Facility: SEQUOYAH Date of Examination: 12/02/13

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

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

* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.
[Applies only] {Does not apply} to examinations prepared by the NRC.

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

Facility: **Sequoyah Nuclear Station 1 & 2** Date of Examination: **12/02/2013**

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*	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.	N/A*	N/A*	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	N/A*	N/A*	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	N/A*	N/A*	
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.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name/Signature	Date
a. Author	Michael Buckner /	11/18/13
b. Facility Reviewer (*)	Sam Nakamine /	11/20/13
c. NRC Chief Examiner (#)	KEN SCHRAD /	11/20/13
d. NRC Supervisor	MARCUS T. WILLIAMS /	11/20/13

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

* Written Exam outline developed by NRC

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 **12/02-09/2013** 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 **12/02-09/2013** . 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 / Project Manager		04/04/13		12/19/13
2.	OWEN B TRIDLE	EXAM DEVELOPER		5/21/2013		12/18/2013
3.	SAMUEL NAKAMINE	OPS SITE REPRESENTATIVE		5/21/13		12/18/13
4.	James P. Knight	Simulator Engr.		5/23/13		12/18/2013
5.	NORMAN GOOD	SIMULATOR MGR		5-23-13		12-18-2013
6.	Thomas R White Jr	Exam Author		5/30/13		12-18-2013
7.	Steven V Smith	EXAM DEVELOPER		5/30/13		12-18-2013
8.	Alan MacDonald	Exam Reviewer		5/30/13		12/18/2013
9.	CHRIS DAHLMAN	LOR SUPERVISOR		7/1/13		12/18/13
10.	TERRY ANDERSON	RO		7/2/13		12/19/13
11.	William D. LINK	RO		7/12/13		12/20/13
12.	Donald A. Langford	RO		7/12/13		12/18/13
13.	RONALD C. FREE	OUTAGE SRO		7/12/13		12/19/13
14.	WILLIAM R LYONS	outage specialist		7/12/13		**
15.	Lewis W. Jones	UD-RO NLO Instr.		7-17-13		12-18-13

NOTES:

** Signed off via email 12/19/2013

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Shenteng Ted Yang	Simulator Engineer (SE)		6/24/13		12/18/13
2.	Robert S. Morey Jr	SRO		7/24/13		12/18/13
3.	Russell Joplin	CEPM		8/1/13		12/19/13
4.	Jacques Olivier	SRO		8/9/13		12/29/13
5.	Joseph Welch	SRO		8/23/13		12/20/13
6.	Ted Ivey	RO		8/23/13		12/19/13
7.	Lorena F Boyle	RO		8.23.13		12.20.13
8.	Joey Montoya	RO		8.29.13		12-18-13
9.	Kyle Bell	RO		8/29/13		12/18/13
10.	Harry Hinds	SRO		8/29/13		12/18/13
11.	MATTHEW LOESCHERS	SRO		8/30/13		12/18/13
12.	Matt Lovitt	SRO		8/30/13		12/19/13
13.	LANCE Stripley	RO		9/6/13		12/23/13
14.	David Williams	RO		9/6/13		12/18/13
15.	Jeremy Leyman	RO		9/18/13		12/19/13

NOTES:

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Donald Bayler	SRO		9/13/13	*5		*
2.	Terry Dunn	SRO		9/19/13		12/18/13	
3.	Rusty Whitehead	SRO	Rusty Whitehead	9/23/13	Rusty Whitehead	12/19/13	
4.	Robert Patton	UO	Robert Patton	9/26/13	R. Patton	12/20/13	
5.	TIMOTHY RIEGER	SRO		9/26/13	* * 5		**
6.	JOHN ALEXANDER	SRO		9/27/13		12/19/13	
7.	Bill Brickenstein	exam writer	Bill Brickenstein	9/27/13	** 5		**
8.	~~Bruce~~ BD 9/27/13						
9.	BRUCE BASH	SRO /STA		9/27/13		12/19/13	
10.	David Porter	SRO		10/24/13		12/19/13	
11.	CHRISTOPHER HAWES	OTM		11/4/13		12/19/13	
12.	Leslie R Morey	SRO / STA		11/4/13		12/18/13	
13.	JK Wilkes	SRO		11/4/13		12/18/13	
14.	Paul Parashak	SRO / STA		11/13/13		12/18/13	
15.	Alton Crenshaw	UO		11/11/13		12/18/13	

NOTES:

*5 Signed off via telecon 12/18/2013

**5 Signed off via email 12/19/2013

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	TIMOTHY REED	SRO/STA		11/14/13		12/18/13
2.	Martin Quarberg	Shift Manager		11/18/13		12/18/13
3.	MARK ROSNACK	SRO/STA		11/19/13		12/18/13
4.	DARRELL JOHNSON	UO/RO		11/18/13		12/18/13
5.	TIMOTHY A. HOWARD	UO/RO		11/18/13		12/27/13
6.	GARY GARNER	SRO		11/19/13		12/24/13
7.	James W. Fuller	SRO		11/18/13		12/18/13
8.	KEVIN M. MICHAEL	SRO		11/20/13	* G	*
9.	TRACY SUDKO	SRO		11/21/13		12/18/13
10.	AARON BERGERON	FLEET OPS TRAINING MGR		11/21/13	*	**
11.	Paul Simmons	SAN PLANT MGR		11-21-13		12/18/13
12.	D. ALAN DAN	RP MGR		11-21-13		12/18/13
13.	JOHN CARLIN	VP		11-25-13		12/19/13
14.	MATTHEW MCMULLIN	ILT SUPERVISOR		11/27/13		12/18/13
15.	ALBERT F. RODDY	ILT INSTRUCTOR		12-2-2013		12/18/2013

NOTES:

* G Signed off via telecon 12/18/2013

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Lasalo S. Toser Jr	Senior Instrument Mech.		12/9/13		12/23/13
2.	Jeremy Bailey 12/18/13	INSTRUCTOR - OPS		12/18/13		12/18/13
3.						
4.						
5.						
6.		NO				
7.						
8.						
9.		OTHERS				
10.						
11.						
12.						
13.						
14.						
15.						

NOTES:

Facility: Sequoyah Nuclear Station 1 & 2 Date of Examination: 12/2/2013

Exam Level: RO ☑ SRO ☐ Operating Test No: 2013-302

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	Calculate Manual Makeup to the Volume Control Tank 2.1.37 (4.3) Knowledge of procedures, guidelines, or limitations associated with reactivity management.
Conduct of Operations	R, M	Determine Maintenance of Active License Status. 2.1.4 (3.8) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.
Equipment Control	R, N	Perform a Defense-In-Depth Assessment. 2.2.18 (2.6) Knowledge of the process for managing maintenance activities during shutdown operations.
Radiation Control		Not examined
Emergency Procedures/Plan	R, N	Perform RO Actions During Aircraft Probable Threat AOP-T.01 App D. 2.4.39 (3.9) Knowledge of RO responsibilities in emergency plan implementation.

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)

A.1.a

Given plant data, the examinee will calculate a manual makeup to the VCT to raise level 10% of 173-175 gallons water and 26-27 gallons of boric acid using 0-SO-62-7 Boron Concentration Control Appendix C.

A.1.b

Given a situation with five different Senior Reactor Operators that are not currently on shift, the Examinee will assess the work schedules for five different operators and using OPDP 10 License Status Maintenance, Reactivation and Proficiency for Non-Licensed Positions determines Operator #2, #3 and #4 have maintained an active license status and that Operator #1 and #5 have not accumulated sufficient time required to maintain an active license status.

A.2

Given the following conditions:

- Unit 1 is in MODE 5 following a Refueling Outage.
- S/G Manways are installed.
- RCS Boron concentration is sufficient for Shutdown Margin requirements.
- The RCS is in a Partial Drain Condition.
- The Switchyard is protected.
- The 1A Charging pump is out of service for maintenance.
- The 1B 6.9 kv Shutdown Board was de-energized and locked out while performing work.

The Examinee will perform a Defense-In-Depth Assessment using 1-PI-OPS-000-020.2, OPERATOR AT THE CONTROLS DUTY STATION CHECKLISTS-MODES 5, 6 AND DE-FUELED and determines a RED condition exists on Decay Heat removal and an ORANGE condition exists on Power Availability and that Decay Heat Removal is the most significant challenged safety function.

A.3

Not examined.

A.4

During an Aircraft PROBABLE Threat event the examinee will perform AOP-T.01, SECURITY EVENTS, Appendix D Aircraft PROBABLE Threat Notifications. The Examinee will notify the SM to classify an ALERT based on EAL 4.6, determine that inadequate time for rapid evacuation exists, and ensures REP Responders are dispatched using the REP Paging system.

Facility: Sequoyah Nuclear Station 1 & 2 Date of Examination: 12/2/2013

Exam Level: RO ☐ SRO ☑ Operating Test No: 2013-302

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	Determine Actions Required Following a Reactivity Management Event When at Power. 2.1.37 (4.6) Knowledge of procedures, guidelines, or limitations associated with reactivity management.
Conduct of Operations	R, M	Determine Maintenance of Active License Status. 2.1.4 (3.8) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.
Equipment Control	R, N	Review a Defense-In-Depth Assessment. 2.2.18 (3.9) Knowledge of the process for managing maintenance activities during shutdown operations.
Radiation Control	R, M	Approve a Waste Gas Decay Tank Release for Maintenance and Radiation Monitor RM-118 INOPERABLE. 2.3.6 (3.8) Ability to approve release permits.
Emergency Procedures/Plan	R, M	Classify The Event Using The EPIP-1 and Complete a State Notification Form. 2.4.41 (4.6) Knowledge of the emergency action level thresholds and classifications.

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)

A.1.a

Given a sequence of events while acting as the Unit Supervisor when a CVCS Purification mixed bed ion exchanger was placed in service with insufficient boron loading, the examinee will determine the following:

- The severity of the event as a Minor Reactivity Management Event using NPG-SPP-10.4 Reactivity Management Program.
- That site operations management and duty plant manager are the required internal notifications using NPG-SPP-3.5 Regulatory Reporting Requirements.

This task is based on a Sequoyah internal operating event.

A.1.b

Given a situation with five different Senior Reactor Operators that are not currently on shift, the Examinee will assess the work schedules for five different operators and using OPDP 10 License Status Maintenance, Reactivation and Proficiency for Non-Licensed Positions determines Operator #2, #3, #4 and #5 have maintained an active license status and that Operator #1 and #5 have not accumulated sufficient time required to maintain an active license status.

A.2

Given the following conditions:

- Unit 1 is in MODE 5 following a Refueling Outage.
- S/G Manways are installed.
- RCS Boron concentration is sufficient for Shutdown Margin requirements.
- The RCS is in a Partial Drain Condition.
- The Switchyard is protected.
- The 1A Charging pump is out of service for maintenance.
- The 1B 6.9 kv Shutdown Board was de-energized and locked out while performing work.

The Examinee will review a Defense-In-Depth Assessment using 1-PI-OPS-000-020.2, OPERATOR AT THE CONTROLS DUTY STATION CHECKLISTS-MODES 5, 6 AND DE-FUELED and determines a RED condition exists on Decay Heat removal and an ORANGE condition exists on Power Availability and that Decay Heat Removal is the most significant challenged safety function.

A.3

Given a situation while acting as the Unit Supervisor when a Waste Gas Decay Tank B release is planned with 0-RE-90-118 inoperable, the Examinee determines the following requirements are necessary to accommodate the Waste gas release and intrusive maintenance:

- A Purge required prior to maintenance.
- ABGTS Train B will be used for the release.
- Two independent samples and analyses of the Waste Gas Decay are performed.
- Two independent calculations of the Waste Gas Decay Tank release rate are performed.
- Two independent of the verifications discharge valve lineup are performed.

The requirements listed are necessary to demonstrate the appropriate administrative controls that are in place to preclude the possibility of an inadvertent release radioactive in excess of limits to the public.

A.4

Acting as the Site Emergency Director during a MODE 5 LOCA, the Examinee classifies the event as a SITE AREA EMERGENCY based on EAL 6.1 and the Examinee completes a TVA Initial Notification for Site Area Emergency form with no errors on items noted with an *.

Facility: Sequoyah Nuclear Station 1 & 2	Date of Examination: 12/2/2013
Exam Level: RO √ SRO-I ☐ SRO-U ☐	Operating Test No: 2013-302

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. Initiate Emergency Boration with Multiple Control Rods Not Fully Inserted. EPE 024 EA 1.06 (3.2/3.1)	M, A, S	1
b. Depressurize an Unisolable Cold Leg Accumulator. 006 A4.02 (4.0/3.8)	M, A, EN, L, S	2
c. Respond to a Shutdown LOCA with a Failure of Containment Isolation and Containment Ventilation Isolation. EPE 011 EA 2.04 (3.8/4.0)	N, A, EN, L, S	3
d. Establish Once Through Cooling by Initiating RCS Bleed and Feed. EPE E05 EA 2.2 (3.7/4.3)	N, A, EN, L, EN, S	4P
e. Synchronize the Main Generator to the Grid. 045 A4.02 (2.7/2.6)	N, S	4S
f. Perform Equipment Checks Following ESF Actuation. 103 A4.01 (4.5/4.8)	M, A, EN, L, S	5
g. Respond to a Main Control Room High Radiation Alarm with a Failure of Control Room Isolation. APE 061 AA1.01 (3.6/3.6)	D, A, S	7
h. Perform CR Actions for Fire in the Auxiliary Building. APE 067 AA2.17 (3.5/4.3)	N, L, S	8
In-Plant Systems (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Perform Local Turbine Building Actions for an ATWS. APE 029 EA1.12 (4.1/4.0)	D, E	1
j. Align Upper Containment Radiation Monitor to Lower Containment. 002 A3.01 (3.7/3.9)	D, R	2
k. Cycle the Unit 2 Main Generator PCB 062A4.04 (2.6/2.7)	N, L	6

@ 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	

Facility: Sequoyah Nuclear Station 1 & 2	Date of Examination: 12/2/2013
Exam Level: RO ☐ SRO-I √ SRO-U ☐	Operating Test No: 2013-302

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. Initiate Emergency Boration with Multiple Control Rods Not Fully Inserted. EPE 024 EA 1.06 (3.2/3.1)	M, A, S	1
b. Depressurize an Unisolable Cold Leg Accumulator. 006 A4.02 (4.0/3.8)	M, A, EN, L, S	2
c. Respond to a Shutdown LOCA with a Failure of Containment Isolation and Containment Ventilation Isolation. EPE 011 EA 2.04 (3.8/4.0)	N, A, EN, L, S	3
d. Establish Once Through Cooling by Initiating RCS Bleed and Feed. EPE E05 EA 2.2 (3.7/4.3)	N, A, EN, L, EN, S	4P
e. Not Examined	N/A	N/A
f. Perform Equipment Checks Following ESF Actuation with a Failure of ESF Slave Relays. 103 A4.01 (4.5/4.8)	M, A, EN, L, S	5
g. Respond to a Main Control Room High Radiation Alarm with a Failure of Control Room Isolation. APE 061 AA1.01 (3.6/3.6)	D, A, S	7
h. Perform CR Actions for Fire in the Auxiliary Building with a Failure of CCPIT Valves to Close. APE 067 AA2.17 (3.5/4.3)	N, L, S	8
In-Plant Systems (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Perform Local Turbine Building Actions for an ATWS. APE 029 EA1.12 (4.1/4.0)	D, E	1
j. Align Upper Containment Radiation Monitor to Lower Containment. 002 A3.01 (3.7/3.9)	D, R	2
k. Cycle the Unit 2 Main Generator PCB 062A4.04 (2.6/2.7)	N, L	6

@ 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	

Facility: Sequoyah Nuclear Station 1 & 2	Date of Examination: 12/2/2013
Exam Level: RO ☐ SRO-I ☐ SRO-U √	Operating Test No: 2013-302

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. Not Examined	N/A	N/A
b. Not Examined	N/A	N/A
c. Respond to a Shutdown LOCA with a Failure of Containment Isolation and Containment Ventilation Isolation. EPE 011 EA 2.04 (3.8/4.0)	N, A, EN, L, S	3
d. Not Examined	N/A	N/A
e. Not Examined	N/A	N/A
f. Perform Equipment Checks Following ESF Actuation. 103 A4.01 (4.5/4.8)	M, A, EN, L, S	5
g. Respond to a Main Control Room High Radiation Alarm with a Failure of Control Room Isolation. APE 061 AA1.01 (3.6/3.6)	D, A, S	7
h. Not Examined	N/A	N/A
In-Plant Systems (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Perform Local Turbine Building Actions for an ATWS. APE 029 EA1.12 (4.1/4.0)	D, E	1
j. Align Upper Containment Radiation Monitor to Lower Containment. 002 A3.01 (3.7/3.9)	D, R	2
k. Not Examined	N/A	N/A

@ 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	

Facility: **Sequoyah Nuclear Station 1 & 2** Date of Examination: **12/02/2013** Operating Test Number: **2013-302**

	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	11/19/13
b.	Facility Reviewer(*)	Sam Nakamine	11/20/13
c.	NRC Chief Examiner (#)	KEN SCHAAF	11/20/13
d.	NRC Supervisor	MALCOLM T. WIDMANN	11/20/13

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

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

Facility: **Sequoyah Station 1 & 2** Date of Exam: **12/2/2013** Scenario Numbers: **1 / 3 / 4 / 5** Operating Test No.: **2013-302**

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)	7 / 6 / 8 / 8			
2.	Malfunctions after EOP entry (1–2)	2 / 2 / 2 / 2			
3.	Abnormal events (2–4)	5 / 3 / 6 / 5			
4.	Major transients (1–2)	1 / 1 / 2 / 1			
5.	EOPs entered/requiring substantive actions (1–2)	1 / 1 / 2 / 1			
6.	EOP contingencies requiring substantive actions (0–2)	0 / 1 / 1 / 0			
7.	Critical tasks (2–3)	2 / 2 / 3 / 3			

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

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 12/2/2013 Operating Test No.: 2013-302

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

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.

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

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 12/2/2013 Operating Test No.: 2013-302

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

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.

Facility: Sequoyah Nuclear Plant 1 & 2 Date of Exam: 12/2/2013 Operating Test No.: 2013-302

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

Facility: **Sequoyah Nuclear Plant 1 & 2** Date of Examination: **12/02/2013** Operating Test No.: **2013-302**

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

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.

Facility: SEQUOYAH Date of Exam: DECEMBER 2013

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A		3	18	3	3	6
	2	1	2	2				1	2			1	9	2	2	4
	Tier Totals	4	5	5				4	5			4	27	5	5	10
2. Plant Systems	1	3	3	3	3	2	2	2	3	3	2	2	28	2	3	5
	2	0	1	1	1	1	1	1	1	1	1	1	10	0 1	2	3
	Tier Totals	3	4	4	4	3	3	3	4	4	3	3	38	3	5	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3 4	7
		2			3			3			2			1	2	2 2	

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions 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 K/As.
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:
007EK2.02	Reactor Trip - Stabilization - Recovery / 1	2.6	2.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Breakers, relays and disconnects
009EA2.09	Small Break LOCA / 3	2.8	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Low-pressure SWS activity monitor
015AK1.01	RCP Malfunctions / 4	4.4	4.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Natural circulation in a nuclear reactor power plant
025AK3.02	Loss of RHR System / 4	3.3	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Isolation of RHR low-pressure piping prior to pressure increase above specified level
026AA1.04	Loss of Component Cooling Water / 8	2.7	2.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	CRDM high-temperature alarm system
027AK1.02	Pressurizer Pressure Control System Malfunction / 3	2.8	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Expansion of liquids as temperature increases
038EG2.4.34	Steam Gen. Tube Rupture / 3	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects
055EA2.03	Station Blackout / 6	3.9	4.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Actions necessary to restore power
056AG2.1.20	Loss of Off-site Power / 6	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to execute procedure steps.
057AA1.04	Loss of Vital AC Inst. Bus / 6	3.5	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RWST and VCT valves
058AK3.01	Loss of DC Power / 6	3.4	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Use of dc control power by D/Gs

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
062AA2.06	Loss of Nuclear Svc Water / 4	2.8	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	The length of time after the loss of SWS flow to a component before that component may be damaged
065AK3.04	Loss of Instrument Air / 8	3	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Cross-over to backup air supplies
077AG2.2.42	Generator Voltage and Electric Grid Disturbances / 6	3.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
WE04EK2.2	LOCA Outside Containment / 3	3.8	4.0	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.
WE05EK1.3	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.9	4.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Annunciators and conditions indicating signals, and remedial actions associated with the (Loss of Secondary Heat Sink).
WE11EA1.3	Loss of Emergency Coolant Recirc. / 4	3.7	4.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Desired operating results during abnormal and emergency situations.
WE12EK2.1	Steam Line Rupture - Excessive Heat Transfer / 4	3.4	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001AA1.04	Continuous Rod Withdrawal / 1	3.8	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Operating switch for emergency boration motor-operated valve operating switch
036AK3.02	Fuel Handling Accident / 8	2.9	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Interlocks associated with fuel handling equipment
037AK1.02	Steam Generator Tube Leak / 3	3.5	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Leak rate vs. pressure drop
051AA2.02	Loss of Condenser Vacuum / 4	3.9	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Conditions requiring reactor and/or turbine trip
068AA2.05	Control Room Evac. / 8	4.2	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Availability of heat sink
076AK2.01	High Reactor Coolant Activity / 9	2.6	3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Process radiation monitors
we02EG2.2.44	SI Termination / 3	4.2	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
WE03EK2.2	LOCA Cooldown - Depress. / 4	3.7	4.0	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.
WE08EK3.3	RCS Overcooling - PTS / 4	3.7	3.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003K6.14	Reactor Coolant Pump	2.6	2.9	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Starting requirements
004K2.07	Chemical and Volume Control	2.7	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Heat tracing
004K3.06	Chemical and Volume Control	3.4	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RCS temperature and pressure
005K5.03	Residual Heat Removal	2.9	3.1	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Reactivity effects of RHR fill water
006A4.03	Emergency Core Cooling	3.5	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Transfer from boron storage tank to boron injection tank
007K5.02	Pressurizer Relief/Quench Tank	3.1	3.4	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Method of forming a steam bubble in the PZR
008K3.03	Component Cooling Water	4.1	4.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RCP
010K1.08	Pressurizer Pressure Control	3.2	3.5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	PZR LCS
012A2.05	Reactor Protection	3.1	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Faulty or erratic operation of detectors and function generators
013K2.01	Engineered Safety Features Actuation	3.6	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	ESFAS/safeguards equipment control
022A3.01	Containment Cooling	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Initia tion of safeguards mode of operation

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
022K3.01	Containment Cooling	2.9	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Containment equipment subject to damage by high or low temperature, humidity and pressure
025A3.02	Ice Condenser	3.4	3.4	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Isolation valves
026G2.2.36	Containment Spray	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
039A4.04	Main and Reheat Steam	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Emergency feedwater pump turbines
059A2.11	Main Feedwater	3.0	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Failure of feedwater control system
059K4.16	Main Feedwater	3.1	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Automatic trips for MFW pumps
061K1.07	Auxiliary/Emergency Feedwater	3.6	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Emergency water source
061K6.01	Auxiliary/Emergency Feedwater	2.5	2.8	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Controllers and positioners
062A1.01	AC Electrical Distribution	3.4	3.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Significance of D/G load limits
063A1.01	DC Electrical Distribution	2.5	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Battery capacity as it is affected by discharge rate
063A2.01	DC Electrical Distribution	2.5	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Grounds

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
064G2.4.4	Emergency Diesel Generator	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
073K4.02	Process Radiation Monitoring	3.3	3.9	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Letdown isolation on high-RCS activity
076A3.02	Service Water	3.7	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Emergency heat loads
076K2.04	Service Water	2.5	2.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor building closed cooling water
078K1.01	Instrument Air	2.8	2.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensor air
103K4.04	Containment	2.5	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Personnel access hatch and emergency access hatch

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001K4.23	Control Rod Drive	3.4	3.8	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Rod motion inhibit
011K6.04	Pressurizer Level Control	3.1	3.1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Operation of PZR level controllers
015A1.01	Nuclear Instrumentation	3.5	3.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	NIS calibration by heat balance
028K5.04	Hydrogen Recombiner and Purge Control	2.6	3.2	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	The selective removal of hydrogen
041K2.02	Steam Dump/Turbine Bypass Control	2.8	2.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	ICS inverter breakers
045K3.01	Main Turbine Generator	2.9	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Remainder of the plant
055A3.03	Condenser Air Removal	2.5	2.7	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Automatic diversion of CARS exhaust
056A2.04	Condensate	2.6	2.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of condensate pumps
072A4.03	Area Radiation Monitoring	3.1	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Check source for operability demonstration
075G2.4.1	Circulating Water	4.6	4.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of EOP entry conditions and immediate action steps.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.32	Conduct of operations	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to explain and apply all system limits and precautions.
G2.1.45	Conduct of operations	4.3	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to identify and interpret diverse indications to validate the response of another indication
G2.2.17	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing maintenance activities during power operations.
G2.2.18	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing maintenance activities during shutdown operations.
G2.2.38	Equipment Control	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility license.
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures 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
G2.3.4	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation exposure limits under normal and emergency conditions
G2.4.20	Emergency Procedures/Plans	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operational implications of EOP warnings, cautions and notes.
G2.4.25	Emergency Procedures/Plans	3.3	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of fire protection procedures.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
008AG2.1.7	Pressurizer Vapor Space Accident / 3	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
011EA2.07	Large Break LOCA / 3	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	That equipment necessary for functioning of critical pump water seals is operable
025AA2.01	Loss of RHR System / 4	2.7	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Proper amperage of running LPI/decay heat removal/RHR pump(s)
056AG2.2.40	Loss of Off-site Power / 6	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
065AA2.06	Loss of Instrument Air / 8	3.6	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	When to trip reactor if instrument air pressure is de-creasing
we04EG2.4.~~1~~ 18	LOCA Outside Containment / 3	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
069AG2.1.23	Loss of CTMT Integrity / 5	4.3	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
076AG2.4.46	High Reactor Coolant Activity / 9	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.
WE03EA2.1	LOCA Cooldown - Depress. / 4	3.4	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.
WE07EA2.2	Saturated Core Cooling Core Cooling / 4	3.3	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
005A2.01	Residual Heat Removal	2.7	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Failure modes for pressure, flow, pump motor amps, motor temperature and tank level instrumentation
008G2.4.50	Component Cooling Water	4.2	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.
026G2.2.25	Containment Spray	3.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
062A2.07	AC Electrical Distribution	3.0	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Consequences of opening a disconnect under load
063G2.4.31	DC Electrical Distribution	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
002G2.2.37	Reactor Coolant	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
028G2.1.30	Hydrogen Recombiner and Purge Control	4.4	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate and operate components, including local controls.
079A2.01	Station Air	2.9	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Cross-connection with IAS

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.42	Conduct of operations	2.5	3.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of new and spent fuel movement procedures
G2.2.15	Equipment Control	3.9	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine the expected plant configuration using design and configuration control documentaion
G2.2.20	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing troubleshooting activities.
G2.3.4	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation exposure limits under normal and emergency conditions
G2.3.7	Radiation Control	3.5	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to comply with radiation work permit requirements during normal or abnormal conditions
G2.4.35	Emergency Procedures/Plans	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
G2.4.38	Emergency Procedures/Plans	2.4	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator.

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO		
T1G1 (#2)	009 EA2.09	Unable to write an operationally valid question due to Sequoyah station system interface not providing a probable flowpath for activity during a LOCA. (Rejected and randomly re-selected K/A: EA2.11)
(#5)	026 AA1.04	CRDM cooling not provided by CCW at SQN station. Unable to write an operationally valid question for this K/A. (Rejected and randomly re-selected K/A: AA1.01)
(#7)	038 EG2.4.34	There are NO RO tasks performed outside the control room during a Steam Generator Tube Rupture event at SQN station. Unable to write an operationally valid question for this K/A. (Rejected and randomly re-selected K/A: G2.4.31)
T2G1		
(#32)	006 A4.03	The Boron Injection Tank no longer is used at SQN. Unable to write an operationally valid for this K/A. (Rejected and randomly re-selected K/A: A4.01)
(#51)	073 K4.02	There is no automatic or manual isolation of letdown due to High RCS activity at SQN. Unable to write an operationally valid question for this K/A. (Rejected and randomly re-selected K/A:K4.01)
(#54)	078 K1.01	SQN station does not identify an air system as "sensor air." Unable to write an operationally valid question for this K/A. (Rejected and randomly re-selected K/A: K1.04)
T2G2		
(#64)	072 A4.03	Unable to write an operationally valid question at the RO level for this K/A (Rejected and randomly re-selected K/A: A4.01)
T3		
(#68)	G2.2.17	Managing work activities at power is an SRO only task at SQN. Unable to write an operationally valid question at RO level. (Rejected and randomly re-selected K/A: G2.2.14)
(#69)	G2.2.18	Managing work activities during shutdown is an SRO only task at SQN. Unable to write an operationally valid question at RO level. (Rejected and randomly re-selected K/A: 2.2.22)

SRO		
T1G1		
(#77)	011 EA2.07	The are no critical pumps that are supplied with water seals at SQN. Unable to write operationally valid question at SRO level (Rejected and randomly re-selected K/A: EA2.05)
T2G1		
(#87)	008 G2.4.50	Unable to write an operationally valid question at the SRO level. (Rejected and randomly re-selected K/A: 2.4.30)
T2G2		
(#92)	028 G2.1.30	There are no local controls for Hydrogen Recombiners at SQN. Unable to write an operationally valid question at SRO level. (Rejected and randomly re-selected K/A: 2.1.32)

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

Facility: **Sequoyah Nuclear Plant 1 & 2** Date of Exam: **12/02/2013** 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.						
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.						
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401						
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).						
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 X the licensee certifies that there is no duplication; or __ other (explain)						
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank 40 / 13	Modified 11 / 2	New 24 / 10			
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory 34 / 6		C/A 41 / 19			
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.						
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.						
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.						
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.						

	Printed Name / Signature	Date
a. Author	Michael Buckner / Michael Buckner	11/19/13
b. Facility Reviewer (*)	Sam Nakamine /	11/20/13
c. NRC Chief Examiner (#)	KEN SCHRAD /	11/20/13
d. NRC Regional Supervisor	MALCOLM T. WIDMANN /	11/20/13

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.

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.	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	F	2	X											N	~~U~~ S	007 EK2.02 Stem Focus: Reword question to remove "assuming it functions correctly". They should already assume that it functions correctly unless told otherwise. **- Removed "assuming it functions correctly".** Stem Focus: The explanation states that the bypass breakers (I assume BYA) only have UV coils. The "correct" answer states that RTB and BYA breakers are opened by shunt trip and UV coils. This would mean that there are no correct answers. Modify the question but keep the general idea the same. **- Re-worded stem question to clearly indicate that the UV and Shunt trip did open both breakers. Understand how this could have implied that they did. Changed UV to SSPS to be more detailed. Ok 12/24 KDS**
2	H	1												B	~~U~~ S	009 EA2.11 LOD: This should probably be a two part question to get the difficulty higher. -Replace distracter with PZR steam space break Q502 -created 2 part in Q602 if not going with Q502 **Ok 12/24 KDS**
3	H	2				X								B	~~E~~ S	015 AK1.01 Cred Dist: B Forced circulation not plausible. Ask two parts: Nat Circ does/does not exist. Atmos reliefs are/are not open. When is a condition where the Atmos reliefs would be open? -When the steam dumps cannot handle the pace of a load rejection. When steam dumps are in the wrong mode for a given plant condition, **Ok 12/24 KDS**
4	F	2					X							B	~~E~~ S	025 AK3.02 Part: Could not find in the AOP or AOP lesson where it gives the reason as being a loss of inventory. It makes sense but so does overpressurizing the PRT. If you can present in a document where loss of inventory is right and overpress is wrong, the question is ok ATL changed answer "B" and "C" second part to say "rupturing the PRT rupture disc". **Ok 12/24 KDS**

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			
5	F	2	X											N	E/S	026 AA1.01 Stem Focus: Discuss how to ensure that the applicants know that the question is asking about the pump lower bearing and not the motor lower bearing. - No change. Per operations, terminology is correct – leave as is.
6	H	2												N	S	027 AK1.02
7	H	2				X								B	~~E~~ S	038 G2.4.31 Cred Dist: B not plausible because it doesn't do anything to address the problem like the other 3 answers. -changed out distracter B using another action option from the table in E-3, step 32. **Ok 12/24 KDS**
8	H	3												B	S	055 EA2.03
9	F	2												B	~~E~~ S	056 AG2.1.20 Stem Focus: Add "minimum" to question 1 to prevent a subset issue. Change loads to load(s) in question 2. -made requested changes **Ok 12/24 KDS**
10	H	3												N	S	057 AA1.04
11	F	3												B	S	058 AK3.01
12	H	3					X							M	E S	062 AA2.06 Part: 10 minutes is a subset of 15 minutes. Need to stay away from using "could". Is there a design time to failure that you can use. i.e. The ERCW pumps are designed to operate for _____ minutes before bearing failure occurs. A hard and fast number. -removed "could" and added AOP-M.01 to be more explicit. ATL added "as stated in" to question stem **Ok 12/24 KDS**
13	F	2												B	S	065 AK3.04

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	3				X							X	M	~~E~~ S	077 AG2.2.42 Cred Dist: If not in another alt alignment, why would I enter the TS? If you can give an example, this may be ok. -Manual 2R is an alternate alignment and does not require TS entry. **Ok 12/24 KDS**
15	H	2				X								M	~~U~~ S	E04 EK2.2 Cred Dist: Not plausible to stop the pump prior to closing the inject valve. A&B. -some pumps cannot be stopped after the discharge valve is closed unless a mini recirc is in play. Standard practice is stop a pump, then isolate it if necessary. CPPs can be damaged in a very short time if running with discharge path isolated. **Ok 12/24 KDS**
16	H	3				X								B	~~E~~ S	W.E05 EK1.3 Cred Dist: Change C to "Feed at 50 to 100 gpm to one SG until level is established, then at the maximum available feed flow." -made requested change **Ok 12/24 KDS**
17	H	3	X											B	~~E~~ S	E11 EA1.3 Do your ROs have to memorize the table in ECA-1.1? -Expected to know this, taught in training. Stem Focus: Remove "Assuming the plant indications remain as above, and". Replace with "Using parameters stated above, when. You can't expect any of the parameters stated to remain the same. -Made requested change **Ok 12/24 KDS**
18	H	3												M	S	W/E12 EK2.1
19	F	2				X								M	S	001 AA1.04

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	F	2										X		N	~~U~~ S	036 AK3.02 KA. 036 is fuel handling accident. I don't' see anything in the question pertaining to an accident. -Site feels it is implied that the purpose of the fuel handling interlocks is to prevent a fuel handling accident. Modified question to include fuel handling accident. **Ok 12/24 KDS**
21	H	3												N	S	037 AK1.02 Run this on the simulator to ensure its cut & dry. As power increases, coolant temperature will rise…Pzr level increases…RCS pressure increases….I just want to make sure. ATL added "Turbine currently on HOLD" to question stem **Ok 12/24 KDS**
22	H	3	X											N	~~E~~ S	037 AK1.02 Cred Dist: On "B" and "trip the turbine" after trip the reactor. Stem Focus: Remove 2nd bullet and move last bullet up to the 2nd bullet. -made requested changes **Ok 12/24 KDS**
23	F	2				X								N	~~U~~ S	068 AA2.05 Cred Dist: Unless you have any examples when you use level indicators to determine AFW flow, the 2nd part of B&D are not plausible. - replaced flow rates with SG level indication. Improved plausibility. ATL added "NR" to question stem **Ok 12/24 KDS**
24	H	1				X								B	~~U~~ S	076 AK2.01 Cred Dist: Not plausible to think that a leak inside containment "A" or a temperature rise in containment "C" will cause condenser vacuum exh to increase. LOD: D is too easy to pick out of the available answers. -re-wrote question as 2X2 to address plausibility concerns **Ok 12/24 KDS**

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
25	F	2				X								B	~~E~~ S	E02 EG2.2.44 Cred Dist: "C" not plausible to think it would clear the annnciator. - changed out distracter C to improve plausibility. Why is "D" performed. Walk through why this would be plausible. - Replaced procedure reference in distracter D to improve plausibility as well – the EA is in the EOP set and is more applicable than the SI. **Ok 12/24 KDS**
26	H	3												B	S	W/E03 EK2.2
27	F	2				X								M	~~E~~ S	W/E08 EK3.3 How did I get to FR-P.1 from a SBLOCA? -Changed to a general LOCA Cred Dist: Need to explain the second part of C&D. I do not understand the relevance of the explanation. -will discuss **Ok 12/24 KDS**
28	H	2												N	S	003 K6.14
29	F	2												N	S	004K2.07
30	H	2												B	S	004K3.06
31	F	3	X											N	~~E/S~~ S	005 K5.03 Stem Focus: For the second question, recommend giving an RCS pressure of 365 psig and ask if the valve will go open when manipulating the switch. It elimates any subset issue and the numbers mentioned in the answers won't lead the applicants. -made changes as requested (test on the interlock) ATL added "If" to second question statement **Ok** **2/24 KDS**
32	H	3												M	S	006 A4.01 When is LTOPS armed? What is the lift setpt. 650 psig seems very high. -LTOP is armed prior to going below 685 psig. The question seems ok as long as the initial conditions are operationally valid.

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	3				X								M	~~U/E~~ S	007 K5.02 Cred Dist: At 89%, its not plausible that you need to add primary water to the PRT. At 129 degrees, its not plausible that you need to add primary water to heat up or cool down the PRT. -modified question by raising pressure and lowering level in stem. Now "A" is the correct answer and the plausibility of the distracters is improved. Will update DA if acceptable. ATL changed level to "71%" **Ok 12/24 KDS**
34	H	2	X			X								B	~~U/E~~ S	008 K3.03 Stem Focus: The oil cooler low flow really makes it hard not to pick bearings overheating. Can you give a valve closure without the alarms to give the same answers. Cred Dist: With low oil flow alarms in, operating indefinitely is not plausible. -the alarms in are for low cooling flow to the oil coolers not low oil flow. -modified question stem to just give as loss of CCS. **Ok 12/24 KDS**
35	H	2												B	S	010 K1.08
36	H	3												N	S	012 A2.05
37	H	3				X								B	~~E~~ S	013 K2.01 Goofy font in the first bullet. -fixed Cred Dist: Why is it plausible to think that only one trains master relays would actuate but both trains of ECCS equipment would start "A"? -operators feel is plausible as it is difficult to keep track of which is auctioneered power and what is not. Could be the slaves or the masters. Discuss. ATL created Q537 and changed answer "A" to use "A" train **Ok 12/24 KDS**
38	H	2												N	S	022 A3.01

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	F	2	X											B	~~U~~ S	022 K3.01 Stem Focus: I will need something from engineering that states that you would expect safety valve leakage if containment temp increases from 110 to 130 degrees. Other than that, I don't see any answers as plausible. Even the correct answer. -discuss, reference material covers concerns listed above. At SQN this is a valid situation. At what temp would you require to shutdown or de-energize equipment? This may be a good direction for this question. **Ok 12/24 KDS**
40	H	3												B	~~E/S~~ S	025 A3.02 This question explanations are confusing. If I get the alarm once (at 24") if level turns around and the alarm clears, A is correct. The alarm will have to be acknowledged before it would "reflash" is that correct. If so, we need to add a bullet. Lets walk through this question to make sure of whats going on. -discuss – will explain as it is assumed that the operator acknowledged alarm. **Ok 12/24 KDS**
41	F	1												M	~~U~~ S	026 G2.2.36 LOD: Assuming that the 1A-A CS pump is powered from the 1A-A Bus (and associated 1A-A DG) why would you not think that its operability is affected? The 2nd part really has nothing to do with the KA. -changed the stem to be more definitive by asking operable/not operable **Ok 12/24 KDS**
42	F	2												B	S	039 A4.04
43	H	3												M	~~U/S~~ S	059 A2.11 Explain how a leak on a steam pressure sensing line causes indicated steam pressure to increase. It seems as though it would decrease, causing DP to decrease with pump speed increasing because of it. This would make level increase wouldn't it? -updated the DA to better explain the effects. **Ok 12/24 KDS**

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
44	H	3												B	~~E~~ S	059 K4.16 The question concept appears to be ok. The time below 220 psig has to be very specific. I would recommend a timeline so there is no doubt about the duration below 220 psig. It would be too easy to appeal as it is written. -the requested time line would be in seconds and would be the first time the examinees saw a question like this. Recommend leaving as is. ATL added "after the alarm is received" to question stem **Ok 12/24 KDS**
45	H	3												M	~~E~~ S	061 K1.07 Do you need the last bullet? It appears that if the alarm is in (you can assume its valid), the clock starts. -yes, to show that the motors and the turbine AFW pumps are less in alarm. What are the travel times for the valves. From the plausibility statement it appears that if the alarm is in for 5.5 seconds, the valves will start to open. As long as the travel times don't stretch the time out over 60 seconds, the question appears to be ok. -stroke times are <42 seconds **Ok 12/24 KDS**
46	F	3												N	S	061 K6.01
47	H	3												B	~~E~~ S	062 A1.01 Stem Focus: Change answer A to remove the word "other." 3 hours would seem to be more plausible than 4 hours. It has to do with something electrical instead of notifications. **Ok 12/24 KDS**
48	F	2												B	S	063 A1.01
49	F	2				X								B	~~E/S~~ S	063 A2.01 Cred Dist: Why is "D" plausible. I could not find this alarm proc in the reference package. -this board does not have a local reset, but some boards do have a local reset and the 480 boards actually have a ground test PB. -Updated DA to include this. **Ok 12/24 KDS**

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	3					X							M	~~E~~ S	064 G2.4.4 Stem Focus: Change last bullet to is 840 rpm or sped up to 840 rpm. -made requested change Partial: Need to explain why "A" is not correct. I have lost a shutdown board (based on "B" being correct). That is an entry condition for AOP-P.01 isn't it? -P.01 entry is based on SDB de-energizing and then being picked up by its associated DG. If it remains de-energized it is a P.05/P.06 entry. **Ok 12/24 KDS**
51	H	2												B	~~E~~ S	073 K4.01 Stem Focus: Change stem to state "could cause". -made change **Ok 12/24 KDS**
52	H	2					X							B	~~E~~ S	076 A3.02 Part: "C" appears to be correct also. If 151 is already closed (as is) and you stated that it closes fully, you will not lose an appeal. You could make it "travels from open to fully closed". -made requested change **Ok 12/24 KDS**
53	F	2												N	S	076 K2.04
54	F	2				X								N	~~E/S~~ S	078 K1.04 Are compressors A&B different than C&D? Are there any other compressors you could use? I would rule out A&B because they appear to be the same type of compressor. - Compressors A&B are different than compressors C&D, this means that distracters A & B are different. **Ok 12/24 KDS**

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	F	2				X								N	~~U/E~~ S	103 K4.04 Stem Focus: Underline "outer." -made requested change Cred Dist: To expect the applicant to not know that the inner and outer door are interlocked……..not plausible. -the question is written asking about the interlocks by giving the operator some alarms and asking them to interpret them. The site feels that this makes the question plausible. Q555 is written which increases the difficulty level. Beyond this, the narrow scope provided by the KA restricts further development. 2nd part of question is ok. **Ok 12/24 KDS**
56	F	2	X											B	~~E~~ S	001 K4.23 Stem Focus: Change question to "the urgent failure is **originated** in". and "selector switch **has to be** in ". We can discuss. Just want to make sure the wording is correct. **Ok 12/24 KDS**
57	H	2	X											B	~~E~~ S	011 K6.04 Stem Focus: Change "C" to "…lowers until letdown isolates". Change "D" to "…rises until the reactor trips". **Ok 12/24 KDS**
58	H	2				X								N	~~U/E~~ S	015 A1.01 Cred Dist: Calculated power > Actual power being non conservative not plausible and vise versa. 2nd part of B&C not plausible. -This is a GFE K/A written to a question that is operationally valid. The plausibility for parts B & C is relating to the context of making the NI adjustment based on the first part. In other words, we are adjusting NIS power range channels with respect to RX trip setpoints. Incumbents have chosen A & C so far. ATL modified second question to determine how "gain potentiometer" would be adjusted

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
59	H	2				X								B	~~E~~ S	028 K5.04 Cred Dist: It appears that if you have a LOCA, you put H2 Igniters in service regardless of H2 concentration. If this is true, "D" is not plausible. -Discuss, updated DA **Ok 12/24 KDS**
60	F	3												B	~~E/S~~ S	041 K2.02 Does Pzr Lvl 1-LI-68-320 fail low if bus 1-III loses power. If it does, this question appears to be ok. -it does fail low on loss of 1-III. **Ok 12/24 KDS**
61	H	2	X			X								B	~~U/S~~ S	045 K3.01 Stem Focus: Last Bullet. If all systems respond as designed, why is pressurizer level going up? Remove the last bullet. -Made requested change At what power would the reactor NOT trip. Discuss asking a similar question at a power in which the reactor would not trip with the turbine. Cred Dist: The premise of the question is good but Pzr level is too easy to pick out among the choices given. If Tave is supposed to be going to 553 and "A" states that its 553 and still increasing, isn't that abnormal. You may need to go to a 2x2 question to get one that's discriminating. -modified question with different parameter values to improve plausibility. **Ok 12/24 KDS**

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
62	H	2				X								B	~~E~~ S	055 A3.03 Check font on answer A for "delta". Cred Dist: Do you have ANY valve where reaching a setpt would prevent a valve from being opened manually? If not, "C" is not plausible. - Created Q562 to remove "delta". Yes, there are other valves that have interlocks that prevent opening with interlocks. **Ok 12/24 KDS**
63	H	2												N	S	056 A2.04 Can you validate this on the simulator? Not done yet, operators have looked at it a second time and feel it is operational valid and are OK with it.
64	F	2				X								B	~~U~~ S	072 A4.01 Cred Dist: C&D just because it has an operate light, doesn't make it plausible. Either pick another indication for C&D or come up with a better plausibility statement. -changed operating light is extinguished verses illuminates and updated the DA plausibility. **Ok 12/24 KDS**
65	H	2	X											B	~~E~~ S	G2.4.1 Stem Focus: For the second part of the question, provide a pressure of 4.2 psia and ask if a reactor trip is required. -made requested change What does it mean for an interlock to be "lost". -re-wrote to remove "lost" from stem. ATL created Q665 to determine C-9 light status and if manual reactor trip required

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
66	H	2				X								B	~~E~~ S	G2.1.32 Cred Dist: Not plausible that an applicant would think that the delay of a restart would be started from the time of discovery "D". -changed time to improve plausibility Stem Focus: If you stopped a pump due to a water box leak, would you start that pump only 10 minutes later. Recommend finding another reason. It doesn't have to be fancy, just operationally valid. -changed initial conditions to make operationally valid. ATL reworded question to state "In accordance with GOI-6" and replaced "could" with "is allowed" **Ok 12/24 KDS**
67	H	3												N	S	G2.1.45
68	F	1												B	~~U~~ S	G2.2.14 LOD: Compared to "B", the rest of the answers stated are just not plausible. -wrote Q568 to address concerns ATL reworded question to form a "fill in the blank" type question and added "Order" to :Work Documents" **Ok 12/24 KDS**
69	F	2				X								M	~~U/E~~ S	G2.2.22 Cred Dist: 2500 psig is not plausible just because its above the lift setpoint. A&B not plausible. What is lift setpoint + 10%? That may work. -changed pressure to 2485 to improve plausibility. **Ok 12/24 KDS**
70	F	3												B	S	G2.2.38 The plausibility statement for "A" states that the TS limit is 2205 psia. The TS actually says 2220 psia. Make sure the numbers are correct.

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	H	2				X								B	~~U/E~~ S	G2.3.13 Cred Dist: Not plausible to think that you could not continue the release "A". No action required is not valid either, "C" not valid. Ask as a 2 part. Release will terminate automatically/require manual termination. After batch samples are obtained and the release is reinitiated, periodic sampling during the release is/is not required. Something to that effect. -created 2 X 2 as requested ATL changed question stem to have rad monitor "INOP" and reworded second question to reflect ODCM wording regarding batch sampling **Ok 12/24 KDS**
72	F	1/2												B	~~U~~ S	G2.3 Cred Dist: 1st part of A&B doesn't appear to be plausible. The plausibility statement is confusing to read so if you can explain why this would be valid after a CRI, it may be ok. With A&C, explain why you wouldn't want the emerg press fans operating…….if you can prove plausibility with the procedure, this may be ok. This question will need much more plausibility information than what is in the existing statements. Otherwise you may need to start over. -Discuss, updated DA. The 125 RM normally monitors the MCR intake and actually initiates the CRI. This makes it plausible. It gets isolated on a CRI though or it would continue monitoring. Stopping the Emergency Pressurization fan is plausible as the CRI procedure actually has conditions where the fans are shut down depending on wind direction during an event. ATL created Q672 to test if rad monitors 90-125/126 were isolated on CRI and if rad monitors 90-205/206 provide auto start signal to MCR Emerg Press fans

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
73	F	2												B	S	G2.3 Add “an entry <u>to</u> a pump room” -made change This appears to be ok as long as it <u>only takes ONE</u> authorization to get the exposure. ATL reworded question stem to test who authorizes emerg exposure limits in excess of 10CFR20 limits **Ok 12/24 KDS**
74	H	3												B	S	G2.4
75	H	2												B	S	G2.4
76	H	3	X											B	~~U/E~~ S	008 AG2.1.7 Stem Focus: Add trends to parameters (increasing or decreasing). Need to put some kind of time line on the conditions. Would I HAVE TO WAIT until I reached 1250 psig. If I were ate 1280 and decreasing and thought that 1250 psig was immanent, would I be wrong to secure them? - *Normally the operators do not trip RCPs early, the procedure direction is if RCS pressure is less than 1250 psig and an SI pump is running then trip RCPs* I referenced the reference package from 2013-301 in E-1 and it appears that I get to the decision to go to ES-1.2 (Step 15) before I get to the step for RHR spray (Step 17). So to me it looks as if I would already have transitioned to ES-1.2 before I go to the point in the procedure that the question suggests. There may be no correct answers. The premise of the question appears to be ok but the conditions need to be specific enough so the correct parts are definitely correct and the incorrect parts are definitely not correct. - *Reworded stem to have values for PZR pressure and CNMT pressure at the transition to E-1, and supporting parameters that are observed after PZR safety valve goes closed.* - *Altered step of E-1at which the crew is observing data to prior to transitions.*

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	3				X							X	N	~~U~~ S	011 EA2.05 Put space after the bullets. - *Word version of review question was not formatted correctly, LXR version OK.* Do you need the first bullet? - *Yes to add credibility for decay heat energy* SRO/Cred Dist: Neither part is SRO knowledge. 2nd part of C&D not plausible to look at 2nd heat transfer during a large break. Can you just ask if Design Basis is met with one CCP out for the 2nd part? - *Created #677 with 2nd part of question changed to suggested wording.* **Ok 12/24 KDS**
78	F	2				X							X	N	~~U/E~~ S	025 AA2.01 Is the 20 psig from the head of the water in the system? - *Yes* 'Cred Dist: 2nd part of B&C not plausible for the same reason stated in the plausibility statement. - *Disagree, if candidate does not recognize RCS pressure then thermal stress is plausible.* Would "to prevent stratification" be better or would it be too close to correct? - *Prevent stratification is part of basis, so this would be a correct answer.* - *Enhanced second part of question to include Tech Spec bases for refueling with < 23 ft of water above fuel.*

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
79	F	2	X											N	~~E/U~~ S	056 AG2.4.40 Stem Focus: Its hard to determine from the question if the answers start after the 24 hours in the question or do the times start at the same time. Put some times in the question to specify what your asking. - *Added time when CSST "A' lost power, and reworded question to ask maximum time to shutdown unit 2* Subset. If the unit must be in Hot Shutdown within 12 hours, then it also must be shut down in 13 and 14 hours. This makes B&C not plausible. This should be fixed when incorporating times per the first comment and asking the latest time that Hot Shutdown can be entered. - Enhanced question by asking the latest time Unit 2 would be required to be shutdown. **Ok 12/24 KDS**
80	F	2	X											B	~~E~~ S	065AA2.06 Stem Focus: Need to mention AOP-M.02 in question 2. What is the SG level when you get an auto trip? - *SG low level trip 10%, normally a target value of 15% and lowering is used to direct a manual trip to prevent an auto trip.* **Ok 12/24 KDS**
81	H	3	X											B	~~E~~ S	W/E04 G2.4.18 Stem Focus: Need trend on CETs. - *Added "and stable" as trend for CETs* Walk through classification but 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
82	F	3	X											B	~~E~~ S	069 AG2.1.23 Stem Focus: Edit last bullet to state that acceptance criteria was not met. - *Made suggested change to last bullet* Is the airlock test part of the overall containment leakage test? Are all of the tests performed as part of one procedure? - *Fac Rep to explain the CNMT leak rate test* Question appears to be ok but walk through it to clarify it for me. - Enhanced 1st part of question to ask if Tech Spec LCO is/is not being met. **Ok 12/24 KDS**
83	H	3	X											N	~~E~~ S	076 AG2.4.46 Stem Focus: Change 1st question to just ask if 1-RA-90-1A is consistent with the given plant conditions. - *Agree and made change to 1st question.* Need Ops and or Chem to sign off on 28 microcuries/gram DEI giving the stated alarms. - *The value given in the stem is 100 times the Tech Spec limit. Normal alarm values are established to warn operators that a Tech Spec limit has or is about to be exceeded. Will have Fac Rep discuss* **Ok 12/24 KDS**
84	H	3	X											N	~~E~~ S	WE03 EA2.1 Stem Focus: Move "with TSC concurrence" to the question stem instead of having it in all 4 answers. - *Agree and made change to question and all distractors* - *Also enhanced question by asking if allowed cooldown rate has/has NOT been exceeded vs allowed rate of cooldown.* **Ok 12/24 KDS**
85	H	3	X											B	~~E/S~~ S	W/E07 EA2.2 In this question, is RHR in "Normal Shutdown Cooling Mode"? If I am in 0-SO-74-1, am I out of the EOPs? Need to walk this question through the EOPs. - *Procedure reference is incorrect should be EA-74-1 not 0-SO-74-1. Made change to question stem.*

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	2	X										X	N	~~E/S~~ S	005 A2.01 Stem Focus: Would you tag out an RHR pump while cooling down? - *Agree and enhanced by changing reason for 1B-B RHR pump to be OOS.* **Ok 12/24 KDS**
87	F	2	X												~~E/S~~ S	008 G2.4.30 Stem Focus: Change 1st part to ask: if the Shift Manager needs to notify the Duty Plant Manager….yes or no. - *Agree with and made change* What is the reference and why do they need it? - *Reference is NPG-SPP-3.5 with all 1 hr requirements redacted.* - *Reason for reference is greater than 1 hr requirement for notification* The plausibility statement for C states that it's a 4hr report due to a TS required shutdown. The questions statement states that it was an automatic trip. Still 4 hours but the statement is not correct. 10CFR50.72(b)(2)(IV)(B). Need to verify this with your SPP-3.5. If 3.7.3 requires a shutdown, do I need the trip in the bullets? - *Reactor trip added for plausibility due to guidance for 8 hr notification due 50.72(D)(3)(a)(1).* - *Changed reporting time to 1 hr (EPIP) or 4 hr (Tech Spec shutdown)* - *Enhanced by removing Reactor trip and making candidate determine operational requirements by given condition on each unit and then determine if notification is required.*

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
88	H	2												N	~~U/E~~ S	026 G2.2.25 1st part ok Stem Focus: Remove "which ONE of the following identifies the" from the question. Cred Dist: 2nd part using the word **may** doesn't lend itself to the 2nd part of B&D. This is an action not an option. The makes them not plausible. Recommend getting a new 2nd part. This was one of the ten sample questions sent and still has the same issue with the "may" terminology. - *Removed "which ONE of the following identifies from the question.* - *The word "may" was taken directly from the Tech Spec basis for CNMT Spray. This action may have to be performed if the CNMT spray pumps cavitate after sump recirc is established but it is not a definite.* - *Enhanced 1st part to ask if RHR spray is/is NOT required for current plant condition.* - *Enhanced 2nd part to ask what procedure guidance is required to comply with Tech Spec basis, this changes 2nd part of distractors to actions contained within 0-SO-74-1.* **Ok 12/24 KDS**
89	H	2											X	N	~~U~~ S	062 A2.07 SRO Only: Electrical system knowledge answers what does and does not have power. Procedure entry conditions answers which procedure your in. Nat Circ cooldown just isn't plausible. Its more of an "after the fact" procedure that you would use. - *Attempted to write first question to meet 10CFR55.43.b.5* - *Wrote a different version question (#589) testing if Offsite power is OPERABLE for each unit with 500 KV power unavailable (from Tech Spec basis) and to select appropriate procedure to mitigate the event.* **Ok 12/24 KDS**
90	F	3	X											B	~~E~~ S	063 G2.4.31 Stem Focus; Remove the "which ONE of the following" part and write "Based on the above conditions, (1) in accordance with Tech Spec 3.8.2.3, "D.C. Distribution – Operating," Battery Board II is _____ and (2) in accordance with 0-SO-250-1, "125 Vold dc Vital Battery Boards" _____. - *Agree and made suggested enhancements to 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
91	F	2	X											B	~~E~~ S	002 G2.2.37 Stem Focus: Change the question state that a pressurizer PORV inadvertently opened. Ask the 1st question. Then ask "assuming that the PORV was manually closed", Ask the 2nd question. May need to word-smith it a little. - *Agree and made suggested enhancements*. **Ok 12/24 KDS**
92	F	2											X	B	~~U/E~~ S	028 G2.1.32 SRO Only: One piece of RO knowledge (H2 level that you are not allowed to vent or run recombiners) can be used to answer both questions. May be edited such that the second part asks about staying in FR-I.3 or transitioning out to perform a set action. You don't have to change the 2nd part that much. - *Made change to wording of question and enhanced the distractors to include the wording used in FR-I.3 to return to step and procedure in affect.* **Ok 12/24 KDS**
93	F	2	X											B	~~E~~ S	079 A2.01 Stem Focus: Ask separate questions or reword the 2nd question to match the question statement. i.e. (1) Which ONE of the following identifies the direction given to the AUO and (2) In accordance with Tech Specs , the Turbine Driven EFDWP _____is/is NOT required to be declared INOPERABLE. Need to wordsmith it a little. - *Agree and made suggested enhancements.* **Ok 12/24 KDS**
94	F	2											X	B	~~U/S~~ S	G2.1.42 SRO Only: The objective referenced is an RO objective as well as an SRO objective. Think about adding a procedure selection portion to this question. - *Fuel movement and requirements are SRO only tasks at SQN. Site will correct lesson plan objectives to indicate that this is an SRO only objective.* - *Question sat as written, no changes needed.* **Ok 12/24 KDS**

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	F	2	X											N	~~E~~ S	G2.2.15 Stem Focus: The reference stated gives an example where the SM can authorize relaxiation of status control within a clearance boundary when necessary. The question is no specific enough to eliminate this as a correct answer. Modify the question step to ensure there is only one answer. - *Will add more specific words to 1st part of stem to clarify* - *Discuss with Fac Rep* - *Enhanced question by changing answer from Shift Manager to Plant Manager to eliminate possible overlap of responsibilities.* **Ok 12/24 KDS**
96	H	3				X								M	~~E/S~~ S	G2.2.20 Walk through the times in the procedure to show what the alert range is and how the opening and closing time requirements are. Cred Dist: On the surface it seems as though the closing times given are so much shorter than the opening times that it wouldn't be plausible for them to be in the alert range. - *Will walk through procedure with examiner to ensure only one correct answer. Demonstrate how Unit 1 and Unit 2 data can be easily confused.* - *No change needed. Use question as is.* **Ok 12/24 KDS**
97	H	3				X								B	~~U/E~~ S	G2.3.4 Cred Dist: 2nd part of A&B not plausible to think they only apply during a General Emergency or always apply (during an UE). - *Disagree, Per EPIP-15, the REP allows emergency exposure limits under specific circumstances to mitigate the consequences of any emergency condition, thus the 2nd part of A is correct. (plausible).* - *The 2nd part of B is plausible since when a General Emergency is declared, actions are likely to be needed to protect the health and safety of the public.* - *After review question satisfactory as is.*

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	3	X											B	~~E~~ S	G2.3.7 Cred Dist: Change rad level to 48 Rad/Hr. This will change the correct answer to A. - *Do not agree with 48 Rad/hr is more credible than 58 Rad/hr which is currently in question.* - *Need to discuss with examiner.* - *Enhanced question to lower rad level to 20 R/hr.* **Ok 12/24 KDS**
99	H	2	X											B	~~E~~ S	G2.4.35 Stem Focus: on the second question make it "control is(are)" - *Agree and made minor enhancement* **Ok 12/24 KDS**
100	H	3												M	S	G2.4.38 Need to walk through and discuss how the errors could reasonably be made for the distractors. **Ok 12/24 KDS**

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

Facility: Sequoyah Nuclear Plant	Date of Exam: 12/2/2013	Exam Level: RO/SRO

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

	Printed Name/Signature	Date
a. Grader	Joe Viera /	1/7/2014
b. Facility Reviewer(*)	NA	
c. NRC Chief Examiner (*)	Ken Schaaf /	1/7/2014
d. NRC Supervisor (*)	Malcolm Widmann /	01/15/14

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