Facility: 2010 -302 Sequoyah Written Date of Examination: 09/29/20210

Examinations Developed by: (Facility) / (Written) / (Operating Test) NRC Written / Operating Test

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	RSB
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	RSB
-120	3. Facility contact briefed on security and other requirements (C.2.c)	RSB
-120	4. Corporate notification letter sent (C.2.d)	RSB
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 2)]	RSB
{-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)	RSB
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	RSB
{-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 reference materials due (C.1.e, f, g and h; C.3.d)	RSB
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	RSB
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	RSB
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	RSB
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	RSB
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	RSB
-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)	RSB
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	RSB
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	RSB

* 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.

FINAL

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility: **Sequoyah Nuclear Plants 1 & 2** Date of Examination: **9/13/2010**

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	N/A	→	NA
	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.	N/A	→	NA
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	N/A	→	NA
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	N/A	→	NA
2. SIMULATOR	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.	[illegible]	MT	[illegible]
	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.	[illegible]	MT	[illegible]
	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.	[illegible]	MT	[illegible]
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	[illegible]	MT	[illegible]
	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	[illegible]	MT	[illegible]
	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.	[illegible]	MT	[illegible]
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	[illegible]	MT	[illegible]
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	[illegible]	MT	[illegible]
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	[illegible]	MT	[illegible]
	d. Check for duplication and overlap among exam sections.	[illegible]	MT	[illegible]
	e. Check the entire exam for balance of coverage.	[illegible]	MT	[illegible]
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	[illegible]	MT	[illegible]

	Printed Name/Signature	Date
a. Author	Michael Buckner / [signature]	8/19/2010
b. Facility Reviewer (*)	Van Ford / [signature]	8/20/10
c. NRC Chief Examiner (#)	RICHARD S BALDWIN / [signature]	9/2/10
d. NRC Supervisor	MALCOLM T. WIDMANN / [signature]	09/02/10

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

FINAL

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility: **Sequoyah Nuclear Plants 1 & 2** Date of Examination: **9/29/2010**

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	①	N/A	
	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.	①		
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.		↓	
2. SIMULATOR	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.			
	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.			
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			
	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.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.		NT	
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.		NT	
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.		NT	
	d. Check for duplication and overlap among exam sections.		NT	
	e. Check the entire exam for balance of coverage.		NT	
	f. Assess whether the exam fits the appropriate job level (RO or SRO).		NT	

	Printed Name/Signature	Date
a. Author	Michael Buckner / Michael Buck	9/23/2010
b. Facility Reviewer (*)	Van Ford / Van Ford	9/23/10
c. NRC Chief Examiner (#)	Richard S. Baldwin / Richard S Bald	9/23/10
d. NRC Supervisor	Malcolm T. Widmann / Malcolm T. Widmann	9/27/10

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

① Outline developed by NRC Region II

ES-201 **Examination Security Agreement** **Form ES-201-3**

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of ~~09/06 - 09/13/2010~~ 9/13 - ~~9/20/10~~ 9/27/10 & 10/3/10 & 9/13/10 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 9/13-9/20/10 & 9/27/10 & 10/3/10. 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.	Michael Buckner	Exam Author	Michael Buckner	01/08/2010	Michael Buckner	10/05/2010
2.	Larry W. Pruett	Exam developer	Larry Pruett	02-16-10	Larry Pruett per telecon	9/30/2010
3.	JOHN B. RODEN	Exam Developer	John B Roden	02/25/10	John B. Roden per telecon	9/30/2010
4.	Michael Wilson REESE	Exam Development	Michael Wilson Reese	3/16/2010	Michael Wilson Reese	9/30/2010
5.	James D. Knight	Sim Software Engr	James D. Knight	04/19/2010	James D. Knight	10/5/2010
6.	Mike B. Bercher	SIM Foreman	Michael B. Bercher	4/19/10	Mike B. Bercher	9-29-10
7.	Gary R. Sanders	EXAM Development	Gary R. Sanders	5/3/10	Gary Sanders	9-30-10
8.	BROOKS MATTISON	SIM Testing Engr.	Brooks Mattison	5/5/10	Brooks Mattison	9/30/2010
9.	Mark Hammond	Infostructure admin	Mark D. Hammond	5/19/10	Mark D. Hammond	10-5/10
10.	Chris Brooks	RO	Chris Brooks	5/25/10	Chris Brooks	10-1-10
11.	Van Ford	SM	Van Ford	5/26/10	Van Ford	9-30-10
12.	Kyle Bell	RO	Kyle Bell	5/26/10	Kyle Bell	10/1/10
13.	Martin Pearberg	SRO	Martin Pearberg	5/26/10	Martin Pearberg	10/1/10
14.	David Williams	RO	David Williams	6/1/10	David Williams	9/30/10
15.	Jeremy Layman	RO	Jeremy Layman	6/1/10	Jeremy Layman	10/3/10

NOTES:

ES-201 | **Examination Security Agreement** | **Form ES-201-3**

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of ~~8/16/2010 & 8/23/2010~~ 9/7/2010 - 09/13/2010 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 9/13-9/22/10. 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.	DERYEL WADE	SRO / SIM. VALIDATION		6/1/10		9/30/10	
2.	Bruce Buch	US/ Written Validation		6/2/10		10-1-10	
3.	Russell Joplin	CORP EXAM SIM MGR		6/2/10	Russell Joplin per telecon	10/04/10	10/05/10
4.	FRANK SOENS	SRO / SM		6/3/10		10/3/10	
5.	Norman Thomas	Licensing Engineer		6/10/10		9/30/2010	
6.	Johnnie Edwards	US/SRO		6/24/10		9/29/10	
7.	Steve Tuthill	US/SRO		6/24/10		~~10/1/10~~ mail 10/3/10	10/4/10
8.	MARIE HANKINS	LEAD INSTRUCTOR		6/24/10		9/30/10	
9.	WILLIAM FARNSWORTH	RO		6/24/10		10/3/10	
10.	Tony LANGFORD	RO		7/7/10		9/29/10	
11.	Gary CASEY	US		7/13/10		10/3/10	
12.	David A. Porter	US/SRO		7/13/10		9/30/10	
13.	Roger A. Brown	RO		8-2-10		10-6-10	
14.	OWEN B TRIOLO	OPS TRNG		8/2/2010		9/29/2010	
15.	Michael Chambers	Instructor		8/2/2010		9/29/10	

NOTES:

ES-201 **Examination Security Agreement** **Form ES-201-3**

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of **09/13 - ~~09/20/2010~~** 9/27/10 & 10/5/10 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 9/13 - 9/~~20~~ 27/10 & 10/4 & 10/5/10. 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.	HAROLD BIRCH	ILT INSTRUCTOR		8-3-10		9/30/10
2.	STEVEN SMITH	LOR SUPERVISOR		8-27-10		9/30/2010
3.	DENNIS DIMOPOULOS	Unit Supervisor		9/3/10		10/1/2010
4.	Teri McConner	Unit Supervisor		9/7/10	MICHELLE CONNER PER TELE	10/4/10
5.	Michael D. McDaniel	RO/RO		9-7-10		10-3-10
6.	BRIAN K. CONNER	PROCEDURE SUPPORT		9-7-10		10/25-10
7.	D. Reed Jones	Outage SM		9/6/10		10/3/10
8.	JEFFREY S. MOSER	OUTAGE SUPPORT		9/9/10		9/30/10
9.	GARY GARNER	SHIFT MANAGER		9/9/10		9/30/10
10.	THOMAS JONES	OPS INSTRUCTOR		9/12/10		9/30/2010
11.	DG Selph	OPS Instructor		9/12/10		9/29/2010
12.	AF RODDY	OPS INST		9/12/10		9/29/2010
13.	MATTHEW MCMULLIN	OPS		9/12/10		9/30/2010
14.	DEREK HAWES	ILT SUPERVISOR		9/13/10		9/30/10
15.	AARON BERGERON	OPS TRAINING MANAGER		9/13/10		9/30/2010

NOTES:

ES-201 **Examination Security Agreement** **Form ES-201-3**

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 09/13 - ~~09/20/2010~~ 9/27/10 10/3/10 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 9/13 - 9/27/10. 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.	Michael L. Stephens	ILT1009 Lead		9/13/10		9/30/10	
2.	DANE K. CASSIDY	ILT OPS INSTRUCTOR		9/13/10		9/30/10	
3.	J.K. WILKES	OPS Support Supt.		9/15/10		10/2/10	
4.	PAM SIMMONS	OPS MANAGER		9-27-10		10/2/10	
5.	Melissa J. McMillan	Dev. Rep.	Melissa J. McMillan	9-29-10	Melissa J. McMillan	9/30/10	
6.							
7.							
8.							
9.							
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12.							
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15.							

NOTES:

FINAL

ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: Sequoyah Nuclear Station 1 & 2 Date of Examination: 09/13/2010

Examination Level: RO X SRO ☐ Operating Test Number: 2010302

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R, P	2.1.5 Ability to use procedures related to shift staffing, such as minimum crew compliment, overtime limitations, etc (2.9/3.9) A.1.a Evaluate Overtime Restrictions (Both RO & SRO)
Conduct of Operations	D, R	2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (3.9/4.2) A.1.b Calculate Manual Makeup to VCT
Equipment Control	M, R	2.2.12 Knowledge of surveillance procedures (3.9/4.2) A.2 Boric Acid Storage Tank Level Operability Determination
Radiation Control	N, R	2.3.4 Knowledge of radiation exposure limits under normal and emergency conditions. (3.2/3.7) A.3 Determine Potential Total Dose for Valve Alignment
Emergency Procedures/Plan		

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

FINAL

Admin 1.a – This JPM requires the candidate to evaluate different schedules and determine if any of the required work-hour rules were violated. This is a Bank JPM that was used on the 2009 NRC exam which has been Modified.

Admin 1.b – This JPM requires the candidate to calculate the amount of boric and demin water necessary to make a manual makeup to the VCT that is equal to existing RCS boron concentration. This is a Bank JPM.

Admin 2 – This JPM requires the candidate to evaluate the conditions of a Boric Acid Storage Tank to determine if it meets the Tech Spec requirements. This is a Modified Bank JPM.

Admin 3 – This JPM requires the candidate to determine the potential dose they would receive while performing a surveillance that verifies the timed operation of a valve in the RCA. This is a New JPM.

FINAL

ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: Sequoyah Nuclear Station 1 & 2 Date of Examination: 09/13/2010

Examination Level: RO ☐ SRO X Operating Test Number: 2010302

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R, P	2.1.5 Ability to use procedures related to shift staffing, such as minimum crew compliment, overtime limitations, etc. (2.9/3.9) A.1.a Evaluate Overtime Restrictions (Both RO & SRO)
Conduct of Operations	N, R	2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (3.9/4.2) A.1.b Review of Estimated Critical Position Calculation
Equipment Control	M, R	2.2.43 Knowledge of the process used to track inoperable alarms. (3.0/3.3) A.2 Review and Approve a Disabled Alarm Checklist
Radiation Control	D, R	2.3.4 Knowledge of radiation exposure limits under normal and emergency conditions. (3.2/3.7) A.3 Evaluate Worker Exposure
Emergency Procedures/Plan	D, R	2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required. (2.4/4.4) A.4 Classify the Event per the REP (SGTR with Failed S/G Safety)

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)

FINAL

Admin 1.a – This JPM has the candidate review several different work schedules and determine if any of the required work-hour rules were violated. This is a Bank JPM that was on the 2009 NRC exam but has been Modified.

Admin 1.b – This JPM has the candidate review a completed ECP calculation and identify any and all errors that were committed during the development of the ECP. This is a New JPM.

Admin 2 – This JPM has the candidate review a Disabled Annunciator request and identify any and all errors that may have been committed during the development of the request. This is a Modified Bank JPM.

Admin 3 – This JPM has the candidate review projected worker's dose for performing a job in the RCA and determine if any Federal or Administrative dose limits may be exceeded by any of the workers and any additional approvals that would need to be made if the actual doses were to reach the estimated values. This is a Bank JPM.

Admin 4 – This JPM has the candidate review the data presented during a proposed accident and determine the Emergency Event Classification, also indentify and report any Protective Action Recommendations (PARs) which would be appropriate for the accident. This is a Bank JPM.

FINAL

ES-301 **Control Room/In-Plant Systems Outline** **Form ES-301-2**

Facility: _Sequoyah Nuclear Station 1 & 2_____	Date of Examination: 09/13/2010__
Exam Level: RO X SRO-I X SRO-U ☐	Operating Test No.: ___2010302____

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.	001 Control Rod Drive System; A2.17 (3.3/3.8) SIM A – Shutdown Bank Withdrawal	M, A, S, L	1
b.	006 Emergency Core Cooling System; A1.13 (3.5/3.7) SIM B – Refill #3 CLA to within Normal Range	D, S	2
c.	007 Pressurizer Relief Tank System; A2.02 (2.6/3.2) SIM C – Return PRT to Normal	D, S	5
d.	003 Reactor Coolant Pump System; A1.02 (2.9/2.9) SIM D – Respond to Loss of Flow to RCP Oil Cooler	N, S	4P
e.	W/E14 High Containment Pressure; EA1.1 (3.7/3.7) SIM E – Respond to HI CNMT Pressure, Place RHR Spray In Service	D, A, S	3
f.	015 Nuclear Instrumentation System; A4.02 (3.9/3.9) SIM F – Calibrate Power Range NIs	D, S	7
g.	036 Fuel Handling Incidents AA2.02 (3.4/4.1) SIM G – Initiate Makeup to the Refueling Cavity	M, A, S, L	8
h.	064 Emergency Diesel Generation; A4.06 (3.9/3.9) SIM H – Shutdown the Diesel Generators Following Auto Start	D, S	6
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
i.	063 D.C. Electrical Distribution; A4.01 (2.7/3.0) In Plant I – Spare out a Vital Batt Charger	D	6
j.	061 Auxiliary/Emergency Feedwater System; A2.07 (3.4/3.5) In Plant J – Local control of MD AFW Pump Flow	D, A, R	4S
k.	002 Reactor Coolant System; A3.01 (3.7/3.8) In Plant K – Local Alignment of 2-RM-90-112 to Lower CNMT	D, R	8

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@	All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

SIM A – This JPM has the candidate identify misaligned control rods while attempting to withdraw the Shutdown banks in preparation for a reactor start-up. This is a Modified Bank, Low Power, Alternate Path JPM.

SIM B – This JPM has the candidate refill a cold leg accumulator to its normal level using a safety injection pump and place the SI pump back in standby status after fill complete. This is a Bank JPM.

SIM C – This JPM has the candidate return the PRT to normal temperature and pressure following a leaking PZR PORV. This is Bank JPM.

SIM D – This JPM has the candidate determine that a loss of cooling has occurred to the RCP oil coolers which will require the candidate to stop the affected RCP. This is a New JPM.

SIM E – This JPM directs the candidate to respond to continued High CNMT pressure following a LOCA by aligning RHR to provide CNMT spray. The Alternate path develops when the normal spray supply valve will not open. This is an Alternate Path, Bank JPM.

SIM F – This JPM has the candidate review the NIS readings against a calorimetric power calculation. The Alternate path is that a calibration adjustment is required to be made to a power range NI. This is a Bank JPM.

SIM G – This JPM has the candidate respond to lowering level in the Refueling Cavity. The Alternate path is that the normal supply of fill from the charging pumps will be unavailable and will require re-alignment of the suction of RHR pumps to provide the fill. This is a Modified Bank, Low Power, Alternate path JPM.

SIM H – This JPM has the candidate shutdown an EDG that has been running unloaded for an extended period of time following an auto start. This will require the diesel to be paralleled and loaded prior to shutdown. This is a bank JPM. (proposed RO only)

In-plant I – This JPM has the candidate walk through process of placing the spare battery charger in service and removing the normal charger. This is Bank JPM.

In-plant J – This JPM has the candidate take local control of AFW supply to #3 SG due to valve not responding from the control room. Alternate path is that the valve will not respond to local control switch manipulations either and will require manual operation for control. This is an Alternate Path, Bank JPM performed in the RCA.

In-plant K – This JPM directs the candidate to locally realign 2-RM-90-112 to monitor Lower Containment vs Upper Containment as part of the Unit 2 RCS leak detection system. This is a Bank JPM performed in the RCA.

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ES-301 **Operating Test Quality Checklist** **Form ES-301-3**

Facility: Sequoyah Nuclear Station 1 & 2 Date of Examination: 09/13/2010 Operating Test Number: 2010302

	1. General Criteria	Initials a	b*	c#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).			
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.			
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)			
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.			
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.			
	2. Walk-Through Criteria	--	--	--
a.	Each JPM includes the following, as applicable: • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: – detailed expected actions with exact criteria and nomenclature – system response and other examiner cues – statements describing important observations to be made by the applicant – criteria for successful completion of the task – identification of critical steps and their associated performance standards – restrictions on the sequence of steps, if applicable			
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.			
	3. Simulator Criteria	--	--	--
	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.			

		Printed Name / Signature	Date
a.	Author	Michael Buckner / Michael Buckner	8/19/2010
b.	Facility Reviewer(*)	Van Ford / Van Ford	8/20/10
c.	NRC Chief Examiner (#)	RICHARD S. BALDWIN / Richard S. Baldwin	9/2/10
d.	NRC Supervisor	MALCOLM T. WIDMANN / Malcolm T. Widmann	09/02/10

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

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ES-301 **Simulator Scenario Quality Checklist** **Form ES-301-4**

Facilty: **Sequoyah Nuclear Station 1 & 2** Date of Exam:**09/13/2010** Scenario Numbers: **1 / 2 / 3** Operating Test No.: **2010302**

	QUALITATIVE ATTRIBUTES	Initials a	b*	c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2.	The scenarios consist mostly of related events.			
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

	Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes	--	--	--
1.	Total malfunctions (5–8)	5 / 8 / 8			
2.	Malfunctions after EOP entry (1–2)	1 / 1 / 3			
3.	Abnormal events (2–4)	3 / 4 / 4			
4.	Major transients (1–2)	1 / 1 / 2			
5.	EOPs entered/requiring substantive actions (1–2)	3 / 2 / 4			
6.	EOP contingencies requiring substantive actions (0–2)	1 / 2 / 2			
7.	Critical tasks (2–3)	1 / 2 / 3			

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ES-301 **Simulator Scenario Quality Checklist** **Form ES-301-4**

Facilty: **Sequoyah Nuclear Station 1 & 2** Date of Exam:**09/13/2010** Scenario Numbers: **4 / 6 / 7** Operating Test No.: **2010302**

QUALITATIVE ATTRIBUTES		Initials a	Initials b*	Initials c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2.	The scenarios consist mostly of related events.			
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

	Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes	--	--	--
1.	Total malfunctions (5–8)	8 / 6 / 8			
2.	Malfunctions after EOP entry (1–2)	2 / 1 / 1			
3.	Abnormal events (2–4)	5 / 4 / 5			
4.	Major transients (1–2)	1 / 2 / 1			
5.	EOPs entered/requiring substantive actions (1–2)	2 / 3 / 3			
6.	EOP contingencies requiring substantive actions (0–2)	1 / 1 / 2			
7.	Critical tasks (2–3)	4 / 2 / 2			

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios 1 CREW POSITION SRO	1 ATC	1 BOP	2 SRO	2 ATC	2 BOP	3 SRO	3 ATC	3 BOP	4 SRO	4 ATC	4 BOP	TOTAL	MINIMUM(*) R	I	U
RO ☐ SRO-I X SRO-U ☐	RX								1					1	1	1	0
	NOR	1												1	1	1	1
	I/C	2,3,4,5							2,5,9					7	4	4	2
	MAJ	6							6,7					3	2	2	1
	TS	2,3												2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a							1				2	1	1	1
	I/C		2,4							3,4,8,10				6	4	4	2
	MAJ		6							6,7				3	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX								1					1	1	1	0
	NOR			1										1	1	1	1
	I/C			3,5					2,5,9					5	4	4	2
	MAJ			6					6,7					3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a					1						2	1	1	1
	I/C		2,4					2,3,4,5,7,8,9,10						10	4	4	2
	MAJ		6					6,7						3	2	2	1
	TS							2,3,5						3	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I X SRO-U ☐	RX											5		1	1	1	0
	NOR	1												1	1	1	1
	I/C	2,3,4, 5										2,4,6,9		8	4	4	2
	MAJ	6										7		2	2	2	1
	TS	2,3												2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a										5	2	1	1	1
	I/C		2,4										1,3,4, 8	6	4	4	2
	MAJ		6										7	2	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX											5		1	1	1	0
	NOR			1										1	1	1	1
	I/C			3,5								2,4,6,9		6	4	4	2
	MAJ			6								7		2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a								5			2	1	1	1
	I/C		2,4								1,2,3,4, 6,8,9			9	4	4	2
	MAJ		6								7			2	2	2	1
	TS										1,2,4			3	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I X SRO-U ☐	RX								1					1	1	1	0
	NOR				4									1	1	1	1
	I/C				1,2,3, 6,8				2,5,9					8	4	4	2
	MAJ				7				6,7					3	2	2	1
	TS				3,5									2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX					4								1	1	1	0
	NOR									1				1	1	1	1
	I/C					2,6,8				3,4,8, 10				7	4	4	2
	MAJ					7				6,7				3	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX								1					1	1	1	0
	NOR						4							1	1	1	1
	I/C						1,3		2,5,9					5	4	4	2
	MAJ						7		6,7					3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX					4								1	1	1	0
	NOR							1						1	1	1	1
	I/C					2,6,8		2,3,4,5 ,8,9,10						10	4	4	2
	MAJ					7		6,7						3	2	2	1
	TS							2,3,5						3	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I X SRO-U ☐	RX											5		1	1	1	0
	NOR				4									1	1	1	1
	I/C				1,2,3, 6,8							2,4,6,9		9	4	4	2
	MAJ				7							7		2	2	2	1
	TS				3,5									2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX					4								1	1	1	0
	NOR												5	1	1	1	1
	I/C					2,6,8							1,3,4, 8	7	4	4	2
	MAJ					7							7	2	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX											5		1	1	1	0
	NOR						4							1	1	1	1
	I/C						1,3					2,4,6,9		6	4	4	2
	MAJ						7					7		2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX					4								1	1	1	0
	NOR										5			1	1	1	1
	I/C					2,6,8					1,2,3,4, 6,8,9			10	4	4	2
	MAJ					7					7			2	2	2	1
	TS										1,2,4			3	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM M(*)		
		1			2			3			*6*						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I X SRO-U ☐	RX											5		1	1	1	0
	NOR	1												1	1	1	1
	I/C	2,3,4, 5										1,2		6	4	4	2
	MAJ	6										6,7		3	2	2	1
	TS	2,3												2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a										5	2	1	1	1
	I/C		2,4										3,4	4	4	4	2
	MAJ		6										6,7	3	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX											5		1	1	1	0
	NOR			1										1	1	1	1
	I/C			3,5								1,2		4	4	4	2
	MAJ			6								6,7		3	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a								5			2	1	1	1
	I/C		2,4								1,2,3, 4			6	4	4	2
	MAJ		6								6,7			3	2	2	1
	TS										1,2			2	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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ES-301 **Transient and Event Checklist** **Form ES-301-5**

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 09/13/2010 Operating Test No.: 2010302

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			*7*						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I X SRO-U ☐	RX											1		1	1	1	0
	NOR	1												1	1	1	1
	I/C	2,3,4,5										3,6,7,8		8	4	4	2
	MAJ	6										9		2	2	2	1
	TS	2,3												2	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a										1,3a,6	4	1	1	1
	I/C		2,4										2,5, 10	5	4	4	2
	MAJ		6										9	2	2	2	1
	TS													0	0	2	2
RO X SRO-I ☐ SRO-U ☐	RX											1,6		2	1	1	0
	NOR			1										1	1	1	1
	I/C			3,5								3,6,7,8		6	4	4	2
	MAJ			6								9		2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX		1,5a											2	1	1	0
	NOR		2a								1,6			3	1	1	1
	I/C		2,4								2,3,5,6, 7,8,10			9	4	4	2
	MAJ		6								9			2	2	2	1
	TS										3,4			2	0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

FINAL

ES-301 **Competencies Checklist** **Form ES-301-6**

Facility: **Sequoyah Nuclear Plant 1 & 2** Date of Examination: **09/13/2010** Operating Test No.: **2010302**

Competencies	APPLICANTS													
	RO X SRO-I ☐ SRO-U ☐				RO ☐ SRO-I X SRO-U ☐				RO X SRO-I ☐ SRO-U ☐			RO ☐ SRO-I X SRO-U ☐		
	SCENARIO				SCENARIO				SCENARIO			SCENARIO		
	1	2	3	4	1	2	3	4	6	7		6	7	
Interpret/Diagnose Events and Conditions	2,3, 4,5, 6	1,2, 3,5, 6,7, 8	2,3,4, 5,6,7 8,9, 10	1,2,3, 4,6,7, 8,9	2,3 ,4, 5,6	1,2, 3,5, 6,7, 8	2,3,4, 5,6,7, 8,9, 10	1,2, 3,4, 6,7, 8,9	1,2,3, 4,6,7	2,3,5,6, 7,9,10		1,2, 3,4, 6,7	2,3,5, 6,7,8, 9,10	
Comply With and Use Procedures (1)	1,2, 3,4, 5,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8,9, 10	1,2,3, 4,5,6, 7,8,9	1,2 ,3, 4,5 ,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8,9, 10	1,2, 3,4, 5,6, 7,8, 9	1,2,3, 4,5,6, 7	1,2,3,5, 6,7,8, 9,10		1,2, 3,4, 5,6, 7	1,2,3, 5,6,7, 8,9, 10	
Operate Control Boards (2)	1,2, 3,4, 5,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8, 10	1,2,3, 4,5,6, 7,8,9	1,2 ,3, 4,5 ,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8, 10	1,2, 3,4, 5,6, 7,8, 9	1,2,3, 4,5,6, 7	1,2,3,5, 6,7,8, 9,10		1,2, 3,4, 5,6, 7	1,2,3, 5,6,7, 8,9, 10	
Communicate and Interact	1,2, 3,4, 5,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8,9, 10	1,2,3, 4,5,6, 7,8,9	1,2 ,3, 4,5 ,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8,9, 10	1,2, 3,4, 5,6, 7,8, 9	1,2,3, 4,5,6, 7	1,2,3,5, 6,7,8, 9,10		1,2, 3,4, 5,6, 7	1,2,3, 5,6,7, 8,9, 10	
Demonstrate Supervisory Ability (3)					1,2 ,3, 4,5 ,6	1,2, 3,4, 5,6, 7,8	1,2,3, 4,5,6, 7,8,9, 10	1,2, 3,4, 5,6, 7,8, 9				1,2, 3,4, 5,6, 7	1,2,3, 5,6,7, 8,9, 10	
Comply With and Use Tech. Specs. (3)					2,3	3,5	2,3,5	2,3, 4				1,2	3,4	

Notes:
(1) Includes Technical Specification compliance for an RO.
(2) Optional for an SRO-U.
(3) Only applicable to SROs.

Instructions:

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

ES-401, Rev. 9 **PWR Examination Outline** **Form ES-401-2**

Facility: SEQUOYAH Date of Exam: 2010 - 302 EXAM.

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	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	2				2	1			1	9	2	2	4
	Tier Totals	5	4	5				5	4			4	27	5	5	10
2. Plant Systems	1	3	2	3	3	3	2	2	3	2	3	2	28	3	2	5
	2	1	1	1	1	1	0	1	1	1	1	1	10	2	1	3
	Tier Totals	4	3	4	4	4	2	3	4	3	4	3	38	5	3	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		2			2			3			3			1	2	2	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 section D.1.b of ES-401 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. Refer to section D.1.b of ES-401 for the applicable KAs.
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 RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
008AK2.02	Pressurizer Vapor Space Accident / 3	2.7	2.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensors and detectors
011EK2.02	Large Break LOCA / 3	2.6	2.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pumps
022AA2.01	Loss of Rx Coolant Makeup / 2	3.2	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Whether charging line leak exists
025AG2.1.7	Loss of RHR System / 4	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
026AK3.01	Loss of Component Cooling Water / 8	3.2	3.5	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCWS coolers
027AA1.05	Pressurizer Pressure Control System Malfunction / 3	3.3	3.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Transfer of heaters to backup power supply
029EG2.4.31	ATWS / 1	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures
038EA1.17	Steam Gen. Tube Rupture / 3	3.2	3.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	S/G sample isolation valve indicators
054AA2.07	Loss of Main Feedwater / 4	3.4	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor trip first-out panel indicator
056AA2.56	Loss of Off-site Power / 6	3.6	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	RCS T-ave
057AK3.01	Loss of Vital AC Inst. Bus / 6	4.1	4.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in EOP for loss of vital ac electrical instrument bus

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
058AK1.01	Loss of DC Power / 6	2.8	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Battery charger equipment and instrumentation
062AA1.07	Loss of Nuclear Svc Water / 4	2.9	3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Flow rates to the components and systems that are serviced by the SWS; interactions among the components
077AK1.03	Generator Voltage and Electric Grid Disturbances / 6	3.3	3.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Under-excitation
WE04EK1.1	LOCA Outside Containment / 3	3.5	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Components, capacity, and function of emergency systems.
WE05EK3.2	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.7	4.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Normal, abnormal and emergency operating procedures associated with (Loss of Secondary Heat Sink).
WE11EK2.1	Loss of Emergency Coolant Recirc. / 4	3.6	3.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
we12EG2.4.3	Steam Line Rupture - Excessive Heat Transfer / 4	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to identify post-accident instrumentation.

ES-401, REV 9 **T1G2 PWR EXAMINATION OUTLINE** **FORM ES-401-2**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
028AK2.02	Pressurizer Level Malfunction / 2	2.6	2.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensors and detectors
032AK3.02	Loss of Source Range NI / 7	3.7	4.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Guidance contained in EOP for loss of source-range nuclear instrumentation
033AG2.4.30	Loss of Intermediate Range NI / 7	2.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of events related to system operations/status that must be reported to internal orginizations or outside agencies.
036AK1.01	Fuel Handling Accident / 8	3.5	4.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Radiation exposure hazards
068AA1.06	Control Room Evac. / 8	4.1	4.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Charging pump
074EA1.23	Inad. Core Cooling / 4	3.9	4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	PORV block valve indicators, switches, controls (for both RCS and S/G).
076AK3.06	High Reactor Coolant Activity / 9	3.2	3.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in EOP for high reactor coolant activity
WE14EA2.1	Loss of CTMT Integrity / 5	3.3	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.
WE15EK1.2	Containment Flooding / 5	2.7	2.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Normal, abnormal and emergency operating procedures associated with (Containment Flooding).

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003A4.03	Reactor Coolant Pump	2.8	2.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	RCP lube oil and lift pump motor controls
004K4.08	Chemical and Volume Control	2.8	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Hydrogen control in RCS
004K5.29	Chemical and Volume Control	2.6	3.3	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Reason for sampling for chloride, fluoride, sodium and solids in RCS
005G2.4.46	Residual Heat Removal	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.
006K2.04	Emergency Core Cooling	3.6	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	ESFAS-operated valves
007K1.03	Pressurizer Relief/Quench Tank	3.0	3.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	RCS
008A2.08	Component Cooling Water	2.5	2.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Effects of shutting (automatically or otherwise) the isolation valves of the letdown cooler
008K1.04	Component Cooling Water	3.3	3.3	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	RCS, in order to determine source(s) of RCS leakage into the CCWS
010K4.02	Pressurizer Pressure Control	3.0	3.4	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Prevention of uncovering PZR heaters
012A1.01	Reactor Protection	2.9	3.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Trip setpoint adjustment
013K5.02	Engineered Safety Features Actuation	2.9	3.3	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Safety system logic and reliability

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
013K6.01	Engineered Safety Features Actuation	2.7	3.1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Sensors and detectors
022K3.01	Containment Cooling	2.9	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Containment equipment subject to damage by high or low temperature, humidity and pressure
025K5 02	Ice Condenser	2.6	2.8	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Heat transfer
026A3.01	Containment Spray	4.3	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Pump starts and correct MOV positioning
026A4.01	Containment Spray	4.5	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	CSS controls
039A3.02	Main and Reheat Steam	3.1	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Isolation of the MRSS
059K3.02	Main Feedwater	3.6	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	AFW system
059K3.03	Main Feedwater	3.5	3.7.	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	S/GS
061K6.02	Auxiliary/Emergency Feedwater	2.6	2.7	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Pumps
062G2.4.35	AC Electrical Distribution	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
063A4.01	DC Electrical Distribution	2.8	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Major breakers and control power fuses

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
064A2.05	Emergency Diesel Generator	3.1	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loading the ED/G
073A1.01	Process Radiation Monitoring	3.2	3.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Radiation levels
073K1.01	Process Radiation Monitoring	3.6	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Those systems served by PRMs
076K2.04	Service Water	2.5	2.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor building closed cooling water
078K4.02	Instrument Air	3.2	3.5	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Cross-over to other air systems
103A2.04	Containment	3.5	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Containment evacuation (including recognition of the alarm)

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001K2.03	Control Rod Drive	2.7	3.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	One-line diagram of power supplies to logic circuits
002A4.02	Reactor Coolant	4.3	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Indications necessary to verify natural circulation from appropriate level, flow and temperature indications and valve positions upon loss of forced circulation
017K3.01	In-core Temperature Monitor	3.5	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Natural circulation indications
027K5.01	Containment Iodine Removal	3.1	3.4	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Purpose of charcoal filters
028A1.02	Hydrogen Recombiner and Purge Control	3.4	3.7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Containment pressure
034K4.03	Fuel Handling Equipment	2.6	3.3	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Overload protection
035G2.2.40	Steam Generator	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
055K1.06	Condenser Air Removal	2.6	2.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	PRM system
071A3.02	Waste Gas Disposal	2.8	2.8	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Pressure-regulating system for waste gas vent header
075A2.03	Circulating Water	2.5	2.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Safety features and relationship between condenser vacuum, turbine trip and steam dump

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.38	Conduct of operations	3.7	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the stations requirements for verbal communication when implamenting procedures
G2.1.7	Conduct of operations	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
G2.2.11	Equipment Control	2.3	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for controlling temporary design changes.
G2.2.19	Equipment Control	2.3	3.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of maintenance work order requirements.
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.3.15	Radiation Control	2.9	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation monitoring systems
G2.3.4	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation exposure limits under normal and emergency conditions
G2.4.28	Emergency Procedures/Plans	3.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of procedures relating to emergency response to sabotage.
G2.4.31	Emergency Procedures/Plans	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures
G2.4.6	Emergency Procedures/Plans	3.7	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge symptom based EOP mitigation strategies.

ES-401, REV 9 **SRO T1G1 PWR EXAMINATION OUTLINE** **FORM ES-401-2**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
029EA2.06	ATWS / 1	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Main turbine trip switch position indication
038EG2.2.40	Steam Gen. Tube Rupture / 3	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
054AG2.4.30	Loss of Main Feedwater / 4	2.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of events related to system operations/status that must be reported to internal orginizations or outside agencies.
055EA2.03	Station Blackout / 6	3.9	4.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Actions necessary to restore power
058AG2.4.18	Loss of DC Power / 6	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.
077AA2.08	Generator Voltage and Electric Grid Disturbances / 6	4.3	4.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Criteria to trip the turbine or reactor

ES-401, REV 9 **SRO T1G2 PWR EXAMINATION OUTLINE** **FORM ES-401-2**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001AA2.02	Continuous Rod Withdrawal / 1	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Position of emergency boration valve
060AG2.4.1	Accidental Gaseous Radwaste Rel. / 9	4.6	4.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of EOP entry conditions and immediate action steps.
061AA2.01	ARM System Alarms / 7	3.5	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	ARM panel displays
069AG2.4.21	Loss of CTMT Integrity / 5	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions

SRO T2G1 PWR EXAMINATION OUTLINE

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
012A2.01	Reactor Protection	3.1	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Faulty bistable operation
039A2.03	Main and Reheat Steam	3.4	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Indications and alarms for main steam and area radiation monitors (during SGTR)
076G2.4.3	Service Water	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to identify post-accident instrumentation.
078A2.01	Instrument Air	2.4	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Air dryer and filter malfunctions
103G2.4.3	Containment	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to identify post-accident instrumentation.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
028A2.01	Hydrogen Recombiner and Purge Control	3.4	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Hydrogen recombiner power setting, determined by using plant data book
068A2.04	Liquid Radwaste	3.3	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Failure of automatic isolation
071G2.2.36	Waste Gas Disposal	3.1	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations

SRO T3 PWR EXAMINATION OUTLINE

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.27	Conduct of operations	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
G2.2.18	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing maintenance activities during shutdown operations.
G2.2.40	Equipment Control	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
G2.3.12	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.14	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
G2.4.30	Emergency Procedures/Plans	2.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of events related to system operations/status that must be reported to internal orginizations or outside agencies.
G2.4.46	Emergency Procedures/Plans	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.

FINAL

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO		
T2G1	076 K2.04	SQN does not have a Reactor Building Closed Cooling Water system. (Re-selected 076 K2.08; IR 3.1/3.3)
T3	G 2.2.11	RO importance rating < 2.5 (2.3) (Re-selected G 2.2.14; IR 3.9/4.3)
T3	G 2.2.19	RO importance rating < 2.5 (2.3) (Re-selected G 2.2.6; IR 3.0/3.6)
SRO		
T1G2	060 AG2.4.1	Unable to write a question to address EOP entry conditions and immediate action steps for a Gaseous release. (Re-selected 060 AG2.4.21; IR 4.0/4.6)
T2G1	076 G 2.4.3	Over-sampling of generic K/A and overlap with RO #18 (Re-selected 076 G 2.4.4; IR 4.5/4.7)
T2G1	103 G 2.4.3	Over-sampling of generic K/A and overlap with RO #18 (Re-selected 103 G 2.4.21; IR 4.0/4.6)
T1G1	077 AA2.08	Unable to write an operational valid question at the SRO level (Re-selected 077 AA2.07; IR 3.6/4.0)

FINAL

ES-401 **Written Examination Quality Checklist** **Form ES-401-6**

Facility: **Sequoyah Nuclear Plant 1 & 2** Date of Exam: **09/13/2010** Exam Level: RO X SRO X

	Item Description	Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.	JTB	NT	RJB
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	JTB	NT	RJB
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401	JTB	NT	RJB
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).			RJB
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or __ the examinations were developed independently; or ✓ the licensee certifies that there is no duplication; or __ other (explain)	JTB	NT	RJB
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.	JTB	NT	RJB
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.	JTB	NT	RJB
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	JTB	NT	RJB
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.	JTB	NT	RJB
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.	JTB	NT	RJB
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.	JTB	NT	RJB

	Bank	Modified	New
	47 / 11	5 / 2	23 / 12
	(%) 63/44	7 / 8	30/48

	Memory	C/A
	32 / 5	43 / 20
	(%) 43/20	57 / 80

	Printed Name / Signature	Date
a. Author	Michael Buckner Michael Buckner	9/23/2010
b. Facility Reviewer (*)	Van Ford Van Ford	9/23/10
c. NRC Chief Examiner (#)	Richard S. Baldwin /Richard S. Baldwin	9/23/10
d. NRC Regional Supervisor	Malcolm T. Widmann	09/27/10

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.

SEQUOYAH 2010-302 REVIEW PRE ATLANTA

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
1	H	3												N	S	008AK2.02, New, Higher KA appears to be ok Question appears to be ok.
2	F	2-3												B	E S	011EK2.02, Bank, Lower Add to the stem, the word, "operator" prior to actions. Added as requested. Change the distractors A and B to read, the following pumps are put in PTL.... In distractor D, underline or capitalize ALL, to ensure some one does not make a mistake because of reading. Ask licensee if this has been done for other distractors. KA appears to be ok. Otherwise question appears to be ok. Should we add the procedure to the stem, Van Ford. RSB agrees with this, added to the stem the ES 1.3, Transfer to RYR containment sump. OK.
3	H	3												N	E	022AA2.01, New, Higher In the stem of the question, the procedure that these actions are being done with should be added. This ensures that the question is lock tight with respect to actions to be. Add to the stem the value of CCP amps initially. added Distractor D does not appear to be plausible, the controller is increasing and demanding more flow. What indications does the operator have listed that would indicate that the controller failed or did not fail? Ask licensee to address concern. Normal action of R 05, would be this action, and is plausible. Remove the very first sentence. This will be ok In distractors A and B the wording is not consistent with other questions. Need to make clear sentences. B is a clear example of this. "Stop and pull to lock 1B CCP..." Stop and place the 1B CCP in pull to lock..." KA appears to be ok. Question is ok as changed.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
4	H	2												B	E	025AG2.107, Bank, higher Add to the stem the reference to what procedure these actions are being taken. Is the AOP the appropriate procedure, what Annunciators would be in for this situation? added as requested. This question identifies that C is the answer, however, the analysis states that D is the answer. Select D as the answer on the question.changed as requested. Distractors are not consistent again, need to use additional words to make sentences. Add "valves" before the listed valves in distractor D. This has changed as requested. KA appears to match Address above concerns. Question is ok as changed.
5	H	2-3												N	E	026AK3.01, New, Higher For the valves in the stem, add commas where necessary to separate the valve numbers from the valve nomenclature. Additionally, is "open position" different from OPEN? Yes there is a difference with the nomenclature. Place commas in the appropriate positions for the first time the valve and valve numbers in the stem. After the valve number and then again after the noun name and inside the quotes. Done as requested, ok as it appears.. KA appears to match Otherwise, question appears to be ok Question is ok as changed.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
6	H	2												N	E	027AA1.05, New, Higher Distractor B is not plausible. The system design would never allow no heaters to be on at this time. If you want this to be plausible, change the time provided to a time before the heaters are re-energized. This is ok the way it is. Change the initial premise of the question to have just one of the shutdown boards be energized and then you can use various answers and none of them being no heaters available. When the question is changed remove "if any" from the question. N/A Disagree with level of knowledge. If you don't have this memorized, you cannot answer the question. Discuss with the licensee. Na ok as is KA appears to match. Ok as is, no changes necessary to the question.
7	F Changed to a higher H	2-3												B	S	029EG2.4.31, Bank, Lower Be consistent with the placement of the quotes. The punctuation following a phrase that is always included in the quotes. It is done differently with this question and throughout the examination. Just be consistent. KA appears to match Question appears to be ok. RO reviewer states that B is not plausible because they are not required to memorize step 6. SO added the verbage from step six of the procedure. Also added to stem capitalizes VERIFY and TRIPPED. As is in the procedure. Ok as changed. See exam to see what was modified. Changed from Fundamental to Higher.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
8	H	2-3												N	E	038EA1.17, New, Higher Place in the stem the procedure the operator is expected to do this in accordance with. Changed. The references provided do not identify the panel or what is necessary to ensure it is open. Had to use Reference material to obtain this information. Understand where these are now. What is the significance of the M-6 panel, where is it and what valves are you describing when it is used? This is where the operator looks at the valves for blow down. Need to add words to make complete sentences. Add "the" prior to S/G. Verify the red sample valve status light is lit for THE S/G to be sampled on 2-M-6. What panel is this? Have licensee help out to describe what valves they are speaking about. The Phase A isolated both inside and outside isolation valves and sample valves. While AFW either outside containment isolation valves and sample valves. What is the significance of the Mode? When you are in mode 3 vs one and two. Disagree with level of difficulty, its memorization and answering if all you do is apply this. Discuss with licensee. KA appears to match. The distractor analysis for C was D and visa versa, chanted.
															S	

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

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:
   - 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:
   - 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. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).
6. Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f.
7. 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?
8. 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. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
9	H	2-3												N	S	054AA2.07, New, Higher KA appears to be ok Question appears to be ok.
10	H													B	S	056AA2.56, Bank, Higher KA appears to match Question appears to be ok.
11	H													B	S	057AK3.01, Higher, Bank KA appears to match Question appears to be ok.
12	H													B	E S	058AK1.01, Bank, Higher The second bullet is teaching, is this necessary to answer the question? Can it be said that the 125 VDC power supply is in its normal alignment? I read this incorrectly, this is ok the way it was. KA appears to be ok. Otherwise, question appears to be ok. Needed to add assuming no operator action. Wording consistent. Changed the stem from greater than 4 hours. To 5 hours. Don't use the set point. VF identified that requirements do not need to be in each distractor where it was used. OK as changed.
13	H	2-3												B	E	062AA1.07, Bank, Higher Be consistent with how the information that no operator action is taken is standard. This question is different than question #6. Either way is ok, I sort of prefer the way # 6 is done, whatever is easier to accomplish. Changed the stem to Assuming NO operator action. Used in 6, ok as changed. KA appears to be ok. Otherwise, question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
14	H	2-3												M	E	077AA1.03, Modified Bank, Higher. Are there two answers to this question? Why would the manual operation of the Voltage Base Adjuster not be also used to adjust MVARs incoming? As licensee. OK as is, the voltage adjustor is in AUTO and would ONLY be operated in AUTO. KA appears to match S Is this information concerning the 500 KV line required RO/SRO knowledge? Ask licensee if this is something they expect the operators to know. OK as is. Otherwise, question appears to be ok.
15	F	2												N	E	W/E04EK1.1, New, Lower Add to the stem after WOOTF "pumps" is contributing…NA this is not necessary. KA appears to be ok. Otherwise, question appears to be ok. S RO commented that the 1400 confuses the process and will be hard to determine with the information. SO changes the pressure to 1495 to ensure the answer will be what we expected. NEED TO STILL RUN THIS ON THE SIMULATOR.
16	F	2-3												B	E	W/E05EK3.2, Bank, Lower KA appears to be ok. S Change answer to what is said in the analysis. Propose answer to be, "To extend the effectiveness of the remaining water inventory in the Steam Generator." Changed as requested. Otherwise, question appears to be ok with suggested change.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
17	H	3				X								B	U E S	W/E11EK2.1, Bank, Higher. Put the noun name of valves 72 and 73, in quotes. Also add appropriate words where needed. (i.e. both "valves" prior to the 1FCV-63-72...) The reference to the step in the last bullet is not necessary, only refer to what they are doing. The way it is written implies that the applicant should, from memory, know what that step is. The question asks wootf will result in the proper alignment of the CSPs under plant conditions. Each distractor puts the applicant at a different part of the procedure. Distractor A puts you in Step 8 to stop pumps if level is below 8%, but then the PTL does not come happen to step 9 b. Made a bad assumption and would not do this, would have to go to step 10. And not do step 9 entirely. Distractor C is not totally correct, in that, it states to stop one pump (should be in PTL) and cannot allow to swap this is a manual action and only if the sump level is greater than 18% (22%). Ask licensee if this is correct. Added containment sump level of 52% good. Distractor A does not appear to be plausible. Add to the stem a value of containment sump level that would be available at that time. Propose that 19%. Change answer B to read Continue to run both CSPs until RWST level is less than 8%, then swap both CSPs to the RWST..This suggestion is incorrect, should not have done this and did not. The changed analysis of this question from U to E. Should not have had this. As changed this question's changes were ok.
18															S	W/E12 EG2.4.3 New, Higher, This question was NOT in the hard copy. Question appears to be ok. Capitalize Category and provide a color copy of this to the applicants, if possible.
19	H	3												B	S	028AK2.02, Bank, Higher KA appears to match Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
20	H	2-3										X		M	U S	032AK3.02, Modified Bank, Higher Unmodified question was not provided, could not determine if the question was modified in accordance with the NUREG. Add to the stem the procedure, it should then read, WOOTF action(s) is required to be taken in accordance with ECA - 0.0. The Answer is the only distractor that has a caveat to it, which provides a clue but not a reason for doing it. KA does not appear to match. In that, there are NO reasons being evaluated. This question needs to be modified to have two ideas the first being stop dumping steam. Add to that, one reason why that is correct and another that is not correct. Then select distractor C and have two reasons for those. Thus creating a 2x2 question. Could not make a 2X2, but added reasons to the distractors. The sentence concerning the failure of BOTH Source Range Ni's does not appear plausible. Need to change this to make it plausible. Added to the stem to have unit 2 at 100% with N31 out of service. Now the question will have a loss of SR NI's.
21	H	2-3												N	S	033AG2/4/30, New, Higher Question Appears to be ok KA appears to match.
22	F	2-3												B	S	036AK1.01, Bank, lower KA appears to match Question appears to be ok.
23	F	2												N	S	068AA1.06, New, Lower, KA appears to match Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
24	H	3										X		N	U E S	074EA123, New, Higher Change first bullet to read, "Unit-2 has experienced a small break LOCA that resulted into entry into FR-C.1, "Inadequate Core Cooling." While performing FR-C.1, the position of pressurizer PORV block valve ……." KA does not match the question. Are these actions ONLY done in C-1? If not, then it is a generic and has nothing with C.1. If it's the only place they occur then it may be ok. Licensee to discuss. Question appears to be ok. The examiner initially diagnosed this as a U and was incorrect. This question should not have been evaluated as a U but an E. The changes were made as requested. The KA did match. Not sure why it was initially indentified as a U and not matching the KA. Question is OK now.
25	L	3												B	E S	076AK3.06, Bank, Lower KA appears to match Change the numbers each distractor, change from 0.16 and 0.36. and then change the second part to reflect that the number is now not the first. Just the activity level that would require entry into the TS. Don't like to use set points as the value, this triggers the applicants memory just because of the memory of a familiar number. If the ROs received a chem. Report stating that the value was something greater than 0.35 then the operator is required to know that entry condition. Changed this as requested.
26	H	3												N	S	W/E14EA2.1, New, higher. KA appears to match Question appears to be ok. Should the stem have reference to 2-FR-0? Added this enhancement to the question.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
27	F	2-3												B	E S	W/E15EK1.2, Bank, Lower, In the stem, the last bullet, does not seem like it should be included. This short of answers the question incorrectly, remove this from the stem, it's not necessary. KA appears to match, Otherwise, question appears to be ok. Question was changed, and added FRZ 2 in the first stem of the question.
28	F	3												N	E S	003A4.03, New, Lower In stem, first bullet, add the RCP that is being started. The Lift Pump is the pump for #2 RCP. Make this as clear as possible. Add to each distractor's second part, the 1 min minimum required by the procedure. Changed the question as requested. OK
29	F					X								B	U E S	004K4.08, Bank, Lower, In the stem, it is not necessary to have the nominal pressure of hydrogen in the VCT. Remove this from the stem. Distractor A, is not plausible, since when does the plant simultaneously start pumps, does not make it plausible just because the NPSH is addressed. Need another distractor. Suggestion, Use pressures 15 and 17 and oxygen scavenging and back pressure to the RCP #2 seal and ensure flow to the # 3 seal a. 15 #s, nominal Hydrogen pressure, and oxygen scavenging b. 17#s , nominal Hydrogen pressure, and provides RCP #2 seal to ensure adequate flow to # 3 Seal. Etc. Needs work to fix. OK as changed. Misclassified as a U, should have been an E.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
30	F	2-3												N	E/U S	004K5.29, New, Lower, Distractor C does not seem plausible, it ONLY discusses the oxygen concentration and does not address the other limits for chlorides and fluorides because of singling out only oxygen from the stem, why would anyone pick this distractor. Added the other chemicals to the question. Is distractor B totally incorrect? From the basis of the TS, there is a statement on page B3/4 4-2, that states something similar, in that, it states this for the Reactor Coolant System. Is not the RCP seals part of the RCS? Discuss with licensee to ensure this is entirely incorrect. VF states this is the basis for sampling not the limits of the chlorides fluorides and oxygen. The initial analysis should be an E not a U. OK as changed.
31	H	3												B	E S	005G2.4.46, Bank, Higher When this phenomenon occurs, where is the temperature indicator? Cannot find on the procedures/lesson plans. Based on the analysis, it appears that the temperature indicator is some place on the output line on the RHR heat exchanger. Cannot find on simplified drawing. Have licensee explain how, the isolation of letdown does not stop or reduce leakage. Cannot determine how this would not help or prevent the high temperature alarm. Have licensee explain how this works and what the applicant has to do to answer this question. What constitutes the removal of RHR Letdown from service as used in distractors A and B? KA appears to match. Question appears to be ok. CCW side of the alarm, not the RHR side. 1-TI-70-157 is the detector for the temperature of this alarm. OK as is.
32	F	2-3												N	S	006K2.04, New, Lower Is this something an operator is expected to know from memory? VF and RO stated it is an expected knowledge for applicants. OK. KA appears to match Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
33	H	2-3												B	E/S S	007K1.03, Bank, Higher Distractors used in this question appear to have different properties in them, in that, the answer, distractor C states RCP seal leakoff flow is returning to the PRT. While this is true, it should be written as just RCP seal leakoff flow. The part "returning to the PRT" is not necessary. Or is it? Ask licensee. This part is NOT necessary to provide. Removed as requested. The same analysis can be applied to distractor D. This distractor is the only distractor that has a reason for the valve opening. Remove this part of the question. D should now read, Valve FCV-68-303, PRT fill valve, fails OPEN. The valve actually fails closed. So VF does not want to put the direction on the distractor. C should read RCP seal leakoff flow. Changed D to Loss of air to the PRT fill valve FCV-68-303.
34	H	2-3												N	U S	008A2.08. New, Higher. Place a comma between TS-62-78 and LTDN. .In the initial conditions of the question, it states that the ALL other CCS indications are NORMAL. If they are normal, how then in distractors A and B, could there be a leak on the CCS header? It appears to me that distractors A and B are not plausible because of this. Discuss with licensee to understand what may be occurring. Added operator prior to action. Removed the last bullet, this made this satisfactory question. Does the name of the procedure need to be added? VF leave as it is. Agree with licensee. .
35	H	3												B	E S	008K1.04, Bank, Higher. The way this question is worded in the stem is very confusing. Rewrite this to be less confusing. KA appears to match. Question appears to be ok, however, confusing. Reworded the stem, WOOTF identifies the location of the CCS leak and the resulting plant condition the leak would cause? OK as changed

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
36	H	2-3												M	S	010K4.02, Modified bank, Not rated for Level of Knowledge. Chief Examiner rated as a higher LOK question. Original question was not submitted to verify it met the modification requirements. Will not use as a modified question, need to move it back to a bank. This modification does not constitute a modified question. KA appears to match. Question appears to be ok.
37	H	3												B	S	012A1.01, Bank, Higher KA appears to match Question appears to be ok.
38	H	2-3				X ok								B	U S	013K5.02, Bank, Higher, Distractors A and B are not plausible. When the instrument fails LOW, the instrument opening does not make sense. These need to be fixed. KA appears to match. Changed the question to allow for the A and B implausible being fixed. Added additional words to all distractors see the actual changed question.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
39	L	2				X								B	U	013K6.01, Bank, Lower, The question as presented has multiple flaws, most of which are plausibility of the distractors. The evaluation of the system is the 2/4 and this is not really being tested. Distractor C is NOT plausible, why would a failure of ONE instrument cause BOTH trains to be inoperable, are there any other systems that this type of failure occurs in the entire plant? I would say no. Suggest to tag out the same instrument then fail another instrument and ask the same questions. This may work then. But have to make sure it does. As it sits now it is not satisfactory. Low level channel swap over, need 2 of 4 and tagged out the 52. This made this better, additionally, a failure of an additional instrument made this more relevant. S Removed the time frame from the test. It really does not matter. VF states that OPERABLE in the stems are not actually correct. This really mean available. Need to change the words in each distractor. Changed lots, see changes on the test.
40	H					X						X		B	U	022K3.01, Bank, Higher Used on the 2006 Exam WBN The question is NOT specific to the KA, in that, the KA speak about damage, however, this could be stated that the seat leakage or something else that is changing is affected detrimentally. IN ALL distractors the described conditions have an effect. While they may or may not be significant, they all will have something that is affected. This is the reason why the question as it stands is poor. There is a fundamental difference on what the statement in the containment means. Examiner believes it is containment equipment, however, the licensee believes it is equipment inside the containment. Discuss with another examiner and the supervisor to see if this is or is not correct. DISTRACTORS INITALLY WERE NON PLAUSIBLE. A B C AND WAS NOT IMPLAUSIBLE DUE TO THE KA MATCH, S CHANGED THE QUESTION. SEE TEST GOOD AS IS.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
41	L	2										X			U E S	025K5.02, Bank, Lower, KA does not match, The question as written does not address the licensee's discussion of the KA match, it does not cover any of the items the licensee identifies in this area. This question only address's a precaution and Limitation of what is the optimal temperature range. THE KA covers the ice condenser and its ability to for heat transfer. This question tests how this is accomplished, ie for a LOCA and how the system works. Question is ok, however, it does not match KA Replace question. Was the examiners Initial characterization incorrect? This question may be ok, ask other examiners. 18 and 27 (TS limit) and then the heat transfer part. Use, second part, maintain with in ts limits, and or use sublimation. ?? Review to see what to do. Changed the question to make it 18 or 27 and excessive concrete expansion or outside tech spec limit. MB stated the questions does meet KA. Mischaracterized initially.
42	H	2-3												B	E S	026A3.01, Bank, Higher. In the analysis of this question, the time used is 184 seconds, however, in all the reference material this time is 180 seconds or 3 minutes. It is 180! Changed in this. In the question the applicant has to assume that the EDGs loaded on their respective buses at time 1205, and about 30 seconds. 10 seconds for the DG to start, and the first 4 steps being completed. Is this something we want the applicant to assume? Discuss with licensee if this needs to be identified more clearly. Also is it important for us to make sure that the position of the CS switches are in standby readiness and in A-Auto, etc. Discuss! MB states that this is not necessary. Examiner agrees. Nothing needs to be done. KA appears to match. Question appears to be ok. Waiting final outcome of discussions above. Question is sat as it was submitted.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
43	L	2				X								B	U E S	026A4.01,. Bank, Lower, KA appears to match CSS is actuated via the phase B controls. Question's distractors A and B are NOT plausible!. Everyone knows that there has to be two switches manipulated and this will not do. The licensee took offense to that that, everyone would not know this from memory. Change to have one switch in each of the opposite pairs has to be manipulated to operate. This will make this question a little higher level of knowledge. What was the spread of answers for this question, if any spread at all? From validation. This was validated as 100% correct. Done by requal operators. Examiner mischaracterized this question as a U. This should have been evaluated as an E not a U. The question was rewritten to make distractor A to read, Operation of any one of the 4 handswitches will actuate both trains. Rewrote distractor to read Operation of either 1 HS 30-64A or 1 HS 30-68A (M-5) will actuate train A ONLY. Added handswitches to switches in both C and D, also, stated that distractor D was taken the two switches and to pair.
44	H	3												B	E/S S	039A3.02, Bank, Higher KA appears to be ok Distractor A, add BOTH to the front of the distractor. For all the distractors, start with SI and end with MSLI, or visa versa. It does not matter, just make sure they are in the same order. It makes it harder to read the question when they are different. Did as suggested. Otherwise, question appears to be ok. IS ok. As changed.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
45	H	2-3				X								B	E/S S	059K3.02, Bank, higher. KA appears to match. Since the answers are concerning the Unit 1 AFW pumps, how about customizing this question to be unit 1 specific, by changing the information in the stem to Unit 1. Changed as requested, made it a unit 1 question. Or, just change the answers to be more generic if that can be done. In other distractors, the word ONLY has been capitalized. So be consistent with whatever convention is used followed this suggestion also . Otherwise, question appears to be ok.!
46	H	2	X			X								B	U S	059K3.03, Bank, higher. The stem needs to be made tighter. In that, the word used "APPARENT" to the operators. This is NOT concise enough, because it means where the operator happens to be looking at the time. Tighten up to insure we are asking the correct question. Question has many non plausible distractors. Distractor B would take a long time to be seen by the operator. Replace with something more plausible and not requiring the system feedback from secondary to primary. Change distractor C, to decreases, now the applicant has to determine which comes in first. Distractor A is the only annunciator, the licensee KA match determine states that the applicants were to determine which indications (alarms) would be generated first. This is incorrect! There is only one annunciator that is provided. Also this distractor is the only one that is ALL Capitalized. Gives it a clue it may be the answer. Will come up with 4 alarms, and will go over this again, Changed this question to use the alarms. Looks good, need to run on simulator to determine if there is an issue with how the applicants have to answer this.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
47	H	2-3	X			X								B	U E S	061K6.02, Bank, Higher. Distractor C is not plausible, change flow to 220 and change D flow to 440. This is at least in keeping of the correct flow from the answer. The stem talks about AFW alignment, this would be something like the pumps that are running, but we have the generators that are being fed and the flow. The stem does not speak to the flow, so that has to be fixed also. "WOOTF describes the S/Gs that will receive AFW flow and the expected flow rate to those S/Gs." Or something like this! Discuss with licensee. Accepted this comment. Distractor C does not seem plausible, in that, I don't remember when a flow value of 110 gpm for each SG is provided to the SGs. Discuss with licensee. Will accept this as not credible, changed this distractor to use the 1 and 2 or 3 and 4 SGs and then use 220 or 440 as the second part of the question. OK as changed. Initial characterization should have been an E. There was only one non credible distractor. Upon review with the licensee, this should not have been a U.
48	H	3												N	E/S S	062G2.4.35, New, Higher. Teaching in the stem. Remove "start" from second bullets. OK no change necessary. Capitalize Safety Injection for consistency. Third bullet, add comma after EA-82-1, Tighten the stem by referencing the Procedure EA-82-1. Added AT the last sentence of the stem, add words "MUST BE" found a technical error themselves. Separated this to be more easy to ready. KA appears to match, Otherwise question appears to be ok.
49	H	2												B	S	063A4.01, Bank, Higher, used on audit exam 1/2009 Question used on previous audit KA appears to match, Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
50	H											X		N	U S	064A2.05, New, Higher, Question doesn't appear to match K/A. Don't see how the question addresses the use of procedures to correct, control or mitigate the consequences … REPLACED THIS QUESTION TO MATCH KA. NEW question appears to be ok. KA matches.
51														B	S	073.A1.01
52	F	1	X			X								B	E S	073K1.01, Bank, Fundamental. (LOD) Should avoid using "best." **It appears that two of the distractors can be immediately dismissed based on the alarms received – what occurs when a high rad alarm is received and why Information for RICK….** Appears that the first two answers/distractors could be discounted because they do not run ever. The answer or control building emergency air pressurization fans start on this signal. Change A and B to Main Control room Air handling unit. This will make it better.
53	F	2												N	S	076K2.08, New Lower,
54	F	1	X			X								M	U E S	LOD as written. The stem appears to ask what must/should have occurred to maintain Air Header Pressure for the given conditions. I would think that based on what is asked, distractors A, B & C are not plausible. Please answer what pressures would be/or could be maintained if actions taken in distractors A, B & D are taken. In this question, the distractor s that each of the distractors provide different components compressor is 77 pounds, isolation valve is 69 pounds, service air receiver, Should have been characterized as an E. Changed the stem to have should have vice would have

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
55	H					X								B	E S	Distractor A is not plausible. Not sure of any mechanical equipment malfunction which would require an evacuation of containment. Provided information if there is. Changed A second part, to Place Rx Vessel Head on stand. . Reworded the stem to reflect the way the table is. See question.
56	F	2												B	S	
57	H	3												B	S	
58	H	2				X								B	S?/U S	017K3.01, Bank, higher. The question appears to be OK, however the use of the words several and slightly could be challenged. Several could mean 2 or more and slightly could mean 1-2????? This could result in several correct answers. ES-0.1 for both running and stopped RCP says stable or trending between 547 and 552. Please explain..... The question appears to be ok as is. Question matches the KA.
59	F	2												B	S	
60	F	2												N	S	
61	F	2												M	S	
62	F	2												B	S	
63	F	2												B	S	
64	F	2				X								N	E S	071A3.02, New, Lower, Not sure why one would think that closing the pressure control valve would be plausible as in Distractor A The suction control valve is not credible, when do you throttle the suction of any pump? This will be changed in distractors A and C to the discharge throttle valve. This makes more sense and does not accomplish the task as discussed in the question.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
65	H	3												N	S	075A2.03
66	F	1												B	S/U S	G2.138 LOD. **Addressed K/A. This area is tested through simulator scenarios. Would suggest replacing the K/A if it is not too late** The new KA is G2.1.32, was used to prevent the overlap of competencies in the question and the simulator scenarios. This new question covers operation of pumps with successive motor starts. OK meets ka and question is ok.
67	H	2	X			X								B	U S	G.2.1.7 bank, higher. Should stem state according to plant procedure? Distractor B & D do not appear to be plausible. Do not see why starting the AFW pumps would be acceptable. Even if starting the pumps were acceptable and we make the assumption that parameters are restored, why would one trip the turbine. AOP S.1, Main feed water malfunctions. Added this. Changed this question significantly. See exam for changes.
68	F	1 2-3												B	S	LOD Changed the question that added information to make the level of difficulty higher, KA matches a Question is ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
69	F	1				X								M	U E S	LOD Not able to identify information in the procedure to support answer. Distractor D is not plausible. Why would one think that a procedure that need a minor editorial change would be placed on hold? G.2.2.6, Modified , Higher. Change distractor D to read Process a Minor Editorial Change. Did not have the appropriate references but were available during combined review. Question was mischaracterized as a U. This should have been characterized as an E. Question change is ok.
70	H	2 2-3				X								B	U E S	Distractor A is not plausible. Do not know of any reasons to dispatch radcon to control room. It appears that distractor C may also be correct based on information provided. RM-103 is increasing. Distractor D, which is the correct answer appears to lead the applicant do the fact that the stem talks about SFP and the answer reads High Radiation in the SFP area…….. G2.3.13, Bank, Higher Changed bullet to have fuel shuffle in progress. Changed both distractors C and D, Verify the Auxiliary Building General Supply and Exhaust fans are shutdown, manually actuate BOTH A and B train Auxiliary Building Isolation. And D reads now, similar to the c but only the A train to start manually. Mischaracterized the evaluation of the question it should have been an E and not a U. Changed from U to E and changes to S.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
71	F	2												B	S?	Provide information on each of the monitors identified in distractors A, C & D. Unable to identify them in any procedure G 2.3.15, Bank, Lower, Are expected to know, above the line on TSs. OK for RO knowledge. Need to change the noun names of what is actually listed on the radiation monitor, this needs to be done to ensure that an applicant does not have an excuse that an incorrect noun name threw them off of the answer because of incorrect nomenclature. .
72	H	1												B	S	LOD
73	F	2												N	S	
74	H	3												B	S	
75	F	2				X								B	U E S	As the question is written it appears there could be two correct answers. A & C. Distractor D is not plausible -- don't see why applicant consider D. Distractor D was not totally incorrect, made so that the distractor encompassed the whole procedure by adding anytime making it incorrect. Distractors C (the answer) and D could almost be considered correct. Removed from the stem the statement ECCS flow injecting. This made B almost the same as C. Implausible. C was not correct. This should have been an E not a U. KA ok and question now as it appears is ok.
SRO Only																
76	F	2-3												N	S	029EA2.06, NEW, KA matches While this question is a lower level question, it appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
77	H	2-3												B	E S	038EG2.2.40, Bank KA matches Distractor D, is not plausible! The target temperature usually is determined by the associated SG. Since there is NO steam generator pressure to figure out what the target temperature, this could not be credible as a distractor. Select another Distractor for D. Spell out Tech Spec, changed distractor D to add the 100 deg F for cool down in TS. OK as changed.
78	H	3												N	E S	054AG2.4.30, New, The second bullet in the initial conditions is to long to read. It also does not explicitly allow the reader to determine that the TDAFW pump is out of service and provides an element of teaching. Shorten this and that the TDAFW pump is OOC. Added TDAFW tagged out. KA appears to match Remove from stem the yellow path reference.
79	H	3												N	S	055EA2.03, New, KA appears to match Appears to be ok.
80	H	2-3												N	E S	058AG2.4.18, New KA appears to match Teaching in the third bullet. Remove the word "three" from the sentence. They should know that there are three other SD boards. And add to the 2A shutdown board as being the ONLY SDB being powered. Remove the reference to "three" other SDBs being without power. Did this, appears to be ok. In the initial conditions should the word "complete" be "completed?" Why didn't the writer use EA-250-1 in either distractors a or b? This also would be untrue. Will change A to have 250-1, for the 250-2. Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
81	H	3												N	U	077AA2.08, New, higher KA appears to match This question relies upon the use of the ARP for the answer. Normally, ARPs are NOT used from Memory. It appears that both parts of the answer come from the ARP. It this acceptable to expect the SRO applicants to have to memorize. Discuss with licensee to ensure this is what was expected while answering this question. VF is concerned that this question will be a high miss question because there is no alarms in the simulator that cover this. VF believes that this question as written is beyond the memory level of what an SRO is expected to know from memory about ARPs. Would like to have another KA to replace this KA. REPLACE THIS KA What is the significance of having the inter-tie transformer tap in manual? Please explain. This question was initially characterized as a U incorrectly. This should have been an E and not U. THE NEW KA is 077AA2.07, Generator Voltage ******
82	H	2-3												B	U S	001AA2.02, Bank, KA appears to match The distractor analysis for distractors C and D, identify that there would be some flow with dual light indication in C but no flow in D. This does not follow with the premise that this would be true. While the distractors state there is NO flow, why would anyone believe that dual indication would result in no flow? It appears from the above discussion, both distractors C and D are not plausible. Discuss with licensee. In slow speed BAT transfer pump to slow all time. If the valve (throttle valve). Changed the first distractors and made the flow control valve open with no flow and the intermediate valve with flow. Question appears to be ok as changed. Look at test to identify changes completely.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
83	H	2-3												N	U	060AG2.4.21, New, higher Not sure if it is clear that the high Radiation levels are on Unit 1. Make sure it is clear. Appears to the licensee. Since the LCO is not a short period LCO, meaning hour or less is it reasonable for the SROs to be required to know this TS? As licensee if this is ok to make sure we test the appropriate items.VF expects the SROs to know this 3.0.3 from memory. ROs do not have to know this. Is it a true statement that the EGTS system will automatically start on the conditions listed in the initial conditions of the question? If this is true, the operator merely has to identify that the system auto-starts and aligns automatically. If this is the case, there is no analysis of the safety functions listed in the KA. I do not believe the KA is being met because of this. Discuss with licensee to understand system requirements. KA does not match. Does it meet the KA. And is it an SRO ONLY This is SRO only, and the KA does meet, met with another examiner and found this does meet the requirements of both the SRO and KA match. S Question is ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
84	H	3-4												M	S	061AA2.01, Modified Bank, Higher Trivial, on third bullet, there are two periods in a row. In bullet 4, there is a reference to a radiation monitor, 0-RM-90-102, in the third bullet, the same name is used for the rad monitors, however, the rad monitor number is 103. Are they the same or, is this a mistake? Licensee to review. The same name but different trains. Question is modified bank, in order to determine if it was modified as required by 1021, the bank question needs to be provided which it was not. Provide bank question for review. Or identify what was changed from the original bank question. This question appears to be complicated and would need references, however, the questions references are not required to answer the question. Is this expected of the SROs to know this detail of the TS without TSs? Yes its complicated the TS 3.9.12, the answer to determine if this is entered is located in the 18 month surveillance requirements. Because this is buried in this it would seem unfair and unreasonable to NOT allow this TS to be used. Will allow this TS to be provided for the exam. Discuss with licensee to show me how the switch manipulations in the IC effects or does not affect the answers. Understand what this means. KA appears to match.
85	H	2-3												N	E	069AG2.4.21, New, Higher The question itself states that References are provided, however, on the page that provides the references that developed this question, there is a place that identifies references provided, this states NONE as the references provided. This conflicts each other. Ask licensee which is correct. Clarify what references are being provided. Just the 3.6.1.3 TS will be added and not the basis. This is ok. If the basis is provided then the question's second part will become a direct look up. S KA appears to match. Question is ok as is.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
86	H	3											X	B	E/U S	012A2.01, Bank, Higher Distractor D, is NOT plausible, if the function was operable, why would the crew have to do a down power? The way this question is written is backwards, at least I think. Which part of the distractor, 1 or 2, is being used for the part 2 of the KA. This is an important distinction concerning the way it is analyzed. OK If the KA is evaluated with the use of TS or the use of the procedure. This is very close to not being SRO only. In that, the individual can, in fact, could answer this with RO knowledge. See below. Need to discuss with licensee to see what their idea was when this was written. Not sure this is SRO ONLY. IN the stem the reference to the TS has been removed. This will require the SRO to then have to determine the TS which is being used RO knowledge however, there are two functions below the line that have to be analyzed which is SRO. Question was changed to shorten the stem by pulling out common parts. OK Question is OK
87	H	3												B	E S	039A2.03, Higher, Bank, To answer this question, the operator has to identify the loop with higher radiation level. Why not provide loop 3 as the other answers rather than loop 1? This would make it more plausible and would also increase the level of difficulty. Since there is really NO information concerning if a saturated recovery was required. What in the stem would make the applicant think this? There was no information that would require the applicant to know this. The RWST level was added to allow the applicant to distinguish this information. OK as Changed. Change distractors C and D to Loop 3. Changed the value in C and D Swapped, because these are normal readings. So then the loops being looked are 2 and 4 vice 1 and 2
88	H	2-3												B	S	076G2.4.4, Higher, Bank KA appears to match, Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
89	H	3											X	M	U S	078A2.01, Modified Bank, Higher. Question meets modification requirements. This question appears to be answerable with ONLY RO knowledge. RO knowledge is system knowledge for the system bypass. Based on the information provided in the stem the applicant can use system knowledge to answer the first part. The answer to the question mislead that answer B was marked as the answer this was not the answer but B, this provided impetus for calling this unsat initially. The second part can also be answered by system knowledge. If the applicant knows from system knowledge, what will happen with the AFW system on a loss of auxiliary air, then they can determine what TS action to enter. Disagree with SRO only designation. A misunderstanding of the Basis of the effect of loss of one train of instrument air, was the basis for making this a Unsat question. The licensee presented information the examiner did not know/understand and this question should have been identified as a S.
90	H	3												B	S	103G.2,4,21, Bank, Higher KA appears to be ok Question appears to be ok.
91	H	3												N	S	028A2.01, New, Higher KA appears to be ok Question appears to be ok
92	H	3												N	S	068A2.04, New, Higher KA appears to be ok. Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
93	H	3											X	M	U S	071G2.2.36, Modified Bank, Higher Add commas to the stem before and after the procedure number and name. Added as suggested. This question is not SRO only. To answer the first part of the question this requires RO system knowledge. To answer the second part, for distractors basically would be RO knowledge that you need both radiation monitors for the release to be allowed. If the release was terminated by the system, and both are required for the release one could surmise that only one rad monitor is NOT sufficient to allow the release without doing something. I don't believe that the second part of distractors B and D are plausible. Discuss with licensee. This is a chemistry procedure that is administrative and controlled by the SRO. This then is based on the release permission and is expected to be SRO only in nature in accordance with Clarification for SRO only. This question should have been designated as an S and not an Unsatisfactory.
94	F	2-3												N	S	G2.1.27, New, Lower KA appears to match Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
95	H	3												N	E S	G 2.2.18, New Higher, This question is a series of true or false statements that are to be evaluated against the requirements of the procedure appendix that is being used as a reference. Diving while being High risk, is not listed in the procedure provided. While this may be the case, the applicant could evaluate this as not the answer because of it not being there. This is considered non-plausible. This distractor needs to be changed. KA appears to be ok. After discussion with licensee, this distractor will be allowed. It could be misunderstood that this will affect the other unit. Question as is is ok.
96	H	3												N	E S	G2.2.40, New, Higher The question proposes a scenario then asks what to do prior to Mode 4 entry. The question uses the statement "if any," as if there is NO answer. This should be removed from the question stem. This makes no sense here. Accepted. Distractor C is non-plausible, in that, the TS 3.4.1.2, requires 2 SGs and 2 RCPs, however this is for MODE 3. Change this to 2 and it will be more plausible. Accepted. KA appears to be ok Question appears
97	F	2-3												B	E/S	G 2.3.12, Bank, Lower Level, Question used on 1/2009 SRO Audit examination. In the stem, underline the word maximum or capitalize it, whatever is better to get the applicants attention. Accepted. KA appears to be ok. Question appears to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
98	F	2-3										X	X	B	U S	G2.3.14, Bank, Lower The procedures operator actions states Stage I at 10 hours and Stage II at 17 hours. This makes the answer trivial. . Do not believe that the question matches the KA. The KA Is Radiation control, Knowledge of radiation contamination hazards that may arise during normal, abnormal or emergency. This question ONLY asks the time for Stage I to start and what actions . Asked other examiners and they said this could be used, the KA can be linked that way. Should have been an S to begin with. Ok as is.
99	H	2-3											X	B	U S	G2.4.30, Bank, Higher While this question appears to be SRO only, it basically is RO knowledge that the first declaration made has to be done in 15 minutes. Since ROs are normally the communicators of this information to the State this is knowledge they have and can be answered with only that knowledge. KA appears to match Shift Manager only at SQN. Not communications (RSs). They do not support the emergency plan. At Sequoyah. Since the ROs at SQN do not do this, and there is a complication of an ODS. Operations Duty Specialist. In Chattanooga, the RO has nothing to do with this. Initially mischaracterized this as a U, should be an S. Question as is, is an S.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
100	H													B	E S	G2.4.46, Bank, Higher The question the way it was written is confusing, in that, the second part of the question is asking "A basis…." This is confusing in that the basis is NOT linked to anything in the question other than the charging pump is running. Change the wording of the second part for the actual answer to a paraphrase the TS and not verbatim extraction from TSs. KA appears to be ok. Changed the System from 3.5.2, to 3.5.1 made a better match, all that was necessary to change. Question is ok as changed.

ES-403, Rev. 9 | **Written Examination Grading Quality Checklist** | **Form ES-403-1**

Facility: Sequoyah Nuclear Plant Date of Exam: 09/29/2010 Exam Level: (RO/SRO)

Item Description	Initials a	Initials b	Initials c
1. Clean answer sheets copied before grading	RSB	NA	BR
2. Answer key changes and question deletions justified and documented	RSB	NA	N/A
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	RSB	NA	BR
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	RSB	NA	BR
5. All other failing examinations checked to ensure that grades are justified	RSB	NA	BR
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	RSB	NA	BR

	Printed Name/Signature	Date
a. Grader	Richard S. Baldwin / Richard S. Baldwin	12/03/2010
b. Facility Reviewer(*)	NA	
c. NRC Chief Examiner (*)	Bruno Caballero / B Caballero	12-3-10
d. NRC Supervisor (*)	Malcolm T. Widmann / Malcolm T. Widmann	12/06/10

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.