

Susquehanna Learning Center

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October 26, 2010

Mr. John Caruso
USNRC Chief Examiner
USNRC Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Susquehanna Learning Center
Examination Outlines
PLA 006667

Dear Mr. Caruso:

Enclosed for your review and approval are the outlines for the PPL Susquehanna, LLC Initial Licensed Operator Examination scheduled to begin January 18, 2011. These outlines are submitted in accordance with NUREG 1021, Operator Licensing Examination Standards for Power Reactors (Revision 9). The following materials are enclosed:

- Form ES-201-2, Examination Outline Quality Checklist - Rev. 0 (Signed)
- Form ES-201-3, Examination Security Agreement (Copy)
- Form ES-301-1, Administrative Topics Outline RO - Rev. 0
- Form ES-301-1, Administrative Topics Outline SRO - Rev. 0
- Form ES-301-2, Control Room/In-Plant Systems Outline RO - Rev. 0
- Form ES-301-2, Control Room/In-Plant Systems Outline SRO-I - Rev. 0
- Form ES-301-2, Control Room/In-Plant Systems Outline SRO-U - Rev. 0
- Form ES-301-4, Simulator Scenario Quality Checklist - Rev. 0 (Unsigned)
- Form ES-301-5, Transient and Event Checklist - Rev. 0
- Form ES-401-1, BWR Examination Outline – Rev. 2
- Form ES-401-3, Generic Knowledge and Abilities Outline Tier 3 – Rev. 2
- Form ES-401-4, Record of Rejected K/As – Rev. 2
- Form ES-D-1, Scenario Outline - Rev. 0 (2)

The unsigned Form ES-301-4, Simulator Scenario Quality Checklist, is being sent to support Form ES-201-2, Examination Outline Quality Checklist. A signed version of this form will be sent with the exam materials submittal.

The written examination outline was initially developed using a proprietary electronic random outline generator developed by Western Technical Services, Inc. The software was designed to provide a written examination outline in accordance with the criteria contained in NUREG 1021, Revision 9, Supplement 1. K/As selected to replaced rejected K/As were selected using a random selection process described in ES-401, Attachment 1, Example Systematic Sampling Methodology. Rejected K/As were documented on Form ES-401-4, Record of Rejected K/As.

The expected additions to the Exam Security Agreement are additional Operation's Validation Team Members.

We request these materials be withheld from public disclosure until after the completion of the exam. The enclosed materials have been reviewed for "Safeguards Material" content. None of these materials are deemed to be "Safeguards Material."

If you have any questions, please feel free to contact me at 570-542-3677, or Paul Moran at 570-542-1891.

Sincerely,



R. E. Klinefelter
Assistant Operations Manager – Shift Ops

Response: No

Enclosures: Listed (Page 1)

cc: J. M. Diltz
M. H. Crowthers
Ops Letter File - Electronic
Nuc Records – Vault – NUCSA1

exam outlines – pm – pla006667

REK/PJM/vah

October 29, 2010

EXAM OUTLINE T-75 DAY COMMENTS

Written Outline

A number of the proposed SRO K/A topics do not appear to be SRO level topics per 10 CFR 55.43: Questions 76, 77, 78, 80, 82, 83, 84, 85, 88, 89 (borderline), 92, 94, 96, 97, and 100 (borderline).

SRO Admin JPM Topics:

- Topic A.1.2, Evaluate Seismic Monitor and EAL classification. This is an A.4 topic - recommend replacing JPM.
- Topic A.2, Perform LPRM Upscale Alarm Operability Tracking – task LOD is low- recommend revising to increase LOD.
- Topic A.4 – Licensee will revise JPM to make it stand alone rather than immediately following scenario.

RO Admin JPM Topics:

- Topic A.1.2, Evaluate Seismic Monitor. Low LOD – Licensee will replace this JPM.
- Topic A.2, Perform LPRM Upscale Alarm Operability Tracking – task LOD is low- recommend revising to increase LOD.
- Topic A.3, Review Survey Map, Low LOD and GET – Licensee will replace with an A.4 topic, EP Communicator.

Scenario Outlines

- Did not submit spare scenario for review.
- Did not specify on D-1 BOP/RO credit for each malfunction
- Did not provide executive summary – hard to determine procedures tested, etc.
- Critical Tasks not listed.
- TS tested not listed.

Note: Licensee agreed to send the spare scenario and executive summaries which were provided on 11/10/10. Scenarios looked acceptable.

Facility:		Susquehanna LOC-23											Date of Exam:		January 2011				
		NRC Written Exam																	
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	4				4	3			3	20	3	4	7			
	2	1	1	1				1	2			1	7	2	1	3			
	Tier Totals	4	4	5				5	5			4	27	5	5	10			
2. Plant Systems	1	2	3	2	3	2	2	2	2	3	3	2	26	2	3	5			
	2	0	1	1	2	1	2	1	1	1	1	1	12	0	2	3			
	Tier Totals	2	4	3	5	3	4	3	3	4	4	3	38	4	4	8			
3. Generic Knowledge & Abilities Categories				1		2		3		4		10	1	2	3	4	7		
				2		3		2		3			2	2	2	1			

Note:

- 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).
- 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.
- 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.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * 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
- 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.
- 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

LOC-23 NRC Written Exam
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#
295019 Partial or Total Loss of Inst. Air / 8					X		AA2.02 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Status of safety-related instrument air system loads (see AK2.1 - AK2.19)	3.7	76
295003 Partial or Complete Loss of AC / 6					X		AA2.05 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Whether a partial or complete loss of A.C. power has occurred.	4.2	77
600000 Plant Fire On-site / 8					X		AA2.03 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Fire alarm	3.2	78
295006 SCRAM / 1						X	2.1.7 - Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.7	79
295025 High Reactor Pressure / 3						X	2.2.44 - Equipment Control: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives effect plant and system conditions.	4.4	80
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1						X	2.2.25 - Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	4.2	81
295010 High Drywell Pressure / 5						X	2.4.14 - Emergency Procedures/Plan: Knowledge of general guidelines for EQP usage.	4.5	82
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	X						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Natural circulation	3.5	39
295006 SCRAM / 1	X						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to SCRAM : Decay heat generation and removal	3.7	40
295003 Partial or Complete Loss of AC / 6	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Under voltage/degraded voltage effects on electrical loads	2.9	41
295025 High Reactor Pressure / 3		X					EK2.01 - Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: RPS	4.1	42
295030 Low Suppression Pool Water Level / 5		X					EK2.04 - Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following: RHR/LPCI	3.7	43
295028 High Drywell Temperature / 5		X					EK2.02 - Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Components internal to the drywell	3.2	44
295024 High Drywell Pressure / 5			X				EK3.06 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE : Reactor	4.0	45

LOC-23 NRC Written Exam
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#
							SCRAM		
600000 Plant Fire On-site / 8			X				AK3.04 - Knowledge of the reasons for the following responses as they apply to PLANT FIRE ON SITE: Actions contained in the abnormal procedure for plant fire on site	2.8	46
295005 Main Turbine Generator Trip / 3			X				AK3.05 - Knowledge of the reasons for the following responses as they apply to MAIN TURBINE GENERATOR TRIP: Extraction steam/moisture separator isolations	2.5	47
295026 Suppression Pool High Water Temp. / 5				X			EA1.03 - Ability to operate and/or monitor the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Temperature monitoring	3.9	48
295038 High Off-site Release Rate / 9				X			EA1.05 - Knowledge of the reasons for the following responses as they apply to HIGH OFF-SITE RELEASE RATE: Post accident sample system (PASS): Plant-Specific	3.0	49
295023 Refueling Accidents / 8				X			AA1.07 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Standby gas treatment/FRVS	3.6	50
295031 Reactor Low Water Level / 2					X		EA2.04 - Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL : Adequate core cooling	4.6	51
295018 Partial or Total Loss of CCW / 8					X		AA2.04 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System flow	2.9	52
295016 Control Room Abandonment / 7					X		AA2.03 - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT : Reactor pressure	4.3	53
295021 Loss of Shutdown Cooling / 4						X	2.4.1 - Emergency Procedures / Plan: Knowledge of EOP entry conditions and immediate action steps.	4.6	54
295004 Partial or Total Loss of DC Pwr / 6						X	2.2.25 - Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.2	55
295019 Partial or Total Loss of Inst. Air / 8						X	2.4.9 - Emergency Procedures / Plan: Knowledge of low power / shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.	3.8	56
295016 Control Room Abandonment / 7				X			AA1.04 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT : A.C. electrical distribution	3.1	57
700000 Generator Voltage and Electric Grid Disturbances			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Actions contained in abnormal operating procedure for voltage and grid disturbances.	3.6	58

LOC-23 NRC Written Exam
 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#
K/A Category Totals:	3	3	4	4	3/3	3/4	Group Point Total:		20/7

LOC-23 NRC Written Exam
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#
295022 Loss of CRD Pumps / 1					X		AA2.02 - Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS : CRD system status	3.4	83
295014 Inadvertent Reactivity Addition / 1					X		AA2.01 - Ability to determine and/or interpret the following as they apply to INADVERTENT REACTIVITY ADDITION : Reactor Power	4.2	84
295010 High Drywell Pressure / 5						X	2.1.28 - Conduct of Operations: Knowledge of the purpose and function of major system components and controls.	4.1	85
295035 Secondary Containment High Differential Pressure / 5	X						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary Containment Integrity	3.9	59
295033 High Secondary Containment Area Radiation Levels / 9		X					EK2.01 - Knowledge of the operational implications of the following concepts as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Area radiation monitoring system	3.8	60
295015 Incomplete SCRAM / 1			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to INCOMPLETE SCRAM : Bypassing rod insertion blocks	3.4	61
295007 High Reactor Pressure / 3				X			AA1.05 - Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE : Reactor/turbine pressure regulating system	3.7	62
295034 Secondary Containment Ventilation High Radiation / 9					X		EA2.02 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION : Cause of high radiation levels	3.7	63
295012 High Drywell Temperature / 5						X	2.1.23 - Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.3	64
295008 High Reactor Water Level / 2					X		AA2.04 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL : Heatup rate: Plant-Specific	3.1	65
K/A Category Totals:	1	1	1	1	2/2	1/1	Group Point Total:	7/3	

LOC-23 NRC Written Exam
 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#
215005 APRM / LPRM								X				3.6	86
211000 SLC								X				3.4	87
239002 SRVs											X	4.0	88
400000 Component Cooling Water											X	4.0	89
264000 EDGs											X	4.2	90
264000 EDGs	X											3.8	1
223002 PCIS/Nuclear Steam Supply Shutoff	X											3.4	2
263000 DC Electrical Distribution		X										3.1	3
215003 IRM		X										2.5	4
206000 HPCI			X									3.4	5

LOC-23 NRC Written Exam
 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									3.0	6
215005 APRM / LPRM				X								3.7	7
217000 RCIC				X								2.9	8
215004 Source Range Monitor					X							2.6	9
300000 Instrument Air					X							2.9	10
263000 DC Electrical Distribution						X						3.2	11
209001 LPCS						X						2.8	12
261000 SGTS							X					2.7	13
203000 RHR/LPCI: Injection Mode							X					3.9	14

LOC-23 NRC Written Exam
 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#
211000 SLC								X				3.2	15
259002 Reactor Water Level Control								X				3.3	16
239002 SRVs									X			3.6	17
400000 Component Cooling Water									X			3.0	18
218000 ADS										X		4.4	19
205000 Shutdown Cooling										X		3.6	20
262001 AC Electrical Distribution											X	3.3	21
218000 ADS											X	3.4	22
206000 HPCI		X										2.8	23
263000 DC Electrical Distribution				X								3.1	24
212000 RPS										X		4.4	25

LOC-23 NRC Written Exam
 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	A2	A 3	A 4	G	Imp	Q#
203000 RHR/LPCI: Injection Mode									X			4.1	26
K/A Category Totals:	2	3	2	3	2	2	2	2/2	3	3	2/3	Group Point Total: 26/5	

LOC-23 NRC Written Exam
 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 #	
201006 RWM								X				A2.01 - Ability to (a) predict the impacts of the following on the ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Power supply loss: P-Spec(Not-BWR6)	2.8	91
216000 Nuclear Boiler Instrumentation										X		2.4.31 Emergency Procedures/Plan: Knowledge of annunciator alarms, indications, or response procedures.	4.0	92
245000 Main Turbine Generator/Auxiliaries								X				A2.05 - Ability to (a) predict the impacts of the following on the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Generator Trip	3.8	93
226001 RHR/LPCI: CTMT Spray Mode							X					K6.11 - Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE :Component cooling water systems	2.8	27
219000 RHR/LPCI: Torus/Pool Cooling Mode		X										K2.01 - Knowledge of electrical power supplies to the following: Valves	2.5	28
202002 Recirculation Flow Control			X									K3.04 - Knowledge of the effect that a loss or malfunction of the RECIRCULATION FLOW CONTROL SYSTEM will have on following: Reactor/turbine pressure regulation system	2.9	29
216000 Nuclear Boiler Inst.				X								K4.03 - Knowledge of NUCLEAR BOILER INSTRUMENTATION design feature(s) and/or interlocks which provide for the following: Redundancy of sensors	3.4	30
234000 Fuel Handling Equipment					X							K5.01 - Knowledge of the operational implications of the following concepts as they apply to FUEL HANDLING EQUIPMENT : Crane/hoist operation	2.9	31
201001 CRD Hydraulic						X						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROD DRIVE HYDRAULIC System : Condensate system	2.8	32
290003 Control Room HVAC							X					A1.05 - Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROOM HVAC controls including: Radiation monitoring (control room)	3.2	33

LOC-23 NRC Written Exam
 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	A2	A 3	A 4	G	Imp.	Q #
215002 Rod Block Monitor System								X					34
201002 RMCS									X				35
204000 RWCU										X			36
202002 Recirculation Flow Control											X		37
290001 Secondary CTMT				X									38
K/A Category Totals:	0	1	1	2	1	2	1	1/2	1	1	1/1	Group Point Total: 12/3	

Facility:		LOC-23 NRC Written Exam		Date:			
Category	K/A #	Topic	RO		SRO-Only		
			IR	Q#	IR	Q#	
1. Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation.			4.4	94	
	2.1.34	Knowledge of primary and secondary plant chemistry limits.			3.5	99	
	2.1.3	Knowledge of shift or short-term relief turnover practices.	3.7	66			
	2.1.29	Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.	4.1	67			
	Subtotal			2	2		
2. Equipment Control	2.2.5	Knowledge of the process for making design or operating changes to the facility.			3.2	95	
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	98	
	2.2.22	Knowledge of limiting conditions for operations and safety limits.	4.0	68			
	2.2.15	Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.	3.9	69			
	2.2.38	Knowledge of conditions and limitations in the facility license.	3.6	74			
	Subtotal			3	2		
3. Radiation Control	2.3.15	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.			3.1	96	
	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	100	
	2.3.11	Ability to control radiation releases.	3.8	70			
	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	71			

	Subtotal		2		2
4. Emergency Procedures / Plan	2.4.47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.		4.2	97
	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.	4.0	72	
	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.5	73	
	2.4.2	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	4.5	75	
	Subtotal		3		1
Tier 3 Point Total				10	7

Tier / Group	Randomly Selected K/A	Reason for Rejection
2 / 1	262002 / A1.02	The subject K/A isn't relevant at the subject facility.
2 / 1	203000 / K6.06	This K/A is too similar to question #43, 295030 EK2.04, resulting in potential double jeopardy.
2 / 1	211000 / K6.04	It isn't possible to prepare a psychometrically sound question related to the subject K/A.
2 / 1	300000 / 2.2.4	There are no significant differences between units for the instrument air system.
1 / 1	295037 / EA1.08	The subject K/A isn't relevant at the subject facility.
1 / 1	600000 / AA2.06	This K/A is a repeat from the LOC-23 Cert (audit) exam, with limited ability to prepare psychometrically sound, SRO level discriminating questions.
1 / 1	295016 / AA2.03	This K/A is duplicated on the RO exam (#53) and creates double jeopardy for SRO-I candidates who take both exam parts.
2 / 2	233000 / 2.1.25	Operation of the FPCC system does not routinely require operators to refer to reference material such as graphs, tables or charts. Therefore it is not possible to prepare a sufficiently discriminating question related to this subject k/a.
1 / 2	295013 / AK1.01	Insufficient procedural, training material, or design basis documentation is available to create a sufficiently discriminating, psychometrically sound question for this topic.
3	2.2.36	This K/A duplicates that of question #90, 264000 2.2.36
2 / 2	201002 / 2.4.47	It isn't possible to prepare a psychometrically sound question that discriminates at the SRO level related to the subject K/A.
2 / 2	290002 / A2.05	There is no significant relationship between RPV internals and thermal limits in a BWR, therefore no psychometrically sound, discriminating question can be developed.
3	2.1.39	It is not possible to write a psychometrically sound question related to the subject K/A
1 / 2	295009 / 2.2.3	It is not possible to write an SRO level discriminating question related to the subject K/A
1 / 1	295030 / 2.1.32	Possible double jeopardy with #5 and #43 for direct SRO candidates/potential oversampling of low Supp Pool water level condition.
2 / 2	290001 / 2.4.35	It is not possible to write an SRO level discriminating question related to the subject K/A
2 / 2	234000 / 2.4.6	Refueling equipment is not utilized in EOP mitigating strategies.

3 / 1	2.1.1	Rejected K/A based on Chief Examiner direction.
2 / 2	226001 / K1.11	Replaced with 226001 K6.11 per Chief Examiner direction.
3	2.2.22	Identical to RO #68. Rejected due to possible double jeopardy for SROI candidates, and difficulty in developing an additional question from narrow topic.

Facility: Susquehanna

Date of Examination: 1/11/11

Examination Level

SRO

Operating Test Number: LOC-23 NRC

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	2.1.37 4.6 00.AD.1021.101 Authorize Bypass of Rod Block Monitor During Startup per NDAP-QA-0338
Conduct of Operations	M, R	2.1.25 3.9 45.ON.1829.101 Implement ON-145-004, "Reactor Water Level Anomaly", Determine Cause For Erroneous RPV Water Level Indications And Determine Required Tech Spec Actions
Equipment Control	M, R	2.2.14 4.3 78.AD.2319.102 Perform LPRM Upscale Alarm Operability Tracking In Accordance With OI-078-001 and Determine Required Actions
Radiation Control	N, R	2.3.11 4.3 00.AD.1018.001 Respond to SGTS Exhaust Radiation Monitor 'A' Failure While Purging Primary Containment
Emergency Plan	M, R	2.4.41 4.6 00.EP.001.087 Classify A Site Area Emergency Under Shutdown Conditions And Complete The Emergency Notification Report; Upgrade To A General Emergency And Determine Protective Action Recommendations

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 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: Susquehanna

Date of Examination: 1/11/11

Examination Level

RO

Operating Test Number: LOC-23 NRC

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	2.1.5 2.9 00.AD.3246.052 Evaluate Overtime Request With Respect To Work Hour Limits IAW NDAP-QA-0025
Conduct of Operations	M, R	2.1.25 3.9 <i>SAME JPM AS SRO</i> 45.ON.1829.101 Implement ON-145-004, "Reactor Water Level Anomaly", Determine Cause For Erroneous RPV Water Level Indications
Equipment Control	M, R	2.2.14 3.9 <i>SAME JPM AS SRO</i> 78.AD.2319.102 Perform LPRM Upscale Alarm Operability Tracking In Accordance With OI-078-001 and Determine Required Actions
Radiation Control		N/A
Emergency Plan	M, S	2.4.43 3.2 00.EP.1135.081 Control Room Communicator Emergency Notification

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 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>SSES</u>		Date of Examination: <u>1/17-21/11</u>
Exam Level: RO <input checked="" type="checkbox"/>		Operating Test No.: <u>LOC-23 NRC</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. 44.ON.1792.101 256000 A4.08 3.7/3.7 Emergency Cond Pump Ops	L,N,S	2
b. 64.OP.4841.101 202001 A4.01 3.7/3.7 Post Scram Recovery of RRP	L,N,S	4
c. 34.EO.1619.151 400000 A4.01 3.1/3.0 Reset / restore DW Cooling (Alt Path)	A,E,EN,M,S	8
d. 04.ON.1203.251 262001 A2.07 3.0/3.2 Energize a Dead 4KV ESS Bus (Alt Path)	A,N,S	6
e. 35.ON.1662.101 233000 A2.02 3.1/3.3 RHRSW to Fuel Pool	N,S	9
f. 55.ON.2000.152 201003 A2.01 3.4/3.6 Respond to a Stuck Rod (Alt Path)	A,M,S	1
g. 78.OP.3680.101 215005 A2.04 3.8/3.9 Insert SLO Setpoints	N,S	7
h. 59.ON.2084.151 223002 A3.02 3.5/3.5 Primary Cont Iso Verify (Alt Path)	A,M,S	5
In-Plant Systems [®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. 24.OP.1443.051 264000 A4.04 3.7/3.7 Manual S/D EDG (Alt Path)	A,M	6
j. 55.EO.1995.101 201003 A2.01 3.4/3.6 Vent Rod overpiston	D,E,L,R	1
k. 73.OP.2289.103 223001 A2.01 4.3/4.4 Start Recombiner manually	E,M	5

Ⓒ 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: <u>SSES</u>	Date of Examination: <u>1/17-21/11</u>	
Exam Level: SRO-I <input checked="" type="checkbox"/>	Operating Test No.: <u>LOC-23 NRC</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. 44.ON.1792.101 256000 A4.08 3.7/3.7 Emergency Cond Pump Ops	L,N,S	2
b. 64.OP.4841.101 202001 A4.01 3.7/3.7 Post Scram Recovery of RRP	L,N,S	4
c. 34.EO.1619.151 400000 A4.01 3.1/3.0 Reset / restore DW Cooling (Alt Path)	A,E,EN,M,S	8
d. 04.ON.1203.251 262001 A2.07 3.0/3.2 Energize a Dead 4KV ESS Bus (Alt Path)	A,N,S	6
e. 35.ON.1662.101 233000 A2.02 3.1/3.3 RHRSW to Fuel Pool	N,S	9
f. 55.ON.2000.152 201003 A2.01 3.4/3.6 Respond to a Stuck Rod (Alt Path)	A,M,S	1
g. 78.OP.3680.101 215005 A2.04 3.8/3.9 Insert SLO Setpoints	N,S	7
h. n/a SRO-I		
In-Plant Systems [®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. 24.OP.1443.051 264000 A4.04 3.7/3.7 Manual S/D EDG (Alt Path)	A,M	6
j. 55.EO.1995.101 201003 A2.01 3.4/3.6 Vent Rod overpiston	D,E,L,R	1
k. 73.OP.2289.103 223001 A2.01 4.3/4.4 Start Recombiner manually	E,M	5
<p>@ 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.</p>		

* 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: SSES		Date of Examination: 1/17-21/11
Exam Level: SRO-U <input checked="" type="checkbox"/>		Operating Test No.: LOC-23 NRC
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. 44.ON.1792.101 256000 A4.08 3.7/3.7 Emergency Cond Pump Ops	L,N,S	2
b. 64.OP.4841.101 202001 A4.01 3.7/3.7 Post Scram Recovery of RRP	L,N,S	4
c. 34.EO.1619.151 400000 A4.01 3.1/3.0 Reset / restore DW Cooling (Alt Path)	A,E,EN,M,S	8
d. n/a SRO-U		
e. n/a SRO-U		
f. n/a SRO-U		
g. n/a SRO-U		
h. n/a SRO-U		
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. 24.OP.1443.051 264000 A4.04 3.7/3.7 Manual S/D EDG (Alt Path)	A,M	6
j. 55.EO.1995.101 201003 A2.01 3.4/3.6 Vent Rod overpiston	D,E,L,R	1
k. n/a SRO-U		
<p>[@] 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.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	

(A)ternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Redesignated

Scenario # 1

Appendix D

Scenario Outline

Form ES-D-1

Facility: SSES Scenario No.: Spare Op-Test No.: LOC23 NRC

Examiners: _____ Operators: _____

Initial Conditions: U1 operating a 75%. Unit 1 operating at Full Power.

Turnover:
Suppression Pool Cooling is in service with RHR Loop 'A'. OP-149-005 is complete up to Step 2.1.20. RHR SW and ESW are not to be secured following shutdown of RHR Pump 'A' due to subsequent support of scheduled RHR Surveillance Test. Once Suppression Pool Cooling is secured, commence returning Rx Power to 100% using Recirc. RE directions: raise Power law Form OP-AD-338-1 (1%/min from 75% to 85%, then Hold until RE verifications completed).

Event No.	Malf. No.	Event Type*	Event Description
1		N	Secure Suppression Pool cooling: BOP
2		N	Raise Rx Power: SRO, ATC
3	1	C,R	EHC oscillation: ALL
4	2	C	RBCCW pump trip: SRO, BOP
5	3	C	SBLC injection valve: SRO TS 3.1.7
6	4	C	HPCI inadvertent start: SRO, BOP TS 3.5.1
7	5	R	Loss Main Condenser vacuum: SRO, ATC
8	6	I	Failure to Scram: ATC
9	7	M	SRV tailpipe rupture \ stuck open: ALL
10	8	C	ESS bus Lockout: BOP

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

Facility: <u>SSES</u>	Scenario No.: <u>2</u>	Op-Test No.: <u>LOC23 NRC</u>	
Examiners: _____	Operators: _____	_____	
_____	_____	_____	
_____	_____	_____	
Initial Conditions: <u>Unit 1 at 100 percent power EOL, Unit 2 in MODE 1.</u>			
Turnover: <u>U1 at 100%, U2 at full power. Scheduled activity for the shift is to swap TBCCW pumps. Maintain full power operation.</u>			
Event No.	Malf. No.	Event Type*	Event Description
1		N	Swap TBCCW: SRO, BOP
2	1	C	DW Cool Fan trip: SRO TS 3.6.3.2
3		N	Min Gen Emerg: SRO, ATC
4	2	C	CREOASS inop: SRO, BPO TS 3.7.3
5	3	C	RRP MG hi temp: SRO, BOP
6	4	R	Loss FW Heating: SRO, ATC
7	5	C	4 Rods Drift: ATC
8	6	M	ATWS: ALL
9	7	C	EHC malfunction: ALL
10	8	C	SBLC pump trip: BOP
11	9	C	RWCU fail to isolate: BOP
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			