Draft Submittal

(Pink Paper)

☑ DRAFT Written Exam Quality Checklist (ES-401-6)

✓ & Written Exam Sample Plan

Facility: Browns Ferry Date of Exam: 2/25/2008 Exam Level: RO ☒ SRO ☐

	Item Description	Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.	RMS	ERS	
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	RMS	ERS	
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401	RMS	ERS	
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exam, consult the NRR OL program office).	RMS	ERS	
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: X the audit exam was systematically and randomly developed; or _ the audit exam was completed before the license exam was started; or X the examinations were developed independently; or X the licensee certifies that there is no duplication; or __other (explain)	RMS	ERS	
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank: 49 Modified: 8 New: 18	RMS	ERS	
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension /analysis level; the SRO exam may exceed 60 percent if the randomly selected KAs support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory: 28 37.4% C/A: 47 62.6%	RMS	ERS	
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	RMS	ERS	
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the Tier to which they are assigned; deviations are justified	RMS	ERS	
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.	RMS	ERS	
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	RMS	ERS	

	Printed Name / Signature	Date
a. Author	Robert M. Spadoni	1/8/2008
b. Facility Reviewer (*)	E. Robert Scillian	1/8/2008
c. NRC Chief Examiner (#)		
d. NRC Regional Supervisor		

Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: Browns Ferry | Date of Exam: 2/25/2008 | Exam Level: RO ☐ SRO ☒

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6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank: 12 Modified: 2 New: 11	RMS	ERS	
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension /analysis level; the SRO exam may exceed 60 percent if the randomly selected KAs support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory: 3 12% C/A: 22 88%	RMS	ERS	
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	RMS	ERS	
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the Tier to which they are assigned; deviations are justified	RMS	ERS	
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Facility:	0610 NRC Exam Outline												Date of Exam: 02/25/2008				
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 & Plant Evolutions	1	3	3	3				3	4			4	20	4		3	7
	2	1	1	1				1	2			1	7	1		2	3
	Tier Totals	4	4	4				4	6			5	27	5		5	10
2. Plant Systems	1	2	3	2	2	2	2	2	3	3	3	2	26	3		2	5
	2	1	1	1	1	1	2	1	1	1	1	1	12	0	2	1	3
	Tier Totals	3	4	3	3	3	4	3	4	4	4	3	38	5		3	8
3. Generic Knowledge & Abilities Categories		1			2			3			4		10	1	2	3	4
		3			2			2			3			1	2	2	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 section D.1.b of ES-401, for guidance regarding 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 KAs 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/A's

8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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 10CFR55.43

0610 NRC Exam Outline
Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 1

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295006 SCRAM / 1					X		AA2.01 - Ability to determine and/or interpret the following as they apply to SCRAM : Reactor power	4.6	76
295021 Loss of Shutdown Cooling / 4					X		AA2.07 - Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING : Reactor recirculation flow	3.1	77
295024 High Drywell Pressure / 5						X	2.1.28 - Conduct of Operations Knowledge of the purpose and function of major system components and controls.	3.3	78
295026 Suppression Pool High Water Temp. / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool water temperature	4.2	79
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1					X		EA2.05 - Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Control rod position	4.3	80
295038 High Off-site Release Rate / 9						X	2.2.22 - Equipment Control Knowledge of limiting conditions for operations and safety limits.	4.1	81
600000 Plant Fire On-site / 8						X	2.2.24 - Equipment Control Ability to analyze the affect of maintenance activities on LCO status.	3.8	82
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.1.14 - Conduct of Operations Knowledge of system status criteria which require the notification of plant personnel.	2.5	39
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Reactor water level response	3.4	40
295003 Partial or Complete Loss of AC / 6					X		AA2.01 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Cause of partial or complete loss of A.C. power	3.4	41
295004 Partial or Total Loss of DC Pwr / 6	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Electrical bus divisional separation	2.9	42
295005 Main Turbine Generator Trip / 3				X			AA1.04 - Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP : Main generator controls	2.7	43
295006 SCRAM / 1			X				AK3.05 - Knowledge of the reasons for the following responses as they apply to SCRAM : Direct turbine generator trip: Plant-Specific	3.8	44
295016 Control Room Abandonment / 7					X		AA2.04 - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT : Suppression pool temperature	3.9	45
295018 Partial or Total Loss of CCW / 8		X					AK2.01 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following: System loads	3.3	46
295019 Partial or Total Loss of Inst. Air / 8					X		AA2.02 - Ability to determine and/or interpret the following as they apply to	3.6	47

0610 NRC Exam Outline
Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 1

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
							PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Status of safety-related instrument air system loads (see AK2.1 - AK2.19)		
295021 Loss of Shutdown Cooling / 4						X	2.4.50 - Emergency Procedures / Plan Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	48
295023 Refueling Acc Cooling Mode / 8	X						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS : Shutdown margin	3.2	49
295024 High Drywell Pressure / 5						X	2.1.33 - Conduct of Operations Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	50
295025 High Reactor Pressure / 3		X					EK2.08 - Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: Reactor/turbine pressure regulating system: Plant-Specific	3.7	51
295026 Suppression Pool High Water Temp. / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool water temperature	4.1	52
295028 High Drywell Temperature / 5			X				EK3.04 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE : Increased drywell cooling	3.6	53
295030 Low Suppression Pool Water Level / 5				X			EA1.06 - Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Condensate storage and transfer (make-up to the suppression pool): Plant-Specific	3.4	54
295031 Reactor Low Water Level / 2						X	2.4.6 - Emergency Procedures / Plan Knowledge symptom based EOP mitigation strategies.	3.1	55
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1		X					EK2.11 - Knowledge of the interrelations between SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN and the following: RMCS: Plant-Specific	3.8	56
295038 High Off-site Release Rate / 9	X						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE : Biological effects of radioisotope ingestion	2.5	57
600000 Plant Fire On-site / 8				X			AA1.08 - Ability to operate and / or monitor the following as they apply to PLANT FIRE ON SITE: Fire fighting equipment used on each class of fire	2.6	58
K/A Category Totals:	3	3	3	3	8	7	Group Point Total:	20/7	

0610 NRC Exam Outline
Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 2

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295002 Loss of Main Condenser Vac / 3						X	2.4.6 - Emergency Procedures / Plan Knowledge symptom based EOP mitigation strategies.	4.0	83
295009 Low Reactor Water Level / 2						X	2.4.31 - Emergency Procedures / Plan Knowledge of annunciators alarms and indications, and use of the response instructions.	3.4	84
500000 High CTMT Hydrogen Conc. / 5					X		EA2.02 - Ability to determine and / or interpret the following as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: Oxygen monitoring system availability	3.5	85
295009 Low Reactor Water Level / 2		X					AK2.01 - Knowledge of the interrelations between LOW REACTOR WATER LEVEL and the following: Reactor water level indication	3.9	59
295012 High Drywell Temperature / 5						X	2.2.22 - Equipment Control Knowledge of limiting conditions for operations and safety limits.	3.4	60
295015 Incomplete SCRAM / 1	X						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to INCOMPLETE SCRAM : (CFR 41.8 to 41.10) Cooldown effects on reactor power	3.9	61
295020 Inadvertent Cont. Isolation / 5 & 7			X				AK3.08 - Knowledge of the reasons for the following responses as they apply to INADVERTENT CONTAINMENT ISOLATION: Suppression chamber pressure response	3.3	62
295032 High Secondary Containment Area Temperature / 5				X			EA1.01 - Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE : Area temperature monitoring system	3.6	63
295033 High Secondary Containment Area Radiation Levels / 9					X		EA2.01 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Area radiation levels	3.8	64
295035 Secondary Containment High Differential Pressure / 5					X		EA2.02 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Off-site release rate: Plant-Specific	2.8	65
K/A Category Totals:	1	1	1	1	3	3	Group Point Total:		7/3

0610 NRC Exam Outline
Written Examination Outline
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		Imp.	Q#
203000 RHR/LPCI: Injection Mode								X				A2.16 - Ability to (a) predict the impacts of the following on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of coolant accident	4.5	86
215003 IRM											X	2.1.14 - Conduct of Operations Knowledge of system status criteria which require the notification of plant personnel.	3.3	87
259002 Reactor Water Level Control											X	2.1.23 - Conduct of Operations Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.0	88
259002 Reactor Water Level Control								X				A2.06 - Ability to (a) predict the impacts of the following on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions SDC/RHR pump trips	3.5	89
259002 Reactor Water Level Control								X				A2.12 - Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Main turbine stop control valve closure	4.1	90
203000 RHR/LPCI: Injection Mode							X					A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) controls including: Reactor water level	4.2	1
205000 Shutdown Cooling				X								K4.02 - Knowledge of SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) design feature(s) and/or interlocks which provide for the following: High pressure isolation: Plant-Specific	3.7	2
206000 HPCI						X						K6.09 - Knowledge of the effect that a loss or malfunction of the following will have on the HIGH PRESSURE COOLANT INJECTION SYSTEM : Condensate storage and transfer system: BWR-2,3,4	3.5	3
209001 LPCS					X							K5.04 - Knowledge of the operational implications of the following concepts as they apply to LOW PRESSURE CORE SPRAY SYSTEM : Heat removal (transfer) mechanisms	2.8	4
211000 SLC		X										K2.01 - Knowledge of electrical power supplies to the following: SBLC pumps	2.9	5

0610 NRC Exam Outline
Written Examination Outline
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		Imp.	Q#
212000 RPS						X						K6.03 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR PROTECTION SYSTEM : Nuclear boiler instrumentation	3.5	6
215003 IRM										X		A4.04 - Ability to manually operate and/or monitor in the control room: IRM back panel switches, meters, and indicating lights	3.1	7
215004 Source Range Monitor									X			A3.03 - Ability to monitor automatic operations of the SOURCE RANGE MONITOR (SRM) SYSTEM including: RPS status	3.6	8
215005 APRM / LPRM								X				A2.03 - Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions Inoperative trip (all causes)	3.6	9
217000 RCIC		X										K2.03 - Knowledge of electrical power supplies to the following: RCIC flow controller	2.7	10
218000 ADS	X											K1.05 - Knowledge of the physical connections and/or cause- effect relationships between AUTOMATIC DEPRESSURIZATION SYSTEM and the following: Remote shutdown system: Plant-Specific	3.9	11
218000 ADS											X	2.1.24 - Conduct of Operations Ability to obtain and interpret station electrical and mechanical drawings.	2.8	12
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.06 - Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abn cond or ops. Containment instrumentation failures	3.0	13
223002 PCIS/Nuclear Steam Supply Shutoff									X			A3.01 - Ability to monitor automatic operations of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF including: System indicating lights and alarms	3.4	14
239002 SRVs									X			A3.03 - Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: Tail pipe temperatures	3.6	15
239002 SRVs										X		A4.08 - Ability to manually operate and/or monitor in the control room: Plant air system pressure: Plant-Specific	3.2	16

0610 NRC Exam Outline
Written Examination Outline
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		Imp.	Q#
259002 Reactor Water Level Control										X		A4.03 - Ability to manually operate and/or monitor in the control room: All individual component controllers when transferring from manual to automatic modes	3.8	17
261000 SGTS			X									K3.06 - Knowledge of the effect that a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on following: Primary containment oxygen content: Mark-I&II	3.0	18
262001 AC Electrical Distribution				X								K4.04 - Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Protective relaying	2.8	19
262002 UPS (AC/DC)							X					A1.02 - Ability to predict and/or monitor changes in parameters associated with operating the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) controls including: Motor generator outputs	2.5	20
263000 DC Electrical Distribution	X											K1.02 - Knowledge of the physical connections and/or cause- effect relationships between D.C. ELECTRICAL DISTRIBUTION and the following: Battery charger and battery	3.2	21
264000 EDGs					X							K5.06 - Knowledge of the operational implications of the following concepts as they apply to EMERGENCY GENERATORS (DIESEL/JET) : Load sequencing	3.4	22
300000 Instrument Air		X										K2.02 - Knowledge of electrical power supplies to the following: Emergency air compressor	3.0	23
300000 Instrument Air			X									K3.01 - Knowledge of the effect that a loss or malfunction of the (INSTRUMENT AIR SYSTEM) will have on the following: Containment air system	2.7	24
400000 Component Cooling Water											X	2.4.31 - Emergency Procedures / Plan Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	25
400000 Component Cooling Water								X				A2.02 - Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: High/low surge tank level	2.8	26
K/A Category Totals:	2	3	2	2	2	2	2	6	3	3	4	Group Point Total:		26/5

0610 NRC Exam Outline
Written Examination Outline
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		Imp.	Q#
268000 Radwaste								X				A2.01 - Ability to (a) predict the impacts of the following on the RADWASTE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System rupture	3.5	91
271000 Off-gas											X	2.4.36 - Emergency Procedures / Plan Knowledge of chemistry / health physics tasks during emergency operations.	2.8	92
288000 Plant Ventilation								X				A2.03 - Ability to (a) predict the impacts of the following on the PLANT VENTILATION SYSTEMS ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of coolant accident: Plant-Specific	3.7	93
201003 Control Rod and Drive Mechanism			X									K3.03 - Knowledge of the effect that a loss or malfunction of the CONTROL ROD AND DRIVE MECHANISM will have on following: Shutdown margin	3.2	27
201006 RWM				X								K4.09 - Knowledge of ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) design feature(s) and/or interlocks which provide for the following: System initialization: P-Spec(Not-BWR6)	3.2	28
202001 Recirculation						X						K6.09 - Knowledge of the effect that a loss or malfunction of the following will have on the RECIRCULATION SYSTEM : Reactor water level	3.4	29
215001 Traversing In-core Probe							X					A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the TRAVERSING IN-CORE PROBE controls including: Radiation levels: (Not-BWR1)	2.8	30
216000 Nuclear Boiler Inst.	X											K1.10 - Knowledge of the physical connections and/or cause- effect relationships between NUCLEAR BOILER INSTRUMENTATION and the following: Recirculation flow control system	3.2	31
219000 RHR/LPCI: Torus/Pool Cooling Mode		X										K2.02 - Knowledge of electrical power supplies to the following: Pumps	3.1	32
226001 RHR/LPCI: CTMT Spray Mode										X		A4.12 - Ability to manually operate and/or monitor in the control room: Containment/drywell pressure	3.8	33
234000 Fuel Handling Equipment											X	2.4.50 - Emergency Procedures / Plan Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	34
245000 Main Turbine Gen. / Aux.						X						K6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS : Hydrogen cooling	2.6	35

0610 NRC Exam Outline
Written Examination Outline
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		Imp.	Q#
268000 Radwaste								X				A2.01 - Ability to (a) predict the impacts of the following on the RADWASTE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System rupture	2.9	36
272000 Radiation Monitoring					X							K5.01 - Knowledge of the operational implications of the following concepts as they apply to RADIATION MONITORING SYSTEM : Hydrogen injection operation's effect on process radiation indications: Plant-Specific	3.2	37
290003 Control Room HVAC									X			A3.01 - Ability to monitor automatic operations of the CONTROL ROOM HVAC including: Initiation/reconfiguration	3.3	38
K/A Category Totals:	1	1	1	1	1	2	1	3	1	1	2	Group Point Total:	12/3	

Facility:	0610 NRC Exam Outline	Date:				
Category	K/A #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
1. Conduct of Operations	2.1.12	Ability to apply technical specifications for a system.			4.0	94
	2.1.33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	66		
	2.1.16	Ability to operate plant phone, paging system, and two-way radio.	2.9	67		
	2.1.18	Ability to make accurate, clear and concise logs, records, status boards, and reports.	2.9	68		
	Subtotal			3		1
2. Equipment Control	2.2.22	Knowledge of limiting conditions for operations and safety limits.			4.1	95
	2.2.24	Ability to analyze the affect of maintenance activities on LCO status.			3.8	96
	2.2.13	Knowledge of tagging and clearance procedures.	3.6	69		
	2.2.33	Knowledge of control rod programming.	2.5	70		
	Subtotal			2		2
3. Radiation Control	2.3.3	Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g., waste disposal and handling systems).			2.9	97
	2.3.9	Knowledge of the process for performing a containment purge.			3.4	98
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	71		
	2.3.9	Knowledge of the process for performing a containment purge.	2.5	72		
	Subtotal			2		2
4. Emergency Procedures / Plan	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including:1 Reactivity control 2. Core cooling and heat removal 3. Reactor coolant system integrity 4. Containment conditions 5. Radioactivity release control.			4.3	99

	2.4.30	Knowledge of which events related to system operations/status should be reported to outside agencies.			3.6	100
	2.4.47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	3.4	73		
	2.4.15	Knowledge of communications procedures associated with EOP implementation	3.0	74		
	2.4.8	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.	3.0	75		
	Subtotal			3		2
Tier 3 Point Total				10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
1 / 1	295016 / AA2.07	Replaced by NRC Chief Examiner
2 / 1	218000 / 2.1.14	Replaced by NRC Chief Examiner
2 / 1	600000 / 2.2.25	Replaced by NRC Chief Examiner
2 / 1	212000 / A2.17	Replaced by NRC Chief Examiner
2 / 1	205000 / A2.04	Replaced by NRC Chief Examiner
2 / 1	400000 / 2.4.30	Replaced by NRC Chief Examiner
Admin JPM	AJPM 501	Replaced due to conflict with independently developed Audit examination.