

Facility: North Anna Retake Date of Examination: February 10, 2009

Developed by: Written - Facility NRC // Operating - Facility NRC

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	PGC <i>AK</i>
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	PGC <i>AK</i>
-120	3. Facility contact briefed on security and other requirements (C.2.c)	PGC <i>AK</i>
-120	4. Corporate notification letter sent (C.2.d)	PGC <i>AK</i>
[-90]	[5 Reference material due (C.1.e; C.3.c; Attachment 2)]	PGC <i>AK</i>
{-75}	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	PGC <i>AK</i>
{-70}	{7.Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	PGC <i>AK</i>
{-45}	8.Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6, and any Form ES-201-3 updates), and reference materials due (C.1.e, f, g and h; C.3.d)	PGC <i>AK</i>
-30	9.Preliminary license applications (NRC Form 398's) due (C.1.i; C.2.g; ES-202)	PGC <i>AK</i>
-14	10.Final license applications due and Form ES-201-4 prepared (C.1.i; C.2.i; ES-202)	PGC <i>AK</i>
-14	11.Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	PGC <i>AK</i>
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	PGC <i>AK</i>
-7	13.Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	PGC <i>AK</i>
-7	14.Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 4; ES-202, C.2.e; ES-204)	PGC <i>AK</i>
-7	15.Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	PGC <i>AK</i>
-7	16.Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	PGC <i>AK</i>

* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.

[Applies only] {Does not apply} to examinations prepared by the NRC.

Facility: <u>North Anna</u>		Date of Examination: <u>2-10-2009</u>		
Item	Task Description	Initials		
		a	b*	c#
W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	S		AJR
	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.	S		AJR
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	S		AJR
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	S		AJR
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.	W	NA	
	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 that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
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.	NA	NA	
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	S		AJR
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	S		AJR
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	S		AJR
	d. Check for duplication and overlap among exam sections.	S		AJR
	e. Check the entire exam for balance of coverage.	S		AJR
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	S		AJR
a. Author <u>SR Allen / SR</u> Printed Name/Signature b. Facility Reviewer (*) _____ c. NRC Chief Examiner (#) <u>PG Caperton / PJ Caperton</u> d. NRC Supervisor <u>WALCOTT WILSON</u>		Date <u>12-5-08</u> <u>12-8-08</u> <u>12-8-08</u> <u>02/02/09</u>		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

in 12/8/08

North Anna License Retake Exam

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 2/10/09 ^{pk 3/10/09} as 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 2/10/2009 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. <u>Walt Shura</u>	<u>Supervisor Auction</u>	<u>Walt Shura</u>	<u>8/15/08</u>	<u>Walt Shura</u>	<u>2/10/09</u>	
2. <u>S R Allen</u>	<u>INSTRUCTOR</u>	<u>SRE</u>	<u>8/15/08</u>	<u>SRE</u>	<u>2/10/09</u>	
3. <u>Denise Tiblis</u>	<u>DG Tiblis / INSTRUCTOR</u>	<u>DG Tiblis</u>	<u>8/15/08</u>	<u>DG Tiblis</u>	<u>2/10/09</u>	
4. <u>Richard W. Wesley</u>	<u>Supervisor of SLD & Ops / Operations</u>	<u>Richard Wesley</u>	<u>8/26/08</u>	<u>Richard Wesley</u>	<u>2/10/09</u>	
5. <u>CHRIS M. CLARK</u>	<u>TRAINING MANAGER</u>	<u>Chris Clark</u>	<u>10/1/08</u>	<u>Chris Clark</u>	<u>2/10/09</u>	
6. <u>Steve Crawford</u>	<u>Instructor / Audit Exam</u>	<u>Steve Crawford</u>	<u>1/2/08</u>	<u>Steve Crawford</u>	<u>2/10/09</u>	
7. <u>MIKE ALLANONO</u>	<u>SRO / WAC</u>	<u>Mike Allanon</u>	<u>10/2/08</u>	<u>Mike Allanon</u>	<u>2/10/09</u>	
8. <u>William Spicer</u>	<u>RO / NRC</u>	<u>William Spicer</u>	<u>11-4-8</u>	<u>William Spicer</u>	<u>2/12/09</u>	
9. <u>LITTLE JOHN</u>	<u>SRO / PM SHIFT OPERATOR</u>	<u>John Little</u>	<u>11-4-8</u>	<u>John Little</u>	<u>2/10/09</u>	
10. <u>Joseph SCOTT</u>	<u>SUPV N-TRNG</u>	<u>Joseph Scott</u>	<u>11/4/8</u>	<u>Joseph Scott</u>	<u>2/10/09</u>	
11. <u>J J MOSHER</u>	<u>UNIT SUPERVISOR</u>	<u>JJ Mosher</u>	<u>11-5-08</u>	<u>JJ Mosher</u>	<u>2/10/09</u>	
12. <u>Paul Trent</u>	<u>UNIT SUPERVISOR</u>	<u>Paul Trent</u>	<u>11/5/08</u>	<u>Paul Trent</u>	<u>2/12/09</u>	
13. <u>Jessica HARVEY</u>	<u>RO</u>	<u>Jessica Harvey</u>	<u>1/6/08</u>	<u>Jessica Harvey</u>	<u>2/10/09</u>	
14. <u>Michael C Erdman</u>	<u>RO</u>	<u>Michael Erdman</u>	<u>1/6/08</u>	<u>Michael Erdman</u>	<u>2/10/09</u>	
15. <u>Brian Scott</u>	<u>SRO / OPS</u>	<u>Brian Scott</u>	<u>11-18-08</u>	<u>Brian Scott</u>	<u>2/11/09</u>	

NOTES:

North Anna License Exam (Retake)

ES-201

Examination Security Agreement

Form ES-201-3

1. Pre-Examination

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2. Post-Examination

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Robert Royce	Millstone Instructor / Exam	<i>[Signature]</i>	10-22-08	<i>[Signature]</i> for Robert Royce	2/12/09	per telcon
2.	N.L. Lape	NAPS PM / 1st union Unit	<i>[Signature]</i>	11/14/08	<i>[Signature]</i>	2-10-09	
3.	William Lindner	NAPS / OPS / CRO	<i>[Signature]</i>	11/19/08	<i>[Signature]</i>	2/11/09	
4.	Michael D. Quice	NAPS / OPS / AS /	<i>[Signature]</i>	11/19/08	<i>[Signature]</i>	2/10/09	
-5.	CARL HICKORY	NAPS OPS CRO	<i>[Signature]</i>	11-21-08	<i>[Signature]</i>	2/17/09	
6.	DAVID E. NUNBERG	NAPS / OPS / SRO	<i>[Signature]</i>	11-21-8	<i>[Signature]</i>	2-11-9	
7.	TOM CRAWFORD	NAPS / OPS / CRO	<i>[Signature]</i>	12-2-08	<i>[Signature]</i>	2-9	
-8.	199 Kelly	NAPS / OPS / SRO	<i>[Signature]</i>	12/3/08	<i>[Signature]</i>	2/12/09	
9.	Robert A. Grant	NAPS / OPS / SRO	<i>[Signature]</i>	12/3/08	<i>[Signature]</i>	2/11/09	
10.	Joe Edwards	NAPS / OPS / RO	<i>[Signature]</i>	12/3/08	<i>[Signature]</i>	2/11/09	
11.	Timothy Morris	NAPS / OPS / RO	<i>[Signature]</i>	12/1/08	<i>[Signature]</i>	2/11/09	
12.	Alex Blanchard	NAPS / OPS / CRO	<i>[Signature]</i>	1/2/09	<i>[Signature]</i>	2/11/09	
13.	Dorsey Cook	NAPS / OPS / SRO	<i>[Signature]</i>	1/2/09	<i>[Signature]</i>	2/11/09	
14.	Paul [unclear]						
15.							

NOTES:

FINAL

RETAKES

Facility: <u>North Anna</u>		Date of Exam: <u>2/10/2009</u>															
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	3	N/A			3	18	3	3	6
	2	2	1	1	N/A			2	1	N/A			2	9	2	2	4
	Tier Totals	5	4	4	N/A			5	4	N/A			5	27	5	5	10
2. Plant Systems	1	2	2	3	3	3	3	3	2	3	2	2	2	28	3	2	5
	2	1	1	1	1	1	1	1	1	1	1	0	10	2	1	3	
	Tier Totals	3	3	4	4	4	4	4	3	4	3	2	38	5	3	8	
3. Generic Knowledge and Abilities Categories				1	2	3	4	10					1	2	3	4	7
				2	2	3	3						2	2	1	2	

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.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
11 008AG2.4.30	Pressurizer Vapor Space Accident / 3	2.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of events related to system operations/status that must be reported to internal organizations or outside agencies.
				This is a Generic, no stem statement is associated.										
13 009EK1.02	Small Break LOCA / 3	3.5	4.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use of steam tables <i>subcooling</i>
				Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)										
18 015AA1.22	RCP Malfunctions / 4	4	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCP seal failure/malfunction
				Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)										
21 022AK1.01	Loss of Rx Coolant Makeup / 2	2.8	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Consequences of thermal shock to RCP seals
				Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)										
24 025AK1.01	Loss of RHR System / 4	3.9	4.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of RHRS during all modes of operation
				Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)										
25 026AA2.04	Loss of Component Cooling Water / 8	2.5	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The normal values and upper limits for the temperatures of the components cooled by CCW
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
29	027AK3.02 Pressurizer Pressure Control System Malfunction / 3	2.9	3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verification of alternate transmitter and/or plant computer prior to shifting flow chart transmitters
				Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)										
32	029EK2.06 ATWS / 1	2.9	3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Breakers, relays, and disconnects.
				Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)										
37	040AA2.04 Steam Line Rupture - Excessive Heat Transfer / 4	4.5	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conditions requiring ESFAS initiation
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
40	054AK3.04 Loss of Main Feedwater / 4	4.4	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions contained in EOPs for loss of MFW
				Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)										
41	055EK2.04 Station Blackout / 6			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pumps
				Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)										
42	056AG2.4.8 Loss of Off-site Power / 6	3.8	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
				This is a Generic, no stem statement is associated.										
★ 43	057AG2.2.38 Loss of Vital AC Inst. Bus / 6	3.6	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of conditions and limitations in the facility license.
				This is a Generic, no stem statement is associated.										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
48 062AA1.07	Loss of Nuclear Svc Water / 4	2.9	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flow rates to the components and systems that are serviced by the SWS; interactions among the components
				Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)										
53 065AA2.01	Loss of Instrument Air / 8	2.9	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cause and effect of low-pressure instrument air alarm
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
58 077AA1.03	Generator Voltage and Electric Grid Disturbances / 6	3.8	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Voltage regulator controls
				Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)										
72 WE04EK3.2	LOCA Outside Containment / 3	3.4	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment).
				Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)										
73 WE05EK2.1	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.7	3.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
				Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
54 * 067AK1.01	Plant Fire On-site / 9 8	2.9	3.9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fire classifications by type
				Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)										
74 WE08EA2.2	RCS Overcooling - PTS / 4	3.5	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.
				Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 43.5 / 45.13)										
* 15 WE14EA1.3	Loss of CTMT Integrity / 5	3.3	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Desired operating results during abnormal and emergency situations.
				Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.6)										

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

003A2.02 Reactor Coolant Pump 3.7 3.9 Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP

3

Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)

003A3.02 Reactor Coolant Pump 2.6 2.5 Motor current

4

Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)

004K6.12 ~~Chemical and Volume Control~~ ^{2.6 2.8} ~~Principle of recirculation valve: (permit emergency flow even if valve is blocked by crystallized boric acid)~~

5 ~~☆~~

K6.13

3.1 3.3

Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)

Purpose and function of the boration/dilution batch controller

005A4.04 Residual Heat Removal 3.1 2.9 Controls and indication for closed cooling water pumps

6

Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)

005K5.09 Residual Heat Removal 3.2 3.4 Dilution and boration considerations

8

Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)

006A1.05 ~~Emergency Core Cooling~~ ^{2.9 3.8} ~~CCW flow (establish flow to RHR heat exchanger prior to placing in service)~~

9 ~~☆~~

~~A1.17~~
A1.17

~~4.1.0 4.1.4~~
4.2/4.3

Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)

ECCS (to prevent exceeding design limits)

Subcooling — overlap! w/ steam tables
ECCS flow rate

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
10 007A3.01	Pressurizer Relief/Quench Tank	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Components which discharge to the PRT Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)
12 008G2.1.27	Component Cooling Water	3.9	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function. This is a Generic, no stem statement is associated.
14 010K5.01	Pressurizer Pressure Control	3.5	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Determination of condition of fluid in PZR, using steam tables Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)
15 012K5.02	Reactor Protection	3.1	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Power density Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)
16 013K6.01	Engineered Safety Features Actuation	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sensors and detectors Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)
22 022K4.03	Containment Cooling	3.6	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Automatic containment isolation Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)
26 026K2.01	Containment Spray	3.4	3.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment spray pumps Knowledge of electrical power supplies to the following:(CFR: 41.7)

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
27 026K3.02	Containment Spray	4.2	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recirculation spray system
		Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)												
36 039A2.04	Main and Reheat Steam	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Malfunctioning steam dump
		Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)												
44 ★ 41.03 059A1.07	Main Feedwater	3.6 2.6	3.6 2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Feed Pump speed, including normal control speed for ICS Power level restrictions for operation of MFW pumps and valves
		Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)												
45 059K3.03	Main Feedwater	3.5	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/GS
		Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)												
46 061K1.07	Auxiliary/Emergency Feedwater	3.6	3.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency water source
		Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)												
47 061K6.02	Auxiliary/Emergency Feedwater	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pumps
		Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)												

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
49 062K1.04	AC Electrical Distribution	3.7	4.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Off-site power sources Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)
50 063A3.01	DC Electrical Distribution	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Meters, annunciators, dials, recorders and indicating lights Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)
51 063K4.02	DC Electrical Distribution	2.9	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Breaker interlocks, permissives, bypasses and cross-ties. Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)
52 064A4.04	Emergency Diesel Generator	3.2	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remote operation of the air compressor switch (different modes) Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)
55 073K3.01	Process Radiation Monitoring	3.6	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radioactive effluent releases Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)
57 076K4.01	Service Water	2.5	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conditions initiating automatic closure of closed cooling water auxiliary building header supply and return valves Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)
59 078K2.02	Instrument Air	3.3	3.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency air compressor Knowledge of electrical power supplies to the following:(CFR: 41.7)

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
60 103A1.01	Containment	3.7	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment pressure, temperature and humidity Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)				
61 103G2.4.2	Containment	4.5	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. This is a Generic, no stem statement is associated.					

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
2 002K1.11	Reactor Coolant	4.1	4.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/GS, feedwater systems
				Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)										
17 015A2.04	Nuclear Instrumentation	3.3	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effects on axial flux density of control rod alignment and sequencing, xenon production and decay, and boron vs. control rod reactivity changes
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
19 016K3.03	Non-nuclear Instrumentation	3.0	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SDS
				Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)										
★ 28 027A4.01	Containment Iodine Removal	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CIRS controls
				Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)										
31 029A1.03	Containment Purge	3.0	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment pressure, temperature and humidity
				Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)										
34 034K6.02	Fuel Handling Equipment	2.6	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation monitoring systems
				Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
35 ★ 035A3.02	Steam Generator	3.7	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MAD valves Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)
38 041K2.01	Steam Dump/Turbine Bypass Control	2.8	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ICS, normal and alternate power supply Knowledge of electrical power supplies to the following:(CFR: 41.7)
20 ★ 072K5.01 011	Area Radiation Monitoring In-Coe Temperature Monitor System (ITM)	2.7 3.1	3.0 3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation theory, including sources, types, units and effects Temperature at which cladding and fuel melt
56 075K4.01	Circulating Water	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Heat sink Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

62

G2.1.28 Conduct of operations 4.1 4.1 Knowledge of the purpose and function of major system components and controls.

63

G2.1.4 Conduct of operations 3.3 3.8 Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55 etc.

64

G2.2.15 Equipment Control 3.9 4.3 Ability to determine the expected plant configuration using design and configuration control documentaion

65

G2.2.43 Equipment Control 3.0 3.3 Knowledge of the process used to track inoperable alarms

66

G2.3.15 Radiation Control 2.9 3.1 Knowledge of radiation monitoring systems

67

G2.3.4 Radiation Control 3.2 3.7 Knowledge of radiation exposure limits under normal and emergency conditions

68

G2.3.5 Radiation Control 2.9 2.9 Ability to use radiation monitoring systems

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
69 G2.4.20	Emergency Procedures/Plans	3.8	4.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.								
70 G2.4.37	Emergency Procedures/Plans	3.0	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the lines of authority during implamentation of an emergency plan.								
71 G2.4.45	Emergency Procedures/Plans	4.1	4.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to prioritize and interpret the significance of each annunciator or alarm.								

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
82	025AG2.4.11 Loss of RHR System / 4	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.						
		This is a Generic, no stem statement is associated.												
86 *	054AG2.1.27 Loss of Main Feedwater / 4	3.9	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function.						
		This is a Generic, no stem statement is associated.												
87	055EA2.03 Station Blackout / 6	3.9	4.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions necessary to restore power					
		Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 43.5 / 45.13)												
88	058AA2.02 Loss of DC Power / 6	3.3	3.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	125V dc bus voltage, low/critical low, alarm					
		Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)												
92	077AA2.03 Generator Voltage and Electric Grid Disturbances / 6	3.5	3.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Generator current outside the generator capability curve					
		Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)												
100	we05EG2.4.6 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.						
		This is a Generic, no stem statement is associated.												

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
78 005AG2.2.40	Inoperable/Stuck Control Rod / 1	3.4	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to apply technical specifications for a system.
				This is a Generic, no stem statement is associated.										
81 024AA2.04	Emergency Boration / 1	3.4	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Availability of BWST
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
83 032AA2.06	Loss of Source Range NI / 7	3.9	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confirmation of reactor trip
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
90 074EG2.1.23	Inad. Core Cooling / 4	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
				This is a Generic, no stem statement is associated.										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
76 003A2.05	Reactor Coolant Pump	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effects of VCT pressure on RCP seal leakoff flows
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
77 005A2.02	Residual Heat Removal	3.5	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure transient protection during cold shutdown
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
79 008G2.2.39	Component Cooling Water	3.9	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of less than one hour technical specification action statements for systems.
	Resampled 2,238 .G2.238 on 10/11/05			This is a Generic, no stem statement is associated.										
				Conditions + limitations in the facility license.										
84 039G2.1.25	Main and Reheat Steam	3.9	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.
				This is a Generic, no stem statement is associated.										
91 076A2.02	Service Water	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Service water header pressure
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G												TOPIC:	
		RO	SRO														
80 016G2.4.6	Non-nuclear Instrumentation	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
				This is a Generic, no stem statement is associated.													
85 045A2.17	Main Turbine Generator	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Malfunction of electrohydraulic control	
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)													
88 056A2.04	Condensate	2.6	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of condensate pumps		
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)													

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
★ 93	G2.1.28 Conduct of operations	4.1	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the purpose and function of major system components and controls.								
94	G2.1.32 Conduct of operations	3.8	4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to explain and apply all system limits and precautions.								
95	G2.2.21 Equipment Control	2.9	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of pre- and post-maintenance operability requirements.								
96	G2.2.5 Equipment Control	2.2	3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for making design or operating changes to the facility								
★ 97	G2.3.4 Radiation Control	3.2	3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation exposure limits under normal and emergency conditions								
98	G2.4.28 Emergency Procedures/Plans	3.2	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of procedures relating to emergency response to a security event (non-safeguards information).								
99	G2.4.30 Emergency Procedures/Plans	2.7	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of events related to system operations/status that must be reported to internal organizations or outside agencies.								

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
<p>Instructions</p> <p>[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]</p>																
1.	Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.															
2.	Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).															
3.	Check the appropriate box if a psychometric flaw is identified:															
	<ul style="list-style-type: none"> • The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information). • The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc). • The answer choices are a collection of unrelated true/false statements. • The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable. • One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem). 															
4.	Check the appropriate box if a job content error is identified:															
	<ul style="list-style-type: none"> • The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content). • The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory). • The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons). • The question requires reverse logic or application compared to the job requirements. 															
5.	<u>Check questions that are sampled</u> for conformance with the approved K/A and those that are <i>designated SRO-only</i> (K/A and license level mismatches are unacceptable).															
6.	Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?															
7.	At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).															

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation Rev 1 shown in green
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
1	H	3												U S	Currently A & B are not plausible. Change question to give temp values so that applicant has to determine that Tave is low and then ask if they are further or nearer to the insertion limits and what happens to SDM. The exam team (including the plant manager) reviewed the question and the decision was made to re-write with the question based more on the operator's knowledge of procedures for the event in progress, and a single concept, effect on SDM. We feel Distractors A&B are plausible since as stated in the distractor analysis, the first part of A&B is an IOA of 1-AP-3, (step 3 RNO), and would be correct if this were a failure of the Tref input (controlling first stage pressure channel) vice Tave input.
2	H	2												S	Meets KA
3	L	2					X							S E S	Is it realistic to have both the seismic and proximity vibration monitors indicating the same value? Should the proximity value be raised? 1 st part of A is correct. If it is above the DANGER limit than it also above the ALERT limit. Change the Proximity reading to 15 mils, ARP states more than one indication should be used (What meets ELEVATED definition?) This question is testing trip criteria recall. Question revised with proximity value of 12 mils provided in stem. This provides a more realistic scenario for expected indications. Both indications are elevated (supports an actual high vibration condition) and since proximity of 12 is elevated, but below alert level of 15, avoids a case where "C" could be argued as a correct answer.
4	H	3												E S	This is not H LOK. Put actual motor current and choices for subsequent final motor current once in Cold S/D. Upon review w/licensee, the question is SAT w/ H LOK.
5	L H	3												E S	Meets KA This appears it should be "H" LOD vs. "L" Licensee agrees w/comment and change made.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only		
6	H	3												S	Meets KA
7	H	3												S	Meets KA
8	H	3												S	Is this a new question? Why is this "H" LOD? Appears to be recall only. Question changed to "modified" upon review. The exam team considers the question appropriate for an RO since it addresses higher order features or functions of the plant, but since we do not have ROs or SROs memorize TS Bases, we rated this an "H" because the RO would have to demonstrate a knowledge of the system purpose and function based on operational Mode to arrive at the correct answer. This is a modified question. Reviewed original question. SAT
9	H	3												E S	Why is the adverse number given? Why not use 350#? It's above the 225# value required. Changes were made as noted above.
10	L	2												E S	Rearrange choices from shortest to longest with RCP choices together. Changes were made as noted above.
11	L	2												S	Why is this not SRO Only? You reference an SRO handout. At NAPS the RO could fill the role of communicator and thus it is an expectation that they have knowledge of reporting times.
12	L	2	X											E S	Appears to be an incorrect statement in the stem. The CC system serves no accident mitigation function therefore "SGTR is not applicable". The reference to SGTR has been replaced with "assuming a Service Water temperature of 95°F" which matches discussion contained in the TS Bases.
13	H	3												S	Meets KA

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
14	H	3											X		U S	Does not meet KA. No use of steam tables is required to answer this question. Upon discussion w/ licensee determined that steam tables would be required to determine if saturation conditions are present.
15	H	3													E S	Distractors are in wrong sequence. Should be low to high. Should use Δ symbol. Changes made as noted above.
16	H	3													S	Meets KA. Verify the logic is correct. Licensee verified.
17	H	3													E S	Meets KA. Wouldn't one NI channel with AFD > allowable be more plausible for distractors C & D? (Since the stem specifically asks for the "minimum" number of channels using one as a distractor appears to provide better discriminatory value.) Exam team reviewed, changed question as suggested, question to be re-validated based on change.
18	L	3													S	Meets KA.
19	H	3													S	Meets KA.
20	L	3													S	Meets KA.
21	L	2													E S	Meets KA. Double jeopardy w/ Q#25. Why not put actual reason for pump radial brg for 2 nd half of "C". While both relate to RCP temperatures, there is enough difference, and these topics are of high enough importance that testing both on a single exam is not inappropriate. Double jeopardy concern ruled out after discussing w/licensee.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only		
22	H	3												S	Meets KA.
23	H	4												S	Meets KA.
24	H	3					X							E S	Meets KA. Change "operate" to "open". Isn't "C" also correct IAW step 45 RNO of procedure and is an "action req'd?" Changed to say "open". Verified that "C" is correct as written.
25	L	2				X								E S	Meets KA. Distractor "D" double jeopardy w/ Q#21. Double jeopardy concern ruled out after discussing w/licensee.
26	L	2												S	Meets KA.
27	L	3				X								U S	Meets KA. 180 degrees not plausible. Change to: "ONE 360 degree spray ring" or "BOTH 360 degree spray rings." Changes made as noted above.
28	L	2												S	Meets KA.
29	H	3												S	Meets KA.
30	H	3												S	Meets KA.
31	H	2												S	Meets KA.
32*	L	2												S E S	Meets KA. This is marked as new. Need verification. Question changed to modified upon review by licensee. Verify brkr designation. Procedure refers to brkrs as 24A1 & 24C2. For symmetry (since two distractors offer "deenergizing station service 480v busses" as an option) we used "MG set supply breakers at station service 480v busses" vice the specific mark numbers of the breakers. This terminology is acceptable and none of the validators were confused or had difficulty reading or

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
																understanding as worded. Brkr designation verified. Question was mis-keyed in LXR and has been changed to "Modified" .
33	L	3														E S Meets KA. Step 13b refers to the reset as "SR Block & Reset" vs. Block/Reset. Does this reset the P-10 interlock as referred in the Handout? (Step 3.5 of student guide) Made change to reset switch as noted above. The licensee will follow-up on handout to check for incomplete or erroneous info.
34	H	3														E S Meets KA. New? Verify. Licensee verified as new. B & D do not seem very plausible for MCR Isol. Should the stem say "Core reload in progress?" Change to "Fuel Pool Bridge Area Hi HI alarms and then clears 3 minutes later." This will change the answer to ONLY CR Bottle Dump but make B more plausible. No change necessary after discussion w/ licensee. Containment can stay open during Refuel, therefore B & D are plausible.
35	H	3														E S Meets KA. NOTE: No MAD vlvs at this site so modified question to correlate to plant system. Instead of saying the SD not available, give actual plant alarm or condition that relates to SD not available. Question revised to eliminate first part of stem which in the context of the KA is essentially "window dressing". Question matches KA of ability to monitor automatic operation of the valves and extraneous wording in stem is eliminated.
36	H	3				X										E S Meets KA. Is "C" plausible; is the App. R switch in the MCR? Switch is in the MCR, therefore plausible.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only		
37	H	3				X								E S	Meets KA. Is "B" plausible? Change wording to have action 1 st (Stop quench spray pumps, continue...) to match other distractors. Wording changed as suggested. "B" is a valid distractor.
38	L	2												S	Meets KA.
39	L	2												S	Meets KA.
40*	H	3												S E S	Meets KA. New? Verify Changed to modified as this is similar to bank.
41	H	3												S	Meets KA.
42	H	3												S	Meets KA.
43	L	3												S E S	Meets KA. Is the top part of the stem necessary to answer the question? Stem modified to include a realistic scenario for the situation along with the information of operational mode (which is necessary to answer the question correctly). This simplifies the question presentation and avoids confusion.
44	L	2												S	Meets KA.
45	H	3												S	Meets KA.
46	L	2												S	Meets KA. Is the top part of the stem necessary to answer the question? Yes. Information must be provided the ECST is NOT intact, otherwise B & C could be argued as potentially correct responses.
47	H	3												S	Meets KA. Should the pump titles be included? Licensee stated that it is NOT necessary. This is the terminology used at NAPS.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
48	H	3													S E S	Meets KA. LOK is L, this is memory. LOK changed to "L".
49	H	2													S	Meets KA.
50	H	3													S	Meets KA.
51	L	2				X									E S	Meets KA. Reword distractors to read as complete sentences. Move D to C (longest to shortest) Should "B" say: if the other brker is closed the one that was closed will open? The choices have been reworded.
52*	L	2				X									E S	Meets KA. Add "diesel" after Lister in stem. Should be "the" manual on B & D. Change A & B distractor to say "will run" vs "runs". This is marked as a new question but the exact same question is attached. Distractor "C" seems incomplete, when air press drops to what? Licensee agreed with comments and made appropriate changes. Also changed to "modified".
53*	H L	3													S E S	Meets KA. This seems to be more of a memory question, ie. "L" LOK. This is a new question? Changed LOK to 'L'. Changed to bank.
54	L	3													S	Meets KA.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
55	L	2												E S	Meets KA. Swap C & D. Longest to shortest. NOTE: Symmetrical alignment of distractors were deferred for this exam to minimize the impact on exam submittal.
56	H	3												S	Meets KA. This is a new question? Licensee verified as new.
57	H	3												S	Meets KA.
58	L	3												E S	Meets KA. Remove periods at the end of all bulleted items. Does the VR have an AUTO position or should it say "ON"? Change distractor "A" to say "continuously lower Base Adjust" and change stem to say "IAW the procedure". This will make "A" a correct statement but is not IAW with the procedure. Licensee noted that AUTO is the commonly used terminology although the switch position is "ON". No other changes required.
59	L	2												S	Meets KA.
60*	H	3												E S	Meets KA. Listed as modified. Original question not enclosed as required. Upon review of the original question. Modified criteria is met.
61	L	3												E S	Meets KA. Rearrange short to long distractors. D distractor is not symmetrical. Rerword to say: An ORANGE path does NOT exist for containment Press and Cont. Sump Level: and reorder distractors shortest to longest. Distractor order not changed see NOTE on Q55. Distractor D re-worded as suggested.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
62	H	3				X									E S	Meets KA. Move C distractor to A. C distractor is not symmetrical. Needs to be rewritten to align w/ other choices. Distractor D rewritten , question symmetry is improved and distractor remains valid.
63*	L	2				X									E S	Meets KA. Change stem to combination of 12 & 8 hrs shift to make D more plausible. Modified – Where is original question? At NAPS, operators (including off-shift personnel who maintain an active license) only work 12 hour shifts, thus working an eight hour period is not an alternative. This is a BANK question. This question was replaced during validation and LXR was not updated; LXR Source has been updated to “Bank” .
64	H	3													E S	Meets KA. Get rid of periods at end of bullets. Rearrange from shortest to longest. Reword “A” to match other choices. “The limit for RCS op leakage has NOT been exceeded”. Wording of distractors changed as suggested.
65	L	3													E S	Meets KA. Change order so weekly is 1 st . Wording of Distractor A changed as suggested.
66	L	3													E S	Meets KA. Should the stem say “Functional” vs Operable to match TRM? Is procedure NOTE written correctly?

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
																Changed to Functional as suggested to match TRM wording. Procedure still says “operable” since for quite some time the term operable was used relatively synonymously with functional. The procedure hasn’t been changed yet since this is considered an administrative update and will be done the next time a revision to the procedure is required.
67	L	3												E S	Meets KA. Add “a” Rad Worker, to the stem. Changed as suggested.	
68	L	2												E S	Meets KA. Add “the” indication, in the stem. Changed as suggested.	
69	L	3												E S	Meets KA. Add “an” to C & D and rearrange longest to shortest. Changed as suggested. Distractor order not changed per NOTE on Q55.	
70	L	2												E S	Meets KA. Move A&C shortest to longest. Distractor order not changed per NOTE on Q55.	
71*	H	3												S	Meets KA. Modified, where’s original question? Upon review, the licensee changed to “BANK”.	
72	H	3												E S	Meets KA. Move D to C for symmetry. Distractor order not changed per NOTE on Q55.	
73	H	3												E	Meets KA.	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only		
														S	Move D to A for symmetry. Distractor order not changed per NOTE on Q55. Modified, where's original question?
74	H	3												E S	Meets KA. Move D to B or move A to C for symmetry. No periods at end of bullets. Distractor order not changed per NOTE on Q55.
75														E S	Meets KA. Move D to C. Distractor order not changed per NOTE on Q55. Modified, where's original question? Original question reviewed. Question meets modified criteria.

38 Sats

3 Unsats 34 Enhancement

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
<p>Instructions</p> <p>[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]</p>																
1.	Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.															
2.	Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).															
3.	Check the appropriate box if a psychometric flaw is identified:															
	<ul style="list-style-type: none"> • The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information). • The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc). • The answer choices are a collection of unrelated true/false statements. • The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable. • One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem). 															
4.	Check the appropriate box if a job content error is identified:															
	<ul style="list-style-type: none"> • The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content). • The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory). • The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons). • The question requires reverse logic or application compared to the job requirements. 															
5.	<u>Check questions that are sampled</u> for conformance with the approved K/A and those that are <i>designated SRO-only</i> (K/A and license level mismatches are unacceptable).															
6.	Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?															
7.	At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).															

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation Rev 1 shown in green
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
76	H	3						X						E S	1) Appears to meet the KA 2) Do we need to put a timeline as to how long it took to get to 23% PZR lvl? Not necessary 3) What make this SRO only? Licensee stated: We would not expect an RO to know the procedure to this level of detail.
77	H	3												S	1) Appears to meet the KA
78	L	3										X		U S	1) Does not meet the KA. Should be LCO 3.1.4.A not 3.1.6.B. Licensee stated: Original KA was similar to previous audit & NRC exam. (Look at changing KA or resampling) New question written. Meets KA.
79	L	3		X					X					E S	1) Appears to meet the KA 2) Remove "App R" statement from B&D.
80	H	3												U S	1) Does not meet the KA. Has nothing to do with Non-nuclear Instrumentation. After discussing w/ licensee, this is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
81	H	3		X										E S	<p>1) Appears to meet the KA</p> <p>2) Change the stem to: "Which ONE of the following identifies the valve manipulations required to align a boration flowpath IAW the procedure in effect due to the given plant conditions?"</p> <p>Currently by stating ES-0.1 is the procedure in effect the applicant could rule out distractors A&B by knowing that they are in FR-S.1 w/o having knowledge of flowpath requirements.</p> <p>Agreed w/ licensee that this requires SRO knowledge to ascertain and therefore choice A&B are still plausible.</p>
82	H	3												S	<p>1) Appears to meet the KA</p>
83	H	3												E S	<p>1) Appears to meet the KA</p> <p>2) Why not use FR-P.2 vs. FR-P.1 as a distractor? (Licensee will determine if this change is appropriate and revalidate.)</p> <p>3) Changes made as noted above.</p>
84	H	3												E S	<p>1) Appears to meet the KA</p> <p>2) Is RCS Boron concentration needed in the stem?</p> <p>3) Can Mode be changed to Mode 2 to make more cognitive or change conditions to have a + MTC?</p>
85	H	3												E S	<p>1) Appears to meet the KA</p> <p>Should B&C be rewritten to have the procedure 1st to prevent possible confusion over procedure hierarchy? (Licensee will determine if this change is appropriate and revalidate.)</p> <p>Changes made as noted above.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
86	H	3				X									E S	<p>1) Appears to meet the KA</p> <p>2) 2nd part of A&B is not plausible.</p> <p>Suggest the license add another component in a different flow path as inop (TS allows separate condition entries) and change A&B distractor to 8 hrs.</p> <p>Based upon further review and in part on the licensees input that during validation, 2 SROs chose distractor A or B, this question is SAT as written.</p>
87	H	3													S	<p>1) Appears to meet the KA</p>
88	H	3				X									U S	<p>1) Appears to meet the KA</p> <p>2) A,B&D are also correct IAW AP-31</p> <p>Could add additional info into the stem that must be diagnosed as to why the B Condensate pump could not be manually started. (Hi Ht lvl, loss of bus, xconnected to U1 with SI signal, etc.) Still need 2 additional distractors. Could also add motor amps as distractor.</p> <p>Licensee confirms that there is only one correct choice based on actual system response. Stated that Ops Mgt supports this resolution and would confirm that there is only one correct answer.</p>
89	L	3													S	<p>1) Appears to meet the KA</p>
90	H	3													E S	<p>1) Appears to meet the KA</p> <p>2) Subsequent RCP start is based on temp >1200 F. "not increasing". Give a temperature value instead of saying its still increasing or CETCs have not changed.</p> <p>Licensee changed the distractor to say that CETC temperature remains the same after the 1st RCP is started. They will also revalidate this question.</p>
91	H	3													S	<p>1) Appears to meet the KA</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
92	L	2											X	U S	1) Appears to meet the KA 2) Is not SRO Only Replace the KA if another SRO Only question can not be written to address grid instabilities. New question written that meets KA.
93	L	3												E S	1) Appears to meet the KA 2) Distractor B&C plausibility not provided. 3) Suggested to possibly change distractors B&C to "MODE 3 for 2 hrs followed by a 6 hr cooldown" This change would make the distractor to close to the actual TS and since this question must be answered from memory, it is reasonable to leave distractors B&C as is.
94	H	3												S	1) Appears to meet the KA
95	L	3												E S	1) Appears to meet the KA 2) Why is two part question needed? Licensee changed to a one part question and revalidated.
96	H	4							X					E S	1) Appears to meet the KA 2) Is two part question necessary? Yes for plausible distractors. Licensee will change A&B to say a 50.59 review is NOT required. This will improve symmetry of distractors and plausibility. Procedure step 3.2.3.c implies that the 50.59 procedure does not apply in this situation. If so, correct answer is not D.

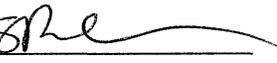
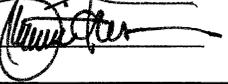
Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only		
97*	L	3 2												S	1) Appears to meet the KA 2) LOD is 2 3) 1 st part of question is on the 2008 RO exam (Q#5) Licensee will change LOD to 2 and verify if there are any additional NRC exam question repeats from the previous 2 NRC exams.
98	H	4												S	1) Appears to meet the KA
99	L	3												S	1) Appears to meet the KA
100	H	3												S	1) Appears to meet the KA 2) Are A&C plausible? They are cued in the stem that they are in the process of establishing bleed & feed. Is trying to establish a SG feed source while depressurizing the SG plausible at this point? A&C are plausible as written. During validation, A&C were chosen by the staff. These paths are still pursued by the procedure but they should not stop at these steps for the conditions given.

19 Sats

2 Unsats

4 Enhancement

Facility: North Anna Units 1 & 2		Date of Exam: 02/10/09		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>		
Item Description	Initial					
	a	b*	c#			
1. Questions and answers are technically accurate and applicable to the facility.	S	WS	AK			
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	S	WS	AK			
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	S	WS	AK			
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 exams, consult the NRR OL program office).			AK			
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed; or <input type="checkbox"/> the audit exam was completed before the license exam was started; or <input type="checkbox"/> the examinations were developed independently; or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)	S	WS	AK			
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	Modified	New	S	WS	AK
	17/2	20/5	38/18			
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 K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory	C/A		S	WS	AK
	34/6	41/19				
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	S	WS	AK			
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.	S	WS	AK			
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	S	WS	AK			
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.	S	WS	AK			
Printed Name / Signature			Date			
a. Author	S R ALLEN / SRCL			1-28-2009		
b. Facility Reviewer (*)	W.F. Shura / W.F. Shura			1-28-2009		
c. NRC Chief Examiner (#)	P.G. Capehart / P.G. Capehart			2-2-2009		
d. NRC Regional Supervisor	MICHAEL T. WILKINS / [Signature]			02/02/09		
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: North Anna Units 1 & 2		Date of Exam: 02/10/09		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>	
Item Description	Initials				
	a	b	c		
1. Clean answer sheets copied before grading	CS	WS	AJK		
2. Answer key changes and question deletions justified and documented	N/A S	NA WS	AJK		
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	S	WS	AJK		
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	N/A S	NA WS	NA AJK		
5. All other failing examinations checked to ensure that grades are justified	N/A S	NA WS	NA AJK		
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	S	WS	AJK		
	Printed Name/Signature		Date		
a. Grader	<u>S R Allen / </u>		<u>2-12-2009</u>		
b. Facility Reviewer(*)	<u>W. Shura / </u>		<u>2-12-2009</u>		
c. NRC Chief Examiner (*)	<u>Philip G. Capenart / </u> <small>RONALD A. DELLO</small>		<u>2-19-2009</u> <u>2/23/09</u>		
d. NRC Supervisor (*)	<u>MALCOLM T. WINDHAM / </u>		<u>02/19/09</u>		
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					