Facility: CATAWBA Date of Examination: 2014

Developed by: Written - Facility [X] NRC [ ] // Operating - Facility [X] NRC [ ]

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

* 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: Catawba Nuclear Station (operating test) Date of Examination: 05/19/2014

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

	Printed Name/Signature	Date
a. Author	Darrell Hensley / Darrell Hensley	5/7/14
b. Facility Reviewer (*)	Eric Madsen / EMadsen	5/7/14
c. NRC Chief Examiner (#)	MARK A. BATES / Mark A. Bates GARY CALLAWAY / Gary Callaway	5/7/14
d. NRC Supervisor	Eugene Guthrie / Eugene Guthrie	5/9/14

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

Facility: Catawba (WRITTEN EXAM) Date of Examination:

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

	Printed Name / Signature	Date
a. Author	MICHAEL MEEKS / Michael K. Meeks	05/07/2014
b. Facility Reviewer (*)	N/A	N/A
c. NRC Chief Examiner (#)	MARK A. BATES / Mark A. Bates; GARY CALLAWAY	5/7/2014
d. NRC Supervisor	Eugene Guthrie / Eugene Guthrie	5/9/14

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

Catawba Nuclear Station (2014301)

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 May 2014 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 _____. 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.	Darrell Hensley	Lead Exam Developer	Darrell Hensley	10/25/13	Darrell Hensley	5/29/14
2.	Eric P. Madsen	Exam Team Supervisor		10/25/13		05/29/14
3.	Rusty Miller	Line Support		12/03/13		03/07/14
4.	R. Llewellyn	OTM / Oversight		12/13/13		5-30-14
5.	Chris Miller	Line Support		4/2/14		06/10/14
6.	Sonny Banks	Sim Support		4/13/14		6-1-14
7.	Alvin Kinley	Sim Support		1/13/14		7-9-14
8.	Gayle Wood	Sim Support		1/14/14		5/30/14
9.	GARY DANIELS	Sim Support		/20/14		5/30/14
10.	Ross Cooke	Sim Support		-21-14		6/2/14
11.	Clark Fletcher	MNS Exam Team		1-22-14	Clark Fletcher per phone con	7/7/14
12.	Wiley Kilette	MNS Exam Team		1/22/14	Wiley K. Llette per phone con	7/7/14
13.	Matt Parker	RO/ Exam Validation		01-28-14		05-30-14
14.	Pete Burroughs	RO / Exam Validation		01-28-14		05-30-14
15.	Doug Gates	SRO / Exam Validation		01/28/14		07/18/14

NOTES:

1. **Pre-Examination**

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of May 2014 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 ________. 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.	Vivian Murray	SRO Validator	[signature]	01/30/14	per phoncon	8/8/14	[illegible]
2.	MICHAEL WASSERMAN	SRO VALIDATOR	[signature]	01/30/14	[signature]	08/06/14	
3.	John Glepinski	RO VAlidator	[signature]	1/30/14	[signature]	5/30/14	
4.	James Blankenship	RO Validator	[signature]	01/30/14	[signature]	05/30/14	
5.	Doug Michalak	I/T Support	[signature]	1/30/14	[signature]	6/4/14	
6.	Mitchell Bass	RO validator	[signature]	02/20/14	[signature]	06/16/14	
7.	BRAD TURNER	RO validator	[signature]	02/20/14	[signature]	05/30/14	
8.	Ray Thomson	SRO Validator	[signature]	2/20/14	[signature] / com per telecon	6/19/14	
9.	Matt Hatolik	SRO VALIDATOR	[signature]	2/20/14	[signature]	8-7-14	
10.	WALTER HUNNICUTT	FACILITY REVIEWER	[signature]	02/24/14	[signature]	05/30/14	
11.	GABRIEL WASHBURN	Fleet Review	[signature]	3-4-14	Gabe Washburn / com	per Telecon	6/3/14
12.	Mark W Hawes	~~[illegible]~~ 4/8/14 Reactor Engineer	[signature]	4/8/14	[signature]	6/2/14	
13.							
14.	Denise Campbell	Validator	[signature]	4/14/14	[signature]	07/31/14	
15.	Glenn M. Jackson	Validator	[signature]	4/14/14	[signature]	7/09/14	

NOTES:

1. **Pre-Examination**

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of _____ 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 _____. 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.	William Smith	Simulator Operator		04/29/14		05/29/14
2.	Alan CHIA	REACTOR OPERATOR		04/16/14		05/02/14
3.	Sistare Jeremy	Reactor Operator		04-29-14		06/04/14
4.	BARRY PROPHETER	SENIOR REACTOR OPERATOR		4/29/14		8/7/14
5.	Andrew Donato	Senior Reactor operator		04/29/14		05/30/14
6.	MIKE ARNOLD	REACTOR OPERATOR		4-29-14		6-4-14
7.	Natasha Martin	Admin Support		5-14-14		5/30/14
8.	KEITH E. HAMPTON	INSTRUCTOR I SUPPORT		5/19/14		5/30/14
9.	James E. Neal	Instructor Support		5/19/14		6/2/2014
10.	HARVEY W. JARMAN	ADM-SUPT / MANAGEMENT		5/21/14		5/30/14
11.	CHAS UNDERWOOD	SRO I OPS TRAINING		05/22/14		05/30/14
12.	JAMES P. CRUSE	OPS INSTRUCTOR		05/22/14		06/02/14
13.						
14.						
15.						

NOTES:

NRC EXAM
FINAL SUBMITTAL

Facility: **Catawba Nuclear Station** Date of Examination: **May 2014**

Examination Level: RO ☒ SRO ☐ Operating Test Number: 2014301

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,D	**Determine License Status** G2.1.4 Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.
Conduct of Operations	R,D	**Calculate Boric Acid and Water Addition to FWST** G2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc.
Equipment Control	R,N	**Tagout "A" KR (Recirc. Cooling Water) Pump for check valve inspection** G2.2.15 Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.
Radiation Control	P,R	**Calculate Low Pressure Service Water Discharge Flow for Radioactive Release** G2.3.11 Ability to control radiation releases.
Emergency Procedures/Plan		---

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

NRC EXAM
FINAL SUBMITTAL

Facility: **Catawba Nuclear Station** Date of Examination: **May 2014**

Examination Level: RO ☐ SRO ☒ Operating Test Number: 2014301

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,D	**Determine License Status** G2.1.4 Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.
Conduct of Operations	R,D	**Calculate Boric Acid and Water Addition to FWST** G2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc.
Equipment Control	R,N	**Tagout 1EBC (Vital Battery)** G2.2.13 Knowledge of tagging and clearance procedures.
Radiation Control	P,R	**Calculate Low Pressure Service Water Discharge Flow for Radioactive Release** G2.3.11 Ability to control radiation releases.
Emergency Procedures/Plan	R,M	**Classify the Event, and determine Protective Action Recommendations (PAR)** G2.4.44 Knowledge of emergency plan protective action recommendations

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

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

NRC EXAM

Facility: **Catawba Nuclear Station** Date of Examination: **May 2014**

Exam Level: RO ☒ SRO-I ☐ SRO-U ☐ Operating Test Number: **2014301**

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. **Respond to inadvertent dilution while shutdown** 004A2.06 Control/mitigate inadvertent dilution. 4.2/4.3	A,L,N,S	1
b. **Transfer the ECCS to Cold Leg Recirc** 006A4.07 Operate ECCS pumps and valves 4.4/4.4	A,M,EN,L,S	2
c. **Cycle RCS PORV for periodic test** 010A4.03 Operate/monitor PORV and block valves 4.0/3.8	N,L,S	3
d. **Start 1B NC (RCS) Pump** 003A1.01 Parameters for operating RCP controls - vibration 2.9/2.9	A,D,L,S	4P
e. **Synchronize the Generator to the Grid** 045A4.02 Monitor/operate T/G controls, including breakers. 2.7/2.6	A,N,S	4S
f. **Restoration of Offsite Power** 062A4.01 Operate/monitor All breakers in the control room 3.3/3.1	N,S	6
g. **Shift Lower Containment Ventilation Units** 022A4.01 Operate/monitor CCS fans 3.6/3.6	C,N	5
h. **Shift KC (CCW) Trains** 008A4.01 Operate/monitor CCW indications and controls 3.3/3.1	M,S	8
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. **Break Main Condenser Vacuum Locally - Unit 2** 045A1.06 Monitor parameters following T/G trip 3.3/3.7	P,D,E	4S
j. **Shift Main Transformer Auxiliaries** 062A2.01 Operate loads that would degrade plant operation. 3.4/3.9	P,D	6
k. **Place 2A Hydrogen Analyzer in service** 028A1.01 Monitor parameters for operating HRPS controls-H2 con. 3.4/3.8	D,E,L,R	5

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

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1
(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	

NRC EXAM

Facility: **Catawba Nuclear Station** Date of Examination: **May 2014**

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test Number: **2014301**

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. **Respond to inadvertent dilution while shutdown** 004A2.06 Control/mitigate inadvertent dilution. 4.2/4.3	A,L,N,S	1
b. **Transfer the ECCS to Cold Leg Recirc** 006A4.07 Operate ECCS pumps and valves 4.4/4.4	A,M,EN,L,S	2
c. **Cycle RCS PORV for periodic test** 010A4.03 Operate/monitor PORV and block valves 4.0/3.8	N,L,S	3
d. **Start 1B NC (RCS) Pump** 003A1.01 Parameters for operating RCP controls - vibration 2.9/2.9	A,D,L,S	4P
e. N/A		
f. **Restoration of Offsite Power** 062A4.01 Operate/monitor All breakers in the control room 3.3/3.1	N,S	6
g. **Shift Lower Containment Ventilation Units** 022A4.01 Operate/monitor CCS fans 3.6/3.6	N,S	5
h. **Shift KC (CCW) Trains** 008A4.01 Operate/monitor CCW indications and controls 3.3/3.1	M,S	8
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. **Break Main Condenser Vacuum Locally - Unit 2** 045A1.06 Monitor parameters following T/G trip 3.3/3.7	P,D,E	4S
j. **Shift Main Transformer Auxiliaries** 062A2.01 Operate loads that would degrade plant operation. 3.4/3.9	P,D	6
k. **Place 2A Hydrogen Analyzer in service** 028A1.01 Monitor parameters for operating HRPS controls-H2 con. 3.4/3.8	D,E,L,R	5

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

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1
(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	

NRC EXAM

Facility: **Catawba Nuclear Station** Date of Examination: **May 2014**

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test Number: **2014301**

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. N/A		
b. **Transfer the ECCS to Cold Leg Recirc** 006A4.07 Operate ECCS pumps and valves 4.4/4.4	A,M,EN,L,S	2
c. **Cycle RCS PORV for periodic test** 010A4.03 Operate/monitor PORV and block valves 4.0/3.8	N,L,S	3
d. N/A		
e. N/A		
f. **Restoration of Offsite Power** 062A4.01 Operate/monitor All breakers in the control room 3.3/3.1	N,S	6
g. N/A		
h. N/A		

In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. **Break Main Condenser Vacuum Locally - Unit 2** 045A1.06 Monitor parameters following T/G trip 3.3/3.7	P,D,E	4S
j. N/A		
k. **Place 2A Hydrogen Analyzer in service** 028A1.01 Monitor parameters for operating HRPS controls-H2 con. 3.4/3.8	D,E,L,R	5

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

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1
(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	

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

FINAL SUBMITTAL

Facility: Catawba Nuclear Station	Date of Examination: May 2014	Operating Test Number: 2014301

	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	Darrell D. Hensley /	5/1/14
b.	Facility Reviewer(*)	Walter L. Hunnicutt /	05/01/14
c.	NRC Chief Examiner (#)	MARKA. BATES / GARY CALLAWAY CHIEF EXAMINER INSTRUCTION	5/7/2014
d.	NRC Supervisor	Eugene Guthrie /	5/9/14

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

FINAL SUBMITTAL

Facility: **Catawba Nuclear Station** Date of Exam: **05/14** Scenario Numbers: **1 / 2 / 3 / 4 / 5** Operating Test No.: **2014301**

QUALITATIVE ATTRIBUTES		Initials a	b*	c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2.	The scenarios consist mostly of related events.			
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	N/A		
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 inaccordance 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)	7/7/8/6/8			
2.	Malfunctions after EOP entry (1–2)	2/2/2/1/2			
3.	Abnormal events (2–4)	4/3/4/4/4			
4.	Major transients (1–2)	1/1/1/1/1			
5.	EOPs entered/requiring substantive actions (1–2)	2/2/2/2/2			
6.	EOP contingencies requiring substantive actions (0–2)	1/1/1/1/1			
7.	Critical tasks (2–3)	3/4/3/6/0			

Facility: Catawba Date of Exam: **May 2014** Operating Test No.: **2014301**

APPLICANT	EVENT TYPE	FINAL SUBMITTAL												TOTAL	MINIMUM(*)		
		Scenario 1			Scenario 2			Scenario 3			Scenario 4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO	RX	–	2	–	–	1	–	–	5	–	–	1	–		1	1	0
SRO-I	NOR	12	–	1	1	–	1	1	–	1	1	–	1		1	1	1
	I/C	3456	35	46	2345	45	23	2456	26	34	245	25	34		4	4	2
SRO-U	MAJ	7	7	7	6	6	6	7	7	7	6	6	6		2	2	1
	TS	56	–	–	34	–	–	345	–	–	23	–	–		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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in 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: **Catawba** Date of Exam: **May 2014** Operating Test No.: **2014301**

APPLICANT	EVENT TYPE	FINAL SUBMITTAL												TOTAL	MINIMUM(*)		
		Scenario 5															
		CREW POSITION															
		SRO	ATC	BOP											R	I	U
RO	RX	–	1	–											1	1	0
SRO-I 1	NOR	1	–	1											1	1	1
	I/C	2346	26	34											4	4	2
SRO-U	MAJ	7	7	7											2	2	1
	TS	35	–	–											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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.

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

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

FINAL SUBMITTAL

Facility: **Catawba**	Date of Examination: **May 2014**	Operating Test No.: **2014301**

Competencies	RO **X** / SRO-I / SRO-U — SCENARIO					RO / SRO-I **X** / SRO-U — SCENARIO					RO / SRO-I / SRO-U **X** — SCENARIO				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Interpret/Diagnose Events and Conditions	3456 789	2345 67	2345 6789	2345 678	2345 6789	34567 89	2345 67	2345 6789	2345 678	2345 6789	3456 789	2345 67	2345 6789	2345 678	2345 6789
Comply With and Use Procedures (1)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
Operate Control Boards (2)	ALL	1234 578	1234 5689	1234 78	1246 89										
Communicate and Interact	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
Demonstrate Supervisory Ability (3)						ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
Comply With and Use Tech. Specs. (3)						56	34	345	23	35	56	34	345	23	35

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.

FINAL SAMPLE PLAN IS A COMBINATION OF DRAFT SAMPLE PLAN AND ES-401-4.

Record of Rejected K/As

Catawba Nuclear Station Initial NRC License Exam
May 2014
FINAL SUBMITTAL

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO Exam		
1 / 2	067AA1.01	Could not write a discriminating and operationally valid question. Received replacement KA from Chief Examiner: 067AA1.05
2 / 1	064K2.02	The only electrically powered fuel oil pump associated with D/G is the fuel oil booster pump, which is operated only by maintenance personnel. Chief Examiner supplied the following replacement KA: 064K2.01
SRO Exam		
1 / 2	028AG2.2.12	Not feasible to develop an SRO only question that meets both parts of the KA. Per direction from the Chief Examiner, a replacement KA was randomly selected, with the following result: 028AG2.2.36
2 / 2	071A2.01	Extremely challenging to develop an SRO only question. Chief Examiner agreed and supplied the following replacement: 071A2.02
2 / 2	015G2.1.31	Impractical to develop an operationally valid question at the SRO only level. Chief Examiner provided the following replacement: 015G2.1.23.

Facility: **Catawba Nuclear Station** Date of Exam: **May 2014** Exam Level: RO **X** SRO **X**

	FINAL SUBMITTAL Item Description	Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.	DDH	WLH	GG MB
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available..	DDH	WLH	GG MB
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401	DDH	WLH	GG MB
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from thelast 2 NRC licensing exams, consult the NRR OL program office).	DDH	WLH	GG MB
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)	DDH	WLH	GG MB
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: 34% / 12% — Modified: 9% / 24% — New: 57% / 64 %	DDH	WLH	GG MB
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: 44% / 28% — C/A: 56% / 72%	DDH	WLH	GG MB
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	DDH	WLH	GG MB
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.	DDH	WLH	GG MB
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.	DDH	WLH	GG MB
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.	DDH	WLH	GG MB

	Printed Name / Signature	Date
a. Author	Darrell D. Hensley / Darrell D. Hensley	5/1/14
b. Facility Reviewer (*)	Walter L. Hunnicutt / W. L. Hunnicutt	5/?/14
c. NRC Chief Examiner (#)	MARK A. BATES / Mark A. Bates; Gary Callaway, Chief VNIZ Instruction	5/6/2014; 5/7/2014
d. NRC Regional Supervisor	Eugene Guthrie / E. Guthrie	5/9/14

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.

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	L	2													S	
2	H	3													S	
3	H	3													~~E~~ S	There is no way to know steam pressure. During LOCA, the steam generator can become a heat source as a combination of break flow and ECCS flow removes decay heat. See step 19 of E-1 and associated background. Add to stem that a cooldown is in progress using SG PORVs. This ensures that the SGs are "coupled". Also change the distractor analysis to say that the steam pressure correlates to Tcold, not core exit temperature. I could not verify the info from Revised Data Book Figure 58 since I do not have it. Licensee included Figure 57 with the Question. Q now Sat.
4	H	3													~~E~~ S	The bullet "a double-ended break . . ." may not be needed – consider deleting. The crew could not possibly know the location or nature of the LOCA. The stem contains enough info to answer the question without this bullet. Q now Sat.
5	L	2													S	
6	H	3													S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
7	H	3													~~E~~ S	The timing of "Subsequently" needs refinement. If the time delay is such that system pressure is restored, the "C heaters may not still be on. I do not have the Lesson Plan to verify the correct answer, but the last bullet (the OATC notifies . . .) seems to be window dressing. How does the notification change the question or answer? Q now Sat.
8	H	3													~~U~~ S	DRPI actually changes at least twice every 6 steps of bank motion because the two groups in the bank move separately. Since each rod is measured independently, DRPI changes could occur much more frequently. If you want to ask for rod speed, just ask for rod speed. Q now Sat.
9	L	3													S	
10	H	3													S	
11	H	2										x			~~U~~ S	The LCOs were entered when the plant met the associated applicability statements. Required actions are entered in this case, not LCOs. "Station blackout" is defined in 10CFR50. Using the term "Blackout" for loss of a single bus seems strange. Would the plant call this a blackout, or is this simply an attempt to make it appear to be a better K/A match? At the plants I am familiar with the most limiting action requirement in this condition is due to the loss of multiple battery chargers. If this is most limiting, it seems that the correct answer should contain this action. KA Match: Discuss KA Match with the licensee. The KA requires testing TS Entry Conditions with a Station Blackout present – I.E. loss of both onsite and offsite AC power. Q now Sat.
12	H	3													S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
13	H	5													S	Are the operators really expected to know the relationship between trip units and channels from memory? Q Sat.
14	H	4													S	
15	H	3													~~E~~ S	The statement “required actions for mitigating any adverse parameter trend” seems vague and open-ended. Since it is not credible that anyone would think that rising RCS pressure and PZR level are “adverse parameter trends”, the question clearly means, “what do I need to do to stop the FWST from depleting?” If I think the break is not isolated , then I will continue to try to isolate the leak (c and d close additional valves). But If think that the break is isolated then B is not credible , since it basically says that doing nothing will stop the loss of FWST inventory. Q now Sat.
16	L	3													S	
17	L	2													S	
18	L	3													S	
19	H	3													~~E~~ S	The maximum time allowed to complete the required action of TS 3.1.4 is 5 days. Suggest: All required actions from TS 3.1.4 will be complete if RCCA H-8 is realigned within . . . Q now Sat.
20	H	3													S	Have the licensee explain the third bullet. The current wording is confusing, but it may just a lack of understanding on my part. Q Sat.

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
21	H	3													~~E~~ S	The current Catawba Unit 1 TS lists P-6 in units of amps, but the footnote says "The ≥ 6E-11 amp Allowable Value and the 1 E-1 0 amp NOMINAL TRIP SETPOINT value apply to the Westinghouse-supplied compensated ion chamber Intermediate Range neutron detectors. The compensated ion chamber neutron detectors are being replaced with Thermo Scientific-supplied fission chamber neutron detectors. The ≥ 6.6E-6% RTP Allowable Value and the 1 E-5% RTP NOMINAL TRIP SETPOINT value apply to the replacement fission chamber Intermediate Range neutron detectors. Is this MOD complete? See Q22 and evaluate for overlap. Discuss with licensee. O/L OK.
22	H	3													~~E~~ S	It seems that this has overlap with Q. 22. If I do not know how P-6 affects the source range I will miss both of these questions. See Q21 and evaluate for overlap. Discuss with licensee. O/L OK.
23	H	3													~~U~~ S	I do not have to know anything about Catawba area radiation alarms or the high flux at shutdown alarm to eliminate A and B. With a dropped fuel assembly and observed bubbles, one could never eliminate the possibility of an area rad alarm. Any answer that excludes this is not credible. Q now Sat.
24	H	3													S	
25	H	3													S	
26	H	3													S	
27	H	3													~~E~~ S	Knowledge of entry conditions for yellow path procedures is SRO only knowledge. Is this really RO knowledge? Q now Sat.

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
28	L	2													~~U~~ S	Overlap with Q. 5. Q 5 also tests that thermal barrier HX has no cooling after hi-hi containment pressure signal. O/L OK.
29	L	2				X									~~U~~ S	If the switch is placed in the RHT position, it is not credible that it continues to send water somewhere else. Q now Sat.
30	L	2													S	
31	L	2													S	
32	L	2													S	
33	H	3													~~E~~ S	1. Why are both trains affected by a single leak(are they normally x-connected?) 2. Why is only one train showing high radiation if both surge tanks are rising? 3. Why is a 2% rise on one tank 50 gal. (25 gal/%) while a 3% rise on the other tank is 150 gal (50 gal.%)? Q now Sat.
34	L	3													S	
35	H	3													S	
36	H	3													S	
37	H	3													S	
38	L	3													S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
39	H	3													~~E~~ S	Evidently 1EADA/1VADA means 1EADA AND 1VADA. This is not evident from the question, I had to read the distractor analysis to figure this out. Also, at many Westinghouse plants, the need for P-4 to be met to reset SI is not a function of HOW SI was initiated, but whether an automatic SI signal is currently present. In other words, SI may be able to be reset following an automatic SI if the initiating signal were no longer present. Please verify that the question is technically correct in this regard. Q now Sat.
40	L	5													S	Is this memory level knowledge for an RO at Catawba? Addressed.
41	H	2													~~E~~ S	A TS is not “entered”. A required action is entered. Entering a TS has no defined meaning (it is slang, at best). Consider a wording similar to : LCO 3.6.12 (Ice Bed) is (met or not met). Ice bed operability is based in part on (ice condenser door position or ice bed temperature). Q now Sat.
42	L	2													~~E~~ S	To help plausibility of distractors. The time requirement part would be better worded as Is or Is Not required to be restored within 1 hour. This gets away from the 4 hour requirement, which an applicant may know is beyond what is required from memory. Q now Sat.
43	L	3													S	
44	H	3													~~E~~ S	Isn’t it true that the main steam lines are normally warmed with drains open, and an excessive cooldown is prevented by throttling the MSIV bypass valves? It seems more credible to me to suppose that the operator inadvertently fully opens the MSIV bypass valves. Q now Sat.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
45	L	3													S	
46	H	3													~~E~~ S	The referenced procedure calls it the “CF Flow Venturi Correction Factor”..I suggest you change the wording in the stem to match that of the procedure. Q now Sat.
47	H	3													S	
48	H	3													S	Have licensee walk examiners through supporting documentation to ensure technical accuracy. OK
49	L	3													~~U~~ S	It seems that “alternate source supplying load” couldn’t possibly be the wrong answer”, making the “in sync” light not a credible distractor. Q now Sat.
50	L	3													S	
51	L	3													S	
52	H	3													S	
53	H	3													S	
54	L	3													~~E~~ S	Consider removing “In an effort to lower containment temperature and pressure”- the info does not appear to be necessary. Q now Sat.
55	L	3													S	
56	H	2													S	
57	L	3													S	
58	H	3													S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
59	H	3													S	
60	H	3													S	
61	L	3													~~E~~ S	To quote from applicability, should say “during latching of control rod drive shafts”. Q now Sat.
62	L	3													S	
63	L	2													~~E~~ S	The paragraph beginning “given the following” . . . may be unnecessary info. If so, then consider deleting everything before (1) To limit . . . Q now Sat.
64	L	3													S	
65	L	3													~~E~~ S	D is not a credible distractor. Seal return only re-directs when the header is isolated. This could not be used for pzr level control. Q now Sat.
66	L	2													S	
67	L	2													S	
68	L	2													S	
69	H	3													S	
70	L	2													S	
71	L	3													S	
72	H	3													S	
73	H	3													S	
74	L	2													S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
75	L	2													S	
76	H	3													~~U~~ S	One success path in FR-C.1 is restoration of high head ECCS. If this is the success path, there is no way to know RCS pressure at the time of restoration. There is not enough information in the stem to eliminate high head restoration as a success path. Q now Sat.
77	H	4													S	
78	H	3													S	
79	H	3													S	
80	H	3													S	
81	H	3													S	
82	H	3													~~U~~ S	This does not seem to be SRO only. I do not see the link to TS. This question does not appear to test TS or TS bases. Q now Sat.
83	H	3													~~U~~ S	This question only addresses TS “above the line” issues. Whether a TSAIL entry is active or for tracking is another way to say that the LCO is met or not met. With a failed PZR level instrument, the RO should know that 3.3.1 is not met and 3.4.9 is met. Q now Sat.
84	H	3													S	
85	H	3													S	
86	H	3													~~E~~ S	Explain further why this may be SRO. The justification says that this is linked to TS, but the screening block for SRO only does not appear to be met. Is this an SRO-only task at Catawba? If so, place that in the justification with the appropriate 55.43 link. Q now Sat.

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
87	H	3													S	
88	H	3													S	
89	H	3													S	
90	H	3													S	
91	H	3													S	
92	H	3													S	
93	H	3													S	
94	H	3													S	
95	H	3													S	Why didn't the oil change make the D/G inoperable? Q now Sat.
96	H	3													S	
97	H	3													S	
98	H	3													S	
99	H	3													S	
100	H	3													S	

Facility: Date of Exam: Exam Level: RO ☐ SRO ☐

Item Description	Initials a	b	c
1. Clean answer sheets copied before grading	MB	N/A	
2. Answer key changes and question deletions justified and documented (None)	MB	N/A	
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	MB	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 (none)	MB	N/A	
5. All other failing examinations checked to ensure that grades are justified (none)	MB	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	MB	N/A	

	Printed Name/Signature	Date
a. Grader	MARK A. BATES / Mark A. Bates	6/9/14
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	Phillip G. Capehart / Phillip G. Capehart	6/9/14
d. NRC Supervisor (*)	WILLIAM T. WILLIAMS / William T. Williams	06/11/2014

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