knowledge of the operational implications of the following: Reactor power control	3.3	1
201006 RWM											X	2.2.33 Knowledge of control rod program	2.5	1
202001 Recirculation												NOT USED		
204000 RWCU			01									Knowledge of the effect that a loss or malfunction on: Reactor water quality	3.2	1
205000 Shutdown Cooling												NOT USED		
214000 RPIS								01				Ability to (a) predict the impacts of the following : Failed Reed Switch	3.1	1
215002 RBM	05											Knowledge of the physical connections :Four rod display	3.0	1
219000 RHR/LPCI: Torus/Pool Cooling Mode					03							Knowledge of the implications of the following concepts: Pressure measurement	2.7	1
226001 RHR/LPCI: CTMT Spray Mode		02										Knowledge of electrical power supplies: pumps	2.9	1
230000 RHR/LPCI: Torus/Pool Spray Mode										16		Ability to manually operate/monitor in the control room: override SP spray valve logic	3.8	1
239001 Main and Reheat Steam						03						Knowledge of the effect that a loss on of the following: Safety valve operability	3.6	1
245000 Main Turbine Gen. and Auxiliaries												NOT USED		
256000 Reactor Condensate				10								Knowledge of design feature/ interlocks for the following: Non-condensable gas removal	2.7	1
262001 AC Electrical Distribution		01										Knowledge of electrical power supplies to the following: Off-site sources of power	3.3	1
262002 UPS (AC/DC)			07									Knowledge of the effect that a loss will have on Movement of control rods:	2.6	1
263000 DC Electrical Distribution										03		Ability to manually operate and/or monitor in the control room: Battery discharge rate	2.7	1
271000 Offgas												NOT USED		
272000 Radiation Monitoring				02								Knowledge of features which provide for Auto actions to contain the rad release	3.7	1
286000 Fire Protection											X	2.4.26 Knowledge of requirements for fire brigade and fire fighting equipment usage.	2.9	1
290001 Secondary CTMT						04						Knowledge of effect that a loss of Primary containment will have on SEC CONT.	3.9	1
290003 Control Room HVAC					02							Knowledge of the operational implications: Differential pressure control	2.8	1
300000 Instrument Air				03								Knowledge of interlocks which provide: Securing of IAS upon loss of cooling water	2.8	1
400000 Component Cooling Water	02											Knowledge of the physical connections and / or cause-effect relationships between CCWS and the Loads cooled by CCWS	3.2	1
K/A Category Point Totals:	2	2	2	3	3	2	0	1	0	2	2	Group Point Total:		19

Facility:		Date of Exam:		Exam Level:	
Category	K/A #	Topic	Imp.	Points	
Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation	3.0	1	
	2.1.3	Knowledge of shift turnover practices	3.0	1	
	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation	3.7	1	
	2.1.16	Ability to operate plant phone / paging system / and two-way radio	2.9	1	
	2.1.18	Ability to make accurate / clear and concise logs / records / status boards / and reports	2.9	1	
	Total				5
Equipment Control	2.2.22	Knowledge of limiting conditions for operations and safety limits	3.4	1	
	2.2.24	Ability to analyze the affect of maintenance activities on LCO status	2.6	1	
	Total				2
Radiation Control	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements	2.6	1	
	2.3.4	Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.	2.5	1	
	Total				2
Emergency Procedures/ Plan	2.4.10	Knowledge of annunciator response procedures	3.0	1	
	2.4.11	Knowledge of abnormal condition procedures	3.4	1	
	2.4.23	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations	2.8	1	
	2.4.43	Knowledge of emergency communications systems and techniques	2.8	1	
	Total				4
Tier 3 Point Total (RO/SRO)				13	

ES-401

Record of Rejected K/As

Form ES-401-10 (R8, S1)

[illegible]

FERMI RE-TAKE
INITIAL LICENSE EXAM

OCTOBER 15, 2001

“NRC Comments and Resolution on
Licensee Submitted Test Outlines”

None