

Facility: BrunswickDate of Examination: October 2014Examinations Developed by: Facility / NRC (circle one)

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

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

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

Facility: Brunswick Nuclear Plant		Date of Examination: Oct-2014		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	RB	JP	AK
	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.	RB	JP	AK
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	RB	JP	AK
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	RB	JP	AK
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	RB	JP	AK
	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.	RB	JP	AK
	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.	RB	JP	AK
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.	RB	JP	AK
	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	RB	JP	AK
	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.	RB	JP	AK
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	RB	JP	AK
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	RB	JP	AK
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	RB	JP	AK
	d. Check for duplication and overlap among exam sections.	RB	JP	AK
	e. Check the entire exam for balance of coverage.	RB	JP	AK
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	RB	JP	AK
a. Author Robert Bolin b. Facility Reviewer (*) Jerry Pierce c. NRC Chief Examiner (#) Philip G. Cochran d. NRC Supervisor Gerald J. McCoy		Printed Name/Signature Date 9/30/14 10/01/14 10/01/14 10/02/14		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 10/21/14 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 10/21-10/22/14. 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. Robert Bolin	Exam Facility Author	<i>[Signature]</i>	1-20-14	<i>[Signature]</i>	10/22/14
2. Lou Sosler	EXAM WRITER	<i>[Signature]</i>	1-21-14	<i>[Signature]</i>	10/22/14
3. MICHAEL NEMEC	TRAINING SUPV	<i>[Signature]</i>	2/4/14	per phone	10/22/14
4. Aaron Forsyth	Facet NRC EXAM	<i>[Signature]</i>	5/27/14	per email	10/21/14
5. Douglas Shawwood	RO/Technical Reviewer	<i>[Signature]</i>	6/2/14	<i>[Signature]</i>	10/21/14
6. Ken Kaley	SEO/TECHNICAL REVIEWER	<i>[Signature]</i>	6/2/14	<i>[Signature]</i>	10/21/14
7. James Condon	LCI Supervisor ROP	<i>[Signature]</i>	6/17/14	per email	10/21/14
8. AULIAN SCS HAZZ	NRCSS Training Administrator	<i>[Signature]</i>	6/17/14	per email	10/22/14
9. JEFFREY DELCOURT	SIMULATOR SUPPORT	<i>[Signature]</i>	6/19/14	<i>[Signature]</i>	10/21/14
10. Jerry Pierce	AOM Facility rep	<i>[Signature]</i>	070914	<i>[Signature]</i>	10/21/14

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 10/10-10/21 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 10/10-10/21. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1. <u>DEREK PICKETT</u>	<u>RD / Validator</u>	<u>[Signature]</u>	<u>7/15/14</u>	<u>[Signature]</u>	<u>10/13/14</u>
2. <u>Bruce Leith</u>	<u>SRO / Validator</u>	<u>[Signature]</u>	<u>7/15/14</u>	<u>[Signature]</u>	<u>10/22/14</u>
3. <u>More Smiley</u>	<u>OTM</u>	<u>[Signature]</u>	<u>8/12/14</u>	<u>[Signature]</u>	<u>10/21/14</u>
4. <u>Andrew McGee</u>	<u>RO / Validator</u>	<u>[Signature]</u>	<u>8/14/14</u>	<u>[Signature]</u>	<u>11-6-14</u>
5. <u>JEFF WHEELER</u>	<u>RO Validator</u>	<u>[Signature]</u>	<u>8/14/14</u>	<u>[Signature]</u>	<u>10/24/14</u>
6. <u>R. Wallace</u>	<u>SPM Walkdown</u>	<u>[Signature]</u>	<u>9/9/14</u>	<u>[Signature]</u>	<u>10/21/14</u>
7. <u>Chris Oliver</u>	<u>CES / Validator</u>	<u>[Signature]</u>	<u>9/9/14</u>	<u>[Signature]</u>	<u>11-8-14</u>
8. <u>[Signature]</u>	<u>RO / Validator</u>	<u>[Signature]</u>	<u>9/9/14</u>	<u>[Signature]</u>	<u>10-22-14</u>
9. <u>MICHAEL P. MARCIE</u>	<u>RO / VALIDATION</u>	<u>[Signature]</u>	<u>9/9/14</u>	<u>[Signature]</u>	<u>11/5/14</u>
10. <u>Russell S Brewer</u>	<u>CES / VALIDATION</u>	<u>[Signature]</u>	<u>9-10-14</u>	<u>[Signature]</u>	<u>11/18/14</u>

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/6 - 12/21 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 12/6 - 12/21. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1. <u>James H. Barry</u>	<u>Simulator/Exam Super.</u>	<u>[Signature]</u>	<u>10/1/14</u>	<u>[Signature]</u>	<u>10/2/14</u>
2. <u>Travis S. Rosser</u>	<u>CRS</u>	<u>[Signature]</u>	<u>10/1/14</u>	<u>[Signature]</u>	<u>11/3/14</u>
3. <u>Joel Gordon</u>	<u>CRS</u>	<u>[Signature]</u>	<u>10/2/14</u>	<u>[Signature]</u>	<u>11/3/14</u>
4. <u>Angie Paolucci</u>	<u>AOM - Shift</u>	<u>[Signature]</u>	<u>10/6/14</u>	<u>[Signature]</u>	<u>10/22/2014</u>
5. <u>Suzanne Arvitz</u>	<u>Supervisor</u>	<u>[Signature]</u>	<u>10/6/14</u>	<u>[Signature]</u>	<u>10/24/14</u>
6. _____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____
9. _____	_____	_____	_____	_____	_____
10. _____	_____	_____	_____	_____	_____

## Bolin, Bob

---

**From:** Bolin, Bob  
**Sent:** Tuesday, October 21, 2014 3:21 PM  
**To:** Conder, James; Horton, Richard (JR); Forsha, Aaron  
**Subject:** Security Agreement Signoffs

Tracking:	Recipient	Response
	Conder, James	I did NOT divulge any exam related information: 10/21/2014 5:20 PM
	Horton, Richard (JR)	I did NOT divulge any exam related information: 10/22/2014 9:40 AM
	Forsha, Aaron	I did NOT divulge any exam related information: 10/21/2014 3:53 PM

Gents,

We have completed the administration of the NRC Exam that you have signed onto. Please use the voting option to sign off of the security agreement.

By voting yes you attest to the following statement:

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 10/6/14 through 10/21/14 . 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.

Thank you,

PS – All applicants (4-RO / 5 Instant SRO / 2 Upgrade SRO) preliminary passed the written.

*Bob Bolin*

Nuc Station Instctr-Ops  
Duke Energy - Progress  
Brunswick Nuclear Plant  
[Bob.Bolin@duke-energy.com](mailto:Bob.Bolin@duke-energy.com)  
910-457-3078

Facility: <u>Brunswick</u>		Date of Examination: <u>October 2014</u>
Examination Level: RO <input type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>FINAL</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (COO-01) (RO, then SRO)	R, M	<b>Calculate GAFS and T.S. Assessment</b>  2.1.23 Ability to perform specific system and integrated plant procedures during all modes of operation.
Conduct of Operations (COO-02) (RO)	R, M	<b>Verifying SLC Operating Parameters</b>  2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
Conduct of Operations (COO-03) (SRO)	R, M	<b>Evaluate Plant Chemistry Limits During Resin Intrusion</b>  2.1.34 Knowledge of primary and secondary plant chemistry limits.
Equipment Control (RO and SRO)	R, M	<b>Evaluate a CRD Clearance</b>  2.2.13 Knowledge of tagging and clearance procedures.
Radiation Control (RO, then SRO)	R, M	<b>Determine Total Dose for ALARA</b>  2.3.7 Ability to comply with radiation work permit requirements during normal or abnormal conditions
Emergency Procedures/Plan (SRO Only)	R, N	<b>Classify an Emergency per PEP-2.1</b>  2.4.29 Knowledge of the emergency plan.
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ ; randomly selected)		

### **Conduct of Operations (COO-01) (RO, then SRO)**

Calculate GAFs and Tech Spec Assessment

R, M

K/A 2.1.23 Ability to perform specific system and integrated plant procedures during all modes of operation.

This is a modified JPM that requires the Examinee to calculate Gain Adjustment Factors (GAFs) per OPT-01.8C, and then the SRO determines the Tech Spec implications based on the calculations. Numbers were modified to provide different values for calculated GAFs and different GAFs that were out of spec.

### **Conduct of Operations (COO-02) (RO)**

Verifying SLC Operating Parameters

K/A 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

This is a modified JPM that requires the RO to verifying SLC Tank operating parameters. This is part of the RO DSR. Parameters were changed to provide satisfactory results.

### **Conduct of Operations (COO-03) (SRO)**

Evaluate Plant Chemistry Limits during Resin Intrusion

R, M

2.1.34 Knowledge of primary and secondary plant chemistry limits.

This is a modified bank JPM that was that requires the Examinee to evaluate plant chemistry limit IAW 0AOP-26.0, High Reactor Coolant Or Condensate Conductivity and then determine the determine applicable actions required by 0AI-81, Water Chemistry Guidelines, related to plant operations.

### **Equipment Control (RO and SRO)**

Evaluate a Clearance Boundary – 2A CRD Pump

R, M

K/A 2.2.13 Knowledge of tagging and clearance procedures.

This is a bank JPM that was used on the 2008 NRC exam. Given a boundary request form and a written clearance, the Examinee must evaluate the clearance for safety and accuracy. Modified to switch suction and discharge valve order.

### **Radiation Control (RO and SRO)**

Determine Total Dose for ALARA

R, M

K/A 2.3.7 Ability to comply with radiation work permit requirements during normal or abnormal conditions.

This is a bank JPM that was used on the previous NRC Exam (2012). It requires the Examinee to determine the travel path which gives the lowest dose, ALARA. Added section for SRO only to determine if Drywell dose exceeds 'Protection of Valuable Property' limit.

### **Emergency Procedures/Plan (SRO only)**

Classify and Emergency IAW OPEP-2.1

R, N

K/A 2.4.40 Knowledge of SRO responsibilities in Emergency Plan implementation.

This is a new JPM that requires the SRO Examinee to classify and emergency. Although classification JPMs have been used in previous exams, the classification requirements for this JPM are new.

Facility: <u>Brunswick</u>	Date of Examination: <u>OCT 2014</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test No.: <u>FINAL</u>

Control Room Systems <sup>@</sup> (8 for RO); (7 for SRO-I)		
System / JPM Title	Type Code*	Safety Function
a. Start second Recirc Pump	S, P, A	1
b. Start HPCI with Exhaust Diaphragm failure	S, D, L, A	2
c. <i>Emergency Equalize around MSIVs</i>	S, P	3
d. <i>SDC restoration with RHR overload</i>	S, D, A, L, EN	4
e. (RO only) Terminate PC venting	S, D	5
f. <del>Bus E3 Normal feeder to DG3</del> Place RPS to Alternate	S, D	<del>6</del> 7
g. Place RPS to Alternate Bus E3 Normal feeder to DG3	S, D	<del>7</del> 6
h. Perform PASS lineup	S, N	9
In-Plant Systems <sup>@</sup> (3 for RO/SRO-I)		
i. SEP-09 with RB Accessible	R, D, E	2
j. <i>Secure Condensate Pump IAW AOP-32 (Bkr Failure)</i>	R, A, E, D	7
k. <i>Place IA Dryer in Sweep Mode</i>	R, N, E	8
<b>@</b> 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) Alternate path	4-6 / 4-6 / 2-3	
(C) Control room	$\leq 9 / \leq 8 / \leq 4$	
(D) Direct from bank	$\geq 1 / \geq 1 / \geq 1$	
(E) Emergency or abnormal in-plant	- / - / $\geq 1$ (control room system)	
(EN) Engineered safety feature	$\geq 1 / \geq 1 / \geq 1$	
(L) Low-Power / Shutdown	$\geq 2 / \geq 2 / \geq 1$	
(N) New or (M) Modified from bank including 1(A)	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(P) Previous 2 exams	$\geq 1 / \geq 1 / \geq 1$	
(R) CA		
(S) Simulator		

**a. Recovery from Recirc System Runback**

202001 A4.01

Ability to operate and/or monitor in the control room:  
Recirculation Pumps

This is a previous exam (2012) simulator alternate path JPM that will have the examinees preparing to start the second recirc pump. When the pump is started and the discharge valve is being throttled open the only running pump will trip requiring a reactor manual scram. This JPM was randomly selected from the 2012 exam.

**b. Start HPCI with Exhaust Diaphragm failure**

206000 A3.09

Ability to monitor automatic operation of HPCI including response to system isolation

This is a banked JPM that will require the examinee to start HPCI for injection per the Hard Card and restore RPV water level. As an alternate path the exhaust diaphragm breaks and HCI does not auto isolate requiring manual isolation of HPCI.

**c. Emergency Equalize around MSIVs**

239001 A4.01

Ability to manually operate and or monitor in the Control Room:  
MSIVs

This is a banked simulator JPM that will require the examinee to perform the control operator actions associated with emergency equalization around the MSIVs. This JPM was randomly selected from the 2010-2 exam.

**d. SDC restoration with RHR valve overload**

295021 AA1.04

Ability to manually operate Alternate Heat Removal Methods

This is a low power banked simulator JPM that will require the examinee to perform Alternate Shutdown Cooling IAW 0AOP-15.0. As an alternate path the RHR pump has on overload condition.

**e. (RO only) Terminate PC venting**

295024 EA1.19

Ability to operate/monitor Containment Atmosphere Control System as it applies to High Drywell Pressure

This is a banked simulator JPM that will require the examinee to terminate Primary Containment Venting, using SEP-01, Section 4.

**g. ~~f.~~ Bus E3 Normal feeder to DG3**

264000 A4.04

Ability to manually operate and/or monitor in the control room Manual start, loading, and stopping of emergency generator.

This is a banked simulator JPM that will require the examinee to place E3 on the DG.

**f. g. Place RPS to Alternate**  
212000 A2.02

Ability to predict the impacts of RPS bus power supply failure on RPS System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations.

This is a banked simulator JPM that will require the examinee to transfer RPS alternate power to alternate.

**h. Perform PASS lineup**  
295038 EA1.05

Ability to manually operate and/or monitor in the control room: Post Accident Sampling System (PASS).

This is a new simulator JPM that will require the examinee to lineup the Post Accident Sampling System for taking a sample.

**i. SEP-09 with RB Accessible**  
295009 AA1.02

Ability to operate or monitor the CRD System as it applies to low reactor water level.

This is a banked in-plant JPM that will require the examinee to simulate performing SEP-09, CRD System flow maximization using two pumps and the reactor building accessible. This JPM is performed in the RCA.

**j. Secure Condensate Pump IAW AOP-32 (Bkr Failure)**  
295016 AA1.06

Ability to operate and/or monitor the following as it they apply to Control Room Abandonment-Reactor Water Level.

This is a banked in-plant JPM that will require the examinee to simulate the actions associated with AOP-32. This JPM is alternate path in that the condensate pump does not trip requiring additional actions to trip the pump. This JPM is performed in the RCA.

**k. Place IA Dryer in Sweep Mode**  
300000 A2.01

Ability to predict the impacts of Air Dryer and filter malfunctions on the Instrument Air System and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations.

This is a new in-plant JPM that will require the examinee to simulate setting the Service Air Dryer maximum sweep value to zero IAW 0AOP-20.0. This JPM is performed in the RCA.

Facility: Brunswick		Date of Examination: Oct-2014		Operating Test Number: Final	
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).	RB	JP	AK	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	RB	JP	AK	
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	RB	JP	AK	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	RB	JP	AK	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	RB	JP	AK	
2. Walk-Through Criteria		-	-	-	
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> <li>initial conditions</li> <li>initiating cues</li> <li>references and tools, including associated procedures</li> <li>reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee</li> <li>operationally important specific performance criteria that include: <ul style="list-style-type: none"> <li>detailed expected actions with exact criteria and nomenclature</li> <li>system response and other examiner cues</li> <li>statements describing important observations to be made by the applicant</li> <li>criteria for successful completion of the task</li> <li>identification of critical steps and their associated performance standards</li> <li>restrictions on the sequence of steps, if applicable</li> </ul> </li> </ul>	RB	JP	AK	
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.	RB	JP	AK	
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.		RB	JP	AK	
Printed Name / Signature		Date			
a. Author	Robert Bolin <i>Robert Bolin</i>	9-22-14			
b. Facility Reviewer(*)	Jerry Pierce <i>Jerry Pierce</i>	09-23-14			
c. NRC Chief Examiner (#)	Phillip G Capelant <i>Phillip G Capelant</i>	09-24-14			
d. NRC Supervisor	GERARD McCoy <i>GERARD McCoy</i>	10/1/2014			
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

Facility: Brunswick		Date of Exam: Oct-2014 Scenario Numbers: 1 / 2 / 3/4		Operating Test No. Final	
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.	13	Q	AK	
2.	The scenarios consist mostly of related events.	13	Q	AK	
3.	Each event description consists of <ul style="list-style-type: none"> <li>the point in the scenario when it is to be initiated</li> <li>the malfunction(s) that are entered to initiate the event</li> <li>the symptoms/cues that will be visible to the crew</li> <li>the expected operator actions (by shift position)</li> <li>the event termination point (if applicable)</li> </ul>	13	Q	AK	
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.	13	Q	AK	
5.	The events are valid with regard to physics and thermodynamics.	13	Q	AK	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	13	Q	AK	
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.	13	Q	AK	
8.	The simulator modeling is not altered.	13	Q	AK	
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.	13	Q	AK	
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.	13	Q	AK	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	13	Q	AK	
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	Q	AK	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	13	Q	AK	
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes	-	-	-
1.	Total malfunctions (5-8)	9 / 8 / 8 / 8	13	Q	AK
2.	Malfunctions after EOP entry (1-2)	3 / 2 / 3 / 2	13	Q	AK
3.	Abnormal events (2-4)	2 / 3 / 3 / 3	13	Q	AK
4.	Major transients (1-2)	2 / 2 / 1 / 2	13	Q	AK
5.	EOPs entered/requiring substantive actions (1-2)	1 / 2 / 2 / 2	13	Q	AK
6.	EOP contingencies requiring substantive actions (0-2)	1 / 2 / 2 / 2	13	Q	AK
7.	Critical tasks (2-3)	2 / 2 / 4 / 2	13	Q	AK

Facility: Brunswick Nuclear Plant				Date of Exam: October 2014				Operating Test No.: Final									
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
															R	I	U
RO 1 Todd Bizzell	RX		5											1	1	1	0
	NOR								2					1	1	1	1
	I/C		1,3,8						3,5,7					6	4	4	2
	MAJ		7,8						7					3	2	2	1
	TS													0	0	2	2
RO 2 Rob Lax	RX							1						1	1	1	0
	NOR			6			1							2	1	1	1
	I/C			2,4,7			2,6,7		4,6,8					9	4	4	2
	MAJ			7,8			7,8		7					5	2	2	1
	TS													0	0	2	2
SRO-U1 Richard Barrett	RX	5						1						2	1	1	0
	NOR	6						2						2	1	1	1
	I/C	1,2,3,4,7,8						3,4,5,6,7,8						12	4	4	2
	MAJ	7,8						7						2	2	2	1
	TS	2,3						3,4						4	0	2	2
RO 3 Hunter Morris	RX					4								1	1	1	0
	NOR								2					1	1	1	1
	I/C					3,5,8			3,5,7					6	4	4	2
	MAJ					7,8			7					3	2	2	1
	TS													0	0	2	2
RO 4 Jason Williamson	RX							1						1	1	1	0
	NOR			6			1							2	1	1	1
	I/C			2,4,7			2,6,7		4,6,8					9	4	4	2
	MAJ			7,8			7,8		7					5	2	2	1
	TS													0	0	2	2
SRO-U2 Jason Kerns	RX				4			1						2	1	1	0
	NOR				1			2						2	1	1	1
	I/C				2,3,5,6,7,8			3,4,5,6,7,8						12	4	4	2
	MAJ				7,8			7						3	2	2	1
	TS				0,3			3,4						4	0	2	2

Facility: Brunswick Nuclear Plant				Date of Exam: October 2014				Operating Test No.: Final									
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M(*)		
		1			2			3			4				R	I	U
		C R E W  P O S I T I O N			C R E W  P O S I T I O N			C R E W  P O S I T I O N			C R E W  P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
SRO-11  Kyle Cooper	RX	5						1						2	1	1	0
	NOR	6					1							2	1	1	1
	I/C	1,2,3,4 7,8					2,6,7		4,6,8					12	4	4	2
	MAJ	7,8					7,8		7					5	2	2	1
	TS	2,3												2	0	2	2
SRO-12  Lucas Hoggard	RX		5		4									2	1	1	0
	NOR				1					2				2	1	1	1
	I/C		1,3,8		2,3,5,6, 7,8					3,5,7				12	4	4	2
	MAJ		7,8		7,8					7				5	2	2	1
	TS				0,3									2	0	2	2
SRO-13  Brian Moschet	RX					4		1						2	1	1	0
	NOR			6				2						2	1	1	1
	I/C			2,4,7		3,5,8		3,4,5, 6, 7,8						12	4	4	2
	MAJ			7,8		7,8		7						5	2	2	1
	TS							3,4						2	0	2	2
SRO 14  Sabrina Salazar	RX	5				4								2	1	1	0
	NOR	6												1	1	1	1
	I/C	1,2,3,4 7,8				3,5,8								9	4	4	2
	MAJ	7,8				7,8								4	2	2	1
	TS	2,3												2	0	2	2
SRO-15  Jason Witte	RX		5		4									2	1	1	0
	NOR				1									1	1	1	1
	I/C		1,3,8		2,3,5,6, 7,8									9	4	4	2
	MAJ		7,8		7,8									4	2	2	1
	TS				0,3									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: Brunswick		Date of Examination: October 2014								Operating Test No.: Final							
Competencies	APPLICANTS																
	RO-1 Todd Bizzell				RO-2 Rob Lax				RO-3 Hunter Morris				RO-4 Jason Williamson				
	SCENARIO				SCENARIO				SCENARIO				SCENARIO				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Interpret/Diagnose Events and Conditions	1,3,7,8		3,5,7,8		2,4,7,8	2,6,7,8	4,6,7,8			3,5,7,8	3,5,7,8		2,4,7,8	2,6,7,8	4,6,7,8		
Comply With and Use Procedures (1)	1,3,5,7,8		2,3,5,7,8		2,4,6,7,8	1,2,6,7,8	1,4,6,7,8			3,4,5,7,8	2,3,5,7,8		2,4,6,7,8	1,2,6,7,8	1,4,6,7,8		
Operate Control Boards (2)	1,3,5,7,8		2,3,5,7,8		2,4,6,7,8	1,2,6,7,8	1,4,6,7,8			3,4,5,7,8	2,3,5,7,8		2,4,6,7,8	1,2,6,7,8	1,4,6,7,8		
Communicate and Interact	ALL		ALL		ALL	ALL	ALL			ALL	ALL		ALL	ALL	ALL		
Demonstrate Supervisory Ability (3)	N/A		N/A		N/A	N/A	N/A			N/A	N/A		N/A	N/A	N/A		
Comply With and Use Tech. Specs. (3)	N/A		N/A		N/A	N/A	N/A			N/A	N/A		N/A	N/A	N/A		
<b>Notes:</b> (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: Brunswick		Date of Examination: October 2014				Operating Test No.: Final										
Competencies	APPLICANTS															
	SRO-I1 Kyle Cooper				SRO-I2 Lucas Hoggard				SRO-I3 Brian Moschet				SRO-I4 Sabrina Salazar			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1,2,3, 4,7,8	2,6,7 ,8	4,6,7 ,8		1,3,7 ,8	0,2, 3,5, 6,7,8	3,5,7 ,8		2,4,7 ,8	3,5,7 ,8	3,4,5, 6,7,8		1,2,3 ,4,7, 8	3,5,7 ,8		
Comply With and Use Procedures (1)	ALL	1,2,6 ,7,8	1,4,6 ,7,8		1,3,5 ,7,8	ALL	2,3,5 ,7,8		2,4,6 ,7,8	3,4,5 ,7,8	ALL		ALL	3,4,5 ,7,8		
Operate Control Boards (2)	N/A	1,2,6 ,7,8	1,4,6 ,7,8		1,3,5 ,7,8	N/A	2,3,5 ,7,8		2,4,6 ,7,8	3,4,5 ,7,8	N/A		N/A	3,4,5 ,7,8		
Communicate and Interact	ALL	ALL	ALL		ALL	ALL	ALL		ALL	ALL	ALL		ALL	ALL		
Demonstrate Supervisory Ability (3)	ALL	N/A	N/A		N/A	ALL	N/A		N/A	N/A	ALL		ALL	N/A		
Comply With and Use Tech. Specs. (3)	2,3	N/A	N/A		N/A	0,3	N/A		N/A	N/A	3,4		2,3	N/A		
<b>Notes:</b> (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: Brunswick		Date of Examination: October 2014				Operating Test No.: Final										
Competencies	APPLICANTS															
	SRO-I5 Jason Witte				SRO-UI Richard Barrett				SRO-U2 Jason Kerns							
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1,3,7,8	0,2,3,5,6,7,8			1,2,3,4,7,8		3,4,5,6,7,8			0,2,3,5,6,7,8	3,4,5,6,7,8					
Comply With and Use Procedures (1)	1,3,5,7,8	ALL			ALL		ALL			ALL	ALL					
Operate Control Boards (2)	1,3,5,7,8	N/A			N/A		N/A			N/A	N/A					
Communicate and Interact	ALL	ALL			ALL		ALL			ALL	ALL					
Demonstrate Supervisory Ability (3)	N/A	ALL			ALL		ALL			ALL	ALL					
Comply With and Use Tech. Specs. (3)	N/A	0,3			2,3		3,4			0,3	3,4					
<b>Notes:</b> (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 Name: Brunswick		Date of Exam: 10/22/2014															
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	4	3	3	N/A			4	3	N/A			3	20	3	4	7
	2	1	2	1				1	1				1	7	1	2	3
	Tier Totals	5	5	4				5	4				4	27	4	6	10
2. Plant Systems	1	3	2	3	2	2	2	2	2	3	3	2	26	2	3	5	
	2	1	1	1	1	1	1	1	2	1	1	1	12	0	1	3	
	Tier Totals	4	3	4	3	3	3	3	4	4	4	3	38	3	5	8	
3. Generic Knowledge and Abilities Categories					1	2	3	4	10				1	2	3	4	7
					3	3	2	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  $\pm 1$  from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.

3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.

4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.

5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.

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

7.\* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable 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.

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	0 2						Power/flow distribution	3.3	1
295003 Partial or Complete Loss of AC / 6					0 5		Whether a partial or complete loss of A.C. power has occurred	3.9	1
295004 Partial or Total Loss of DC Pwr / 6				0 3			A.C. electrical distribution	3.4	1
295005 Main Turbine Generator Trip / 3	0 1						Pressure effects on reactor power	4	1
295006 SCRAM / 1	0 2						Shutdown margin	3.4	1
295016 Control Room Abandonment / 7		0 1					Remote shutdown panel. Plant-Specific	4.4	1
295018 Partial or Total Loss of CCW / 8				0 1			Backup systems	3.3	1
295019 Partial or Total Loss of Inst. Air / 8						04. 47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	4.2	1
295021 Loss of Shutdown Cooling / 4	0 4						Natural circulation	3.6	1
295023 Refueling Acc / 8		0 3					Radiation monitoring equipment	3.4	1
295024 High Drywell Pressure / 5				1 4			Drywell ventilation system	3.4	1
295025 High Reactor Pressure / 3			0 3				HPCI operation. Plant-Specific	3.8	1
295026 Suppression Pool High Water Temp. / 5						01. 28	Knowledge of the purpose and function of major system components and controls.	4.1	1
295027 High Containment Temperature / 5									0
295028 High Drywell Temperature / 5		0 3					Reactor water level indication	3.6	1
295030 Low Suppression Pool Wtr Lvl / 5						02. 38	Knowledge of conditions and limitations in the facility license.	3.6	1
295031 Reactor Low Water Level / 2					0 3		Reactor pressure	4.2	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				0 1			Reactor Protection System	4.6	1
295038 High Off-site Release Rate / 9			0 3				Control room ventilation isolation: Plant-Specific	3.7	1
600000 Plant Fire On Site / 8					0 4		The fire's extent of potential operational damage to plant equipment	2.8	1
700000 Generator Voltage and Electric Grid Disturbances / 6			0 1				Reactor and turbine trip criteria	3.9	1
K/A Category Totals:	4	3	3	4	3	3	Group Point Total:		20

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									0
295007 High Reactor Pressure / 3									0
295008 High Reactor Water Level / 2					0 1		Reactor water level	3.9	1
295009 Low Reactor Water Level / 2									0
295010 High Drywell Pressure / 5									0
295011 High Containment Temp / 5									0
295012 High Drywell Temperature / 5									0
295013 High Suppression Pool Temp. / 5									0
295014 Inadvertent Reactivity Addition / 1	0 6						Abnormal reactivity additions.	3.8	1
295015 Incomplete SCRAM / 1			0 1				Bypassing rod insertion blocks	3.4	1
295017 High Off-site Release Rate / 9									0
295020 Inadvertent Cont. Isolation / 5 & 7									0
295022 Loss of CRD Pumps / 1									0
295029 High Suppression Pool Wtr Lvl / 5									0
295032 High Secondary Containment Area Temperature / 5		0 4					PCIS/NSSSS	3.6	1
295033 High Secondary Containment Area Radiation Levels / 9						04. 45	Ability to prioritize and interpret the significance of each annunciator or alarm.	4.1	1
295034 Secondary Containment Ventilation High Radiation / 9		0 3					SBGT/FRVS Plant-Specific	4.3	1
295035 Secondary Containment High Differential Pressure / 5									0
295036 Secondary Containment High Sump/Area Water Level / 5				0 3			Radwaste	2.8	1
500000 High CTMT Hydrogen Conc. / 5									0
K/A Category Totals:	1	2	1	1	1	1	Group Point Total:		7

ES-401		BWR Examination Outline											Form ES-401-1	
Plant Systems - Tier 2/Group 1 (RO)														
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI Injection Mode							0 5		0 3			Suppression pool level; Pump discharge pressure	3.8; 3.7	2
205000 Shutdown Cooling				0 5								Reactor cooldown rate	3.6	1
206000 HPCI		0 4						0 8				Turbine control circuits: BWR-2, 3, 4; High suppression pool temperature: BWR-2, 3, 4	2.5; 3.9	2
207000 Isolation (Emergency) Condenser														0
209001 LPCS					0 5							System venting	2.5	1
209002 HPCS														0
211000 SLC										0 2		SBLC control switch	4.2	1
212000 RPS		0 1										RPS motor-generator sets	3.2	1
215003 IRM	0 7											Reactor vessel	3	1
215004 Source Range Monitor			0 2		0 3							Reactor manual control: Plant-Specific; Changing detector position	3.4; 2.8	2
215005 APRM / LPRM								0 8				Recirculation flow channels upscale	3.4	1
217000 RCIC										0 7	04. 04	Reactor pressure; Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures	3.9; 4.5	2
218000 ADS										0 3		ADS valve acoustical monitor noise: Plant-Specific	3.7	1
223002 PCIS/Nuclear Steam Supply Shutoff											02. 38	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.	3.1	1
239002 SRVs	0 5					0 3						Plant air systems: Plant-Specific; A.C. power: Plant-Specific	3.1; 2.7	2
259002 Reactor Water Level Control			0 7									Reactor water level indication	3.4	1
261000 SGTS	1 1											Primary containment pressure	3.2	1
262001 AC Electrical Distribution										0 2		Synchroscope, including understanding of running and incoming voltages	3.4	1
262002 UPS (AC/DC)						0 3						Static inverter	2.7	1
263000 DC Electrical Distribution							0 1					Battery charging/discharging rate	2.5	1
264000 EDGs				0 5								Load shedding and sequencing	3.2	1
300000 Instrument Air			0 1									Containment air system	2.7	1
400000 Component Cooling Water									0 1			Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS	3	1
														0
K/A Category Totals:	3	2	3	2	2	2	2	2	3	3	2	Group Point Total:		26

ES-401		BWR Examination Outline										Form ES-401-1		
Plant Systems - Tier 2/Group 2 (RO)														
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														0
201002 RMCS							0 4					Overall reactor power	3.6	1
201003 Control Rod and Drive Mechanism								0 9				Low reactor pressure	3.2	1
201004 RSCS														0
201005 RCIS														0
201006 RWM						0 5						Steam flow input: P-Spec(Not-BWR6)	2.7	1
202001 Recirculation														0
202002 Recirculation Flow Control														0
204000 RWCU														0
214000 RPIS										0 3		Control rod drive temperature	2.8	1
215001 Traversing In-core Probe														0
215002 RBM														0
216000 Nuclear Boiler Inst.								0 2				Instrument line plugging	2.9	1
219000 RHR/LPCI: Torus/Pool Cooling Mode		0 1										Valves	2.5	1
223001 Primary CTMT and Aux.														0
228001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode									0 1			Valve operation	3.4	1
233000 Fuel Pool Cooling/Cleanup														0
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control														0
241000 Reactor/Turbine Pressure Regulator														0
245000 Main Turbine Gen. / Aux.	0 7											Plant air systems	2.5	1
256000 Reactor Condensate			0 6									Control of extraction steam	2.8	1
259001 Reactor Feedwater				0 3								Turbine operation: TDRFP's-Only	2.8	1
268000 Radwaste														0
271000 Offgas			0 1									Condenser vacuum	3.5	1
272000 Radiation Monitoring														0
288000 Fire Protection														0
288000 Plant Ventilation														0
290001 Secondary CTMT										04, 31		Knowledge of annunciator alarms, indications, or response procedures	4.2	1
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
K/A Category Totals:	1	1	1	1	1	1	1	2	1	1	1	Group Point Total:		12

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						01. 20	Ability to interpret and execute procedure steps.	4.6	1
295003 Partial or Complete Loss of AC / 6									0
295004 Partial or Total Loss of DC Pwr / 6									0
295005 Main Turbine Generator Trip / 3						02. 22	Knowledge of limiting conditions for operations and safety limits.	4.7	1
295006 SCRAM / 1									0
295016 Control Room Abandonment / 7									0
295018 Partial or Total Loss of CCW / 8									0
295019 Partial or Total Loss of Inst. Air / 8									0
295021 Loss of Shutdown Cooling / 4									0
295023 Refueling Acc / 8									0
295024 High Drywell Pressure / 5									0
295025 High Reactor Pressure / 3						04. 45	Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	1
295026 Suppression Pool High Water Temp. / 5					0 1		Suppression pool water temperature	4.2	1
295027 High Containment Temperature / 5									0
295028 High Drywell Temperature / 5									0
295030 Low Suppression Pool Wtr Lvl / 5					0 2		Suppression pool temperature	3.9	1
295031 Reactor Low Water Level / 2						04. 30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1									0
295038 High Off-site Release Rate / 9					0 3		Radiation levels	4.3	1
600000 Plant Fire On Site / 8									0
700000 Generator Voltage and Electric Grid Disturbances / 6									0
K/A Category Totals:	0	0	0	0	3	4	Group Point Total:		7

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									0
295007 High Reactor Pressure / 3									0
295008 High Reactor Water Level / 2									0
295009 Low Reactor Water Level / 2									0
295010 High Drywell Pressure / 5									0
295011 High Containment Temp / 5									0
295012 High Drywell Temperature / 5									0
295013 High Suppression Pool Temp. / 5									0
295014 Inadvertent Reactivity Addition / 1									0
295015 Incomplete SCRAM / 1						04. 20	Knowledge of the operational implications of EOP warnings, cautions, and notes.	4.3	1
295017 High Off-site Release Rate / 9									0
295020 Inadvertent Cont. Isolation / 5 & 7									0
295022 Loss of CRD Pumps / 1					0 2		CRD system status	3.4	1
295029 High Suppression Pool Wtr Lvl / 5									0
295032 High Secondary Containment Area Temperature / 5									0
295033 High Secondary Containment Area Radiation Levels / 9						02. 44	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.	4.4	1
295034 Secondary Containment Ventilation High Radiation / 9									0
295035 Secondary Containment High Differential Pressure / 5									0
295036 Secondary Containment High Sump/Area Water Level / 5									0
500000 High CTMT Hydrogen Conc. / 5									0
K/A Category Totals:	0	0	0	0	1	2	Group Point Total:		3

ES-401		BWR Examination Outline										Form ES-401-1		
Plant Systems - Tier 2/Group 1 (SRO)														
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection								1 6				Loss of coolant accident	4.5	1
205000 Shutdown Cooling Mode														0
206000 HPCI														0
207000 Isolation (Emergency) Condenser														0
209001 LPCS														0
209002 HPCS														0
211000 SLC														0
212000 RPS														0
215003 IRM											04. 30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	1
215004 Source Range Monitor														0
215005 APRM / LPRM											02. 38	Knowledge of conditions and limitations in the facility license.	4.5	1
217000 RCIC														0
218000 ADS														0
223002 PCIS/Nuclear Steam Supply Shutoff														0
239002 SRVs														0
259002 Reactor Water Level Control														0
261000 SGTS											02. 38	Knowledge of conditions and limitations in the facility license.	4.5	1
262001 AC Electrical Distribution														0
262002 UPS (AC/DC)														0
263000 DC Electrical Distribution														0
264000 EDGs														0
300000 Instrument Air														0
400000 Component Cooling Water								0 1				Loss of CCW pump	3.4	1
														0
K/A Category Totals:	0	0	0	0	0	0	0	2	0	0	3	Group Point Total:		5

ES-401		BWR Examination Outline										Form ES-401-1		
Plant Systems - Tier 2/Group 2 (SRO)														
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														0
201002 RMCS														0
201003 Control Rod and Drive Mechanism														0
201004 RSCS														0
201005 RCIS														0
201006 RWM											04. 47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	4.2	1
202001 Recirculation														0
202002 Recirculation Flow Control														0
204000 RWCU														0
214000 RPIS														0
215001 Traversing In-core Probe														0
215002 RBM														0
216000 Nuclear Boiler Inst.														0
219000 RHR/LPCI: Torus/Pool Cooling Mode														0
223001 Primary CTMT and Aux.														0
226001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode														0
233000 Fuel Pool Cooling/Cleanup														0
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control														0
241000 Reactor/Turbine Pressure Regulator														0
245000 Main Turbine Gen. / Aux.														0
256000 Reactor Condensate														0
259001 Reactor Feedwater														0
268000 Radwaste														0
271000 Offgas														0
272000 Radiation Monitoring														0
286000 Fire Protection														0
288000 Plant Ventilation														0
290001 Secondary CTMT											04. 45	Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	1
290003 Control Room HVAC								0 4				Initiation/failure of fire protection system	3.3	1
290002 Reactor Vessel Internals														0
K/A Category Totals:	0	0	0	0	0	0	0	1	0	0	2	Group Point Total:		3

Facility Name: Brunswick Date of Exam: 10/22/2014						
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1 25	Ability to interpret reference materials, such as graphs, curves, tables, etc.	3.9	1		
	2.1 27	Knowledge of system purpose and/or function.	3.9	1		
	2.1 31	Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	1		
	2.1					
	2.1					
	2.1 39	Knowledge of conservative decision making practices.			4.3	1
	Subtotal			3		1
2. Equipment Control	2.2. 13	Knowledge of tagging and clearance procedures.	4.1	1		
	2.2. 03	Knowledge of the design, procedural, and operational differences between units.	3.8	1		
	2.2. 41	Ability to obtain and interpret station electrical and mechanical drawings.	3.5	1		
	2.2.					
	2.2. 03	Knowledge of the design, procedural, and operational differences between units.			3.9	1
	2.2. 37	Ability to determine operability and/or availability of safety related equipment.			4.6	1
	Subtotal			3		2
3. Radiation Control	2.3. 13	Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, removing filters, etc.	3.4	1		
	2.3. 14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	1		
	2.3.					
	2.3.					
	2.3. 04	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	1
	2.3. 14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.			3.8	1
	Subtotal			2		2
4. Emergency Procedures / Plan	2.4. 09	Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.	3.8	1		
	2.4. 21	Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.	4	1		
	2.4.					
	2.4.					
	2.4. 27	Knowledge of "fire in the plant" procedures.			3.9	1
	2.4. 45	Ability to prioritize and interpret the significance of each annunciator or alarm.			4.3	1
	Subtotal			2		2
Tier 3 Point Total				10		7



Facility: Brunswick		Date of Exam: 10/22/14		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>			
Item Description				Initial			
				a	b*	c*	
1. Questions and answers are technically accurate and applicable to the facility.				RB	P	AK	
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.				RB	P	AK	
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401				RB	P	AK	
4. The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).				RB	P	AK	
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input checked="" type="checkbox"/> the audit exam was systematically and randomly developed; or <input type="checkbox"/> the audit exam was completed before the license exam was started; or <input type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)				RB	P	AK	
6. Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.		Bank	Modified	New	RB	P	AK
		35 / 8	2 / 3	38 / 14			
7. Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.		Memory		C/A	RB	P	AK
		30 / 6		45 / 19			
8. References/handouts provided do not give away answers or aid in the elimination of distractors.				RB	P	AK	
9. Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.				RB	P	AK	
10. Question psychometric quality and format meet the guidelines in ES Appendix B.				RB	P	AK	
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.				RB	P	AK	
a. Author		Printed Name / Signature			Date		
b. Facility Reviewer (*)		Robert Bolin <i>Robert Bolin</i>			9/30/14		
c. NRC Chief Examiner (#)		Jerry Pierce <i>Jerry Pierce</i>			10/16/14		
d. NRC Regional Supervisor		Philip G. Conner <i>Philip G. Conner</i>			10/21/14		
		GERALD S. McCarty <i>Gerald S. McCarty</i>			10/22/14		
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. 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				
RO																	Three of the five preliminary submittal RO test items were <u>PRELIMINARILY</u> determined to be unacceptable IAW NUREG 1021 for the following reasons: <ul style="list-style-type: none"> <li>• Cred Dist: Q#s 4 &amp; 5</li> <li>• K/A mismatch: Q#s 3, 4, &amp; 5</li> <li>• LOD=1: Q#s 4</li> </ul>
SRO																	Five of the five preliminary submittal SRO test items were <u>PRELIMINARILY</u> determined to be unacceptable IAW NUREG 1021 for the following reasons: <ul style="list-style-type: none"> <li>• Cred Dist: Q#s 7</li> <li>• SRO-only: Q#s 6, 7, 8, 9 &amp; 10</li> <li>• Q=K/A: Q#s 6</li> </ul>

## Instructions

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

- Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
- 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).
- 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).
- 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.
- 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**).
- Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f.**
- 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?
- At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
1	H	2												N	S	201002 REACTOR MANUAL CONTROL SYSTEM A1 Ability to predict and/or monitor changes in parameters associated with operating the REACTOR MANUAL CONTROL SYSTEM controls including: 04 Overall reactor power
2	F	2	X											B	E	201003 CONTROL ROD AND DRIVE MECHANISM A2 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 09 Low reactor pressure  The word "single" is not used in the I.A.'s section. Change to use the word "one" in distractor A "If one control rod scrams".  9/29 Agreed to change wording.
3	F	3												N	S	201006 ROD WORTH MINIMIZER SYSTEM (RWM) K6 Knowledge of the effect that a loss or malfunction of the following will have on the ROD WORTH MINIMIZER SYSTEM (RWM): 05 Steam flow input
4	H	3												N	S	203000 RHR/LPCI: INJECTION MODE A1 Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE controls including: 05 Suppression pool level

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 #1P	F	2	X											M?/B	S	203000 RHR/LPCI: INJECTION MODE (A3) Ability to monitor automatic operations of the RHR/LPCI: INJECTION MODE including: (03) Pump discharge pressure.  The change to this question does not meet the criteria to be considered modified.  Change stem. 2 <sup>nd</sup> sentence to read "Reactor pressure is lowering". 3 <sup>rd</sup> sentence. Delete "RHR pump discharge" and change to "reactor" pressure that will "allow RHR injection "flow to be seen on FI-XXX at Panel XX?"  R: Licensee agrees that this is a bank question. Will change on QA sheet. Not modified.  <a href="#">7/24/14 Changes made by the licensee.</a>
6	H	3	X											N	E	205000 SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) K4 Knowledge of SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) design feature(s) and/or interlocks which provide for the following: 05 Reactor cooldown rate  Does the stem need to contain information that shows that a heatup is occurring and Reactor water level? Why does the 2 <sup>nd</sup> fill in the blank end with a "?".  S 9/24 Agreed to remove the question mark, no other corrections needed. No other modifications needed. The question is OK as written.

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			
7	F	3				X								B		<p>206000 HIGH PRESSURE COOLANT INJECTION SYSTEM A2 Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 08 High suppression pool temperature: BWR-2,3,4</p> <p>E B does not appear plausible. Why would someone with GFES knowledge pick this? Choice C &amp; D in comparison are related to high temperature issues.</p> <p>S 9/24 Reworded distractor plausibility statement to better define benefit of warm water.</p>
8	F	2												N	S	<p>206000 HIGH PRESSURE COOLANT INJECTION SYSTEM K2 Knowledge of electrical power supplies to the following: 04 Turbine control circuits: BWR-2,3,4</p>
9	F	3												N	S	<p>209001 LOW PRESSURE CORE SPRAY SYSTEM K5 Knowledge of the operational implications of the following concepts as they apply to LOW PRESSURE CORE SPRAY SYSTEM: 05 System venting</p>
10	H	2				X								N	E  S	<p>211000 STANDBY LIQUID CONTROL SYSTEM A4 Ability to manually operate and/or monitor in the control room: 02 SBLC control switch</p> <p>A is not plausible. If someone thought that in distractor A that squib valve A failed to fire, why would they choose to place the corresponding pump to run? Shouldn't choice A state pump B?</p> <p>9/24 Accepted distractor reasoning as is.</p>
11	F	3												B	S	<p>212000 REACTOR PROTECTION SYSTEM K2 Knowledge of electrical power supplies to the following: 01 RPS motor-generator sets</p>

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			
12	H	2												N	E   S	214000 ROD POSITION INFORMATION SYSTEM A4 Ability to manually operate and/or monitor in the control room; 03 Control rod drive temperature  The question states that guidance is contained within the App. This is not true, the app references OP-8.0 to raise flow rate.  9/24 Agree the reference to the OP from the App is good enough.
13	F	2												B	S	215003 INTERMEDIATE RANGE MONITOR (IRM) SYSTEM K1 Knowledge of the physical connections and/or cause effect relationships between INTERMEDIATE RANGE MONITOR (IRM) SYSTEM and the following: 07 Reactor vessel
14	F	1?		X		X								B	U   E	215004 SOURCE RANGE MONITOR (SRM) SYSTEM K3 Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITOR (SRM) SYSTEM will have on following: 02 Reactor manual control  Isn't the highest number correct by default? LOD=1  R: Remove the words "or above".
15	H	3												N	S	215004 SOURCE RANGE MONITOR (SRM) SYSTEM K5 Knowledge of the operational implications of the following concepts as they apply to SOURCE RANGE MONITOR (SRM) SYSTEM: 03 Changing detector position
16	H	3												N	S	215005 AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM A2 Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 06 Recirculation flow channels upscale

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			
17	F	3												B	S	216000 NUCLEAR BOILER INSTRUMENTATION A2 Ability to (a) predict the impacts of the following on the NUCLEAR BOILER INSTRUMENTATION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 02 Instrument line plugging  BW does not have a procedure for a plugged instrument line, so this question was accepted to predict the effect on level indication and associated annunciators illuminated.
18	H	3												M	S	217000 REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) A4 Ability to manually operate and/or monitor in the control room: 07 Reactor pressure
19	H	3												N	S	217000 REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) G2.4.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.
20	H	3												N	S	218000 AUTOMATIC DEPRESSURIZATION SYSTEM A3 Ability to monitor automatic operations of the AUTOMATIC DEPRESSURIZATION SYSTEM including: 03 ADS valve acoustical monitor noise.
21	F													N	S	219000 RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE K2 Knowledge of electrical power supplies to the following: 01 Valves
22	H													B	S	223002 PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF G2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.
23	H													N	S	230000 RHR/LPCI: TORUS/SUPPRESSION POOL SPRAY MODE A3 Ability to monitor automatic operations of the RHR/LPCI: TORUS/SUPPRESSION POOL SPRAY MODE including: 01 Valve operation

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			
24	F													B	S	239002 RELIEF/SAFETY VALVES KI Knowledge of the physical connections and/or cause effect relationships between RELIEF/SAFETY VALVES and the following: 05 Plant air systems
25	F													B	S	239002 RELIEF/SAFETY VALVES K6 Knowledge of the effect that a loss or malfunction of the following will have on the RELIEF/SAFETY VALVES: 03 A.C. power
26	F													N	S	245000 MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS KI Knowledge of the physical connections and/or cause effect relationships between MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS and the following: 07 Plant air systems
27	H													N	S	256000 REACTOR CONDENSATE SYSTEM K4 Knowledge of REACTOR CONDENSATE SYSTEM design feature(s) and/or interlocks which provide for the following: 06 Control of extraction steam
28	H													N	S	259001 REACTOR FEEDWATER SYSTEM K5 Knowledge of the operational implications of the following concepts as they apply to REACTOR FEEDWATER SYSTEM: 03 Turbine operation
29	H													B	S	259002 REACTOR WATER LEVEL CONTROL SYSTEM K3 Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: 07 Reactor water level indication
30	H													B	S	261000 STANDBY GAS TREATMENT SYSTEM Ki Knowledge of the physical connections and/or cause effect relationships between STANDBY GAS TREATMENT SYSTEM and the following: 11 Primary containment pressure

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			
31 #2P	H	4	X											N	E	<p>262001 A.C. ELECTRICAL DISTRIBUTION (A4) Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (02) Loss of coolant accident.</p> <p>Delete "Orders sent out to crosstie E2 to E4". Change "Maint" to "the MAINT position" for the 1202 and 1206 times. Change "Which one...that E4 can.." to ...that E4 "is allowed to"...</p> <p>R: OK once changes have been confirmed.</p> <p>S <a href="#">7/24/14 Changes made by the licensee.</a></p>
32	H	3	X											B	E	<p>262002 UNINTERRUPTABLE POWER SUPPLY (A.C. / D.C.) K6 Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (AC/D.C.): 03 Static inverter</p> <p>The Big Notes drawing shows these as UPS not as inverters. Do you expect the applicant to know the DS numbers without reference to the drawing?</p> <p>S R: Will check and make changes if appropriate.</p>
33	F	2												N	S	<p>263000 D.C. ELECTRICAL DISTRIBUTION AI Ability to predict and/or monitor changes in parameters associated with operating the D.C. ELECTRICAL DISTRIBUTION controls including: 01 Battery charging/discharging rate</p>
34	H													B	S	<p>264000 EMERGENCY GENERATORS (DIESEL/JET) K4 Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: (CFR: 41.7) 05 Load shedding and sequencing</p>

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			
35	H			X										B	E	271000 OFFGAS SYSTEM K3 Knowledge of the effect that a loss or malfunction of the OFFGAS SYSTEM will have on following: (CFR: 41.5 /45.3) 01 Condenser vacuum  Only one distractor is different from the others. Leading to the correct answer. Need to add another condensate/main condenser distractor.  S R: Changed to remove "diminish" from stem. Not necessary. Accept Main Condenser vacuum.
36	H													N	S	290001 SECONDARY CONTAINMENT G2.0431 Knowledge of annunciator alarms, indications, or response procedures.
37	F													?	E	295001 PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION AKI Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: 02 Power/flow distribution  2 Pedigrees listed? New & Bank (Which one is it?)
38	H													B	S	295003 PARTIAL OR COMPLETE LOSS OF A.C. POWER AA2 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: 05 Whether a partial or complete loss of A.C. power has occurred
39	H													B	S	295004 PARTIAL OR COMPLETE LOSS OF D.C. POWER AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: 03 A.C. electrical distribution

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			
40	F													B	U	295005 MAIN TURBINE GENERATOR TRIP AK1 Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR TRIP: 01 Pressure effects on reactor power  Q84 is similar. Bases for Hi Lvl trip from main turb Trip. Need to change one of these.  S Need to rewrite to prevent overlap with Q84. Rewrote 2 <sup>nd</sup> part to eliminate overlap.
41	H													N	S	295006 SCRAM AK1 Knowledge of the operational implications of the following concepts as they apply to SCRAM: 02 Shutdown margin
42	H													B	S	AA2 Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL: 01 Reactor water level
43	F					X								N	E	295014 INADVERTENT REACTIVITY ADDITION AK1 Knowledge of the operational implications of the following concepts as they apply to INADVERTENT REACTIVITY ADDITION : 06 Abnormal reactivity addition  C seems obvious when compared to choice A. Change A to insert control rods? This is also an IA to prevent a scram.  S R: Agreed to change A to "Insert control rods".
44	F													B	S	295015 INCOMPLETE SCRAM AK3 Knowledge of the reasons for the following responses as they apply to INCOMPLETE SCRAM: 01 Bypassing rod insertion blocks
45	F													B	S	295016 CONTROL ROOM ABANDONMENT AK2 Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and the following: 01 Remote shutdown panel

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			
46	H													M	E  S	295018 PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: 01 Backup systems  Extra space on distractors C & D prior to DG4. R: Not showing in LXR. No change needed.
47	H													N	S	295019 PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR G2.04.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
48	F											X		B	U  S	295021 LOSS OF SHUTDOWN COOLING AK1 Knowledge of the operational implications of the following concepts as they apply to LOSS OF SHUTDOWN COOLING: 02 Thermal stratification  Doesn't match the KA. Where does thermal stratification enter into this?  R: There is no direct link to the KA for thermal stratification. The KA has been changed to better reflect the primary affect due to NC (AK1.04).
49	F													B	S	295023 REFUELING ACCIDENTS AK2 Knowledge of the interrelations between REFUELING ACCIDENTS and the following: 03 Radiation monitoring equipment
50	H		X											N	E	295024 HIGH DRYWELL PRESSURE EA1 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: 14 Drywell ventilation system  Are the switches referred to as "Override switches" or a DW Cooler control switches?  R: DW Cooler control switch bullet not needed and will be removed.

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			
51	H													N	S	295025 HIGH REACTOR PRESSURE EK3 Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE: 03 HPCI operation
52	H													N	S	295026 SUPPRESSION POOL HIGH WATER TEMPERATURE G2.01 .28 Knowledge of the purpose and function of major system components and controls
53	H													B	S	295028 HIGH DRYWELL TEMPERATURE EK2 Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: 03 Reactor water level indication
54	H		X											N	E  S	295030 LOW SUPPRESSION POOL WATER LEVEL G2.2.38 Knowledge of conditions and limitations in the facility license  Change to say "LCO & PCCP entry required" or "PCCP entry ONLY".  R: Change 2 <sup>nd</sup> question to match above.
55	H													N	S	295031 REACTOR LOW WATER LEVEL EA2 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: 03 Reactor pressure  There is no correlation for determining reactor pressure from level indication but there is from the opposite direction therefore I accepted this question to meet the K/A.
56	H													N	S	295032 HIGH SECONDARY CONTAINMENT AREA TEMPERATURE EK2 Knowledge of the interrelations between HIGH SECONDARY CONTAINMENT AREA TEMPERATURE and the following: 04 PCIS/NSSSS
57	F													B	S	295033 HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm

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			
58	H													N	E  S	295034 SECONDARY CONTAINMENT VENTILATION HIGH RADIATION EK2 Knowledge of the interrelations between SECONDARY CONTAINMENT VENTILATION HIGH RADIATION and the following: 03 SGBT  Alarm window in the explanation is incorrect, not (5-4), should be (3-5).
59 #3P	H	3				X								B	S	295036 SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL (EA1) Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : (03) Radwaste  Distractor B not plausible. SCCP doesn't list this action; none of the EOIs list this action.  R: Licensee explained that "Isolate primary system discharge" is in the procedure, must reset RPS to achieve but can't with High DW press.
60	H													N	S	295037 SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN EA1 Ability to operate and/or monitor the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: 01 Reactor Protection System
61	H					X								N	E  S	295038 HIGH OFF-SITE RELEASE RATE EK3 Knowledge of the reasons for the following responses as they apply to HIGH OFF-SITE RELEASE RATE: 03 Control room ventilation isolation  "by processing intake air through the filter trains" is in all distractors and is not needed. Should B2 & D2 state both the MCR and all areas? Otherwise, it is not plausible to have a combination of MCR only with isolating ventilation in the control bay.  R: Change wording to match areas of the plant.
62	H													N	S	300000 INSTRUMENT AIR SYSTEM K3 Knowledge of the effect that a loss or malfunction of the INSTRUMENT AIR SYSTEM will have on the following: 01 Containment air system


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			
63	H													B	S	400000 COMPONENT COOLING WATER SYSTEM (CCWS) A3 Ability to monitor automatic operations of the CCWS including: 01 Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS
64	F					X								N	E  S	600000 PLANT FIRE ON SITE AA2 Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: 04 The fires extent of potential operational damage to plant equipment  Change A to CSW Pump 1B to make distractor A more plausible. Change D to CRD Pump 1B to make distractor D plausible.  R: Agreed to change as noted.
65	H													B	S	AK3 Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: 01 Reactor and turbine trip criteria
66	H		X											B	E  S	G2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc.  Change to give exact generator pressure and MWe values.  R: Will put in actual values.
67	F													B	S	G2.1.27 Knowledge of system purpose and/or function
68	H													B	S	G2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup
69	F													B	S	G2.2.03 (multi-unit license) Knowledge of the design, procedural, and operational differences between units.
70	F													N	S	G2.2.13 Knowledge of tagging and clearance procedures

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			
71 #4P	F	4 3				×						×			U	<p>G2.2.41 Ability to obtain and interpret station electrical and mechanical drawings.</p> <p>LOD 1. GFES question. Distractors C &amp; D not very plausible. KA not met. This question is answered w/o reference required.</p> <p>R: Suggested ways to rewrite using a P&amp;ID reference.</p> <p>S <a href="#">7/24/14 New question written that is a LOD &gt; 1 and meets the KA.</a></p>
72	F													N	S	<p>G2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.</p>
73 #5P	F	2				×						×			E	<p>G2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.</p> <p>Does not meet the KA statement. A not plausible, only performed while SD or in an outage. C not plausible, stem conditions don't support any HWC items to support a HWC malfunctions D not plausible, only performed while SD or in an outage.</p> <p>This is a conductivity question per the plausibility distractor analysis. Only need to know that resin affects conductivity to answer the question. The KA is for radiation or radiological contamination. Also, not a HCL.</p> <p>S R: OK with question, add radiation affects to plausibility statements. Chemicals are added at power therefore original reasoning for unsat removed.</p>
74	H													N	S	<p>G2.4.9 Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.</p>
75	H	3												N	S	<p>G2.4.21 Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.</p>


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			
76 #6P	F	3	X									X	X	N	U	<p>201006 ROD WORTH MINIMIZER SYSTEM (RWM) G2.4.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.</p> <p>Does not meet the KA. Does not test ability to diagnose/recognize trends; the 1<sup>st</sup> sentence in the stem is not needed. Question is not technically correct as the LPAP is not entered at 19.1% steam flow. (It's actually in the transition zone). Also the question as written is not operationally valid. Uses backwards logic.</p> <p>Note: LP gives information pertaining to inverse video when in the transition zone.</p> <p>R: Reword question to include CR reference to apply transition zone criteria.</p> <p>S <a href="#">7/24/14 Changes made by the licensee.</a></p>
77	F													B	U	<p>203000 RHR/LPCI: INJECTION MODE A2 Ability to (a) predict the impacts of the following on the RHR/LPCI: INJECTION MODE; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 /45.6) 16 Loss of coolant accident</p> <p>Doesn't appear to meet the KA on 1<sup>st</sup> pass. Only a one part question, part (b) is not addressed. How does this predict the impact on RHR/LPCI injection Mode?</p> <p>S R: Upon review with licensee, agreed with license logic for relationship with LPCI logic.</p>
78	H													N	S	<p>215003 INTERMEDIATE RANGE MONITOR (IRM) SYSTEM G2.04.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.</p>
79	F?											X		N	U  E	<p>215003 AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM</p> <p>G2.2.38? Knowledge of conditions and limitations in the facility license.</p> <p>Question KA does not match sample plan approved number.</p>

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			
80	H	2												N	E	261000 STANDBY GAS TREATMENT SYSTEM G2.02.38 Knowledge of conditions and limitations in the facility license. Distractor B does not appear plausible. You tell them this is a 31 day ST so why would someone think it is a monthly ST? 9/4/14 Reviewing still to replace B distractor.
															S	Question modified to change distractor B.
81	H	3												N	E	290001 SECONDARY CONTAINMENT G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm. Stem Focus: Go over all the items listed and verify they are needed for either the answer or the distractor analysis. With the information given, do you need to tell them the release if via the blowout panels?
															S	9/4/14 Remove blowout panels and change 1 <sup>st</sup> question to "would be considered"
82	H	2										X		N	U	290003 CONTROL ROOM HVAC A2 Ability to (a) predict the impacts of the following on the CONTROL ROOM HVAC ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 04 Initiation/failure of fire protection system.
															E	Changes made to correct updated logic changes to the system..
															S	
83	H	2												M? 2010-2 NRC	E	295001 PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION G2.1.20 Ability to interpret and execute procedure steps.
															S	Did not include the question that this question was modified from. I can't analyze that this meets the modified criteria w/o the original question.

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			
84	F	2	X											N	U	<p>295005 MAIN TURBINE GENERATOR TRIP</p> <p>G2.2.22 Knowledge of limiting conditions for operations and safety limits.</p> <p>A is also a correct answer. Subset issue: 23% power is defined as part of MODE 1 therefore this is also correct. 2<sup>nd</sup> part of question stem is confusing. You state hi water level twice. This is unnecessary. The basis for the indirect high water level scram from the main turbine trip instrumentation is to ...</p> <p>Need to change choice of hi level trip to protect turbine to something else, the correct choice is obvious by eliminating hi level trip to protect the turbine.</p> <p>9/4/14 Changed wording in 2<sup>nd</sup> question to simplify the question.</p>
85	H	2		X										B 2010-1 NRC Exam	U	<p>295015 INCOMPLETE SCRAM</p> <p>G2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes.</p> <p>Could this be answered solely through use of procedure hierarchy? The only info given is that an ARP is in alarm using the EOPs. Would you go use an OP is this situation? OP-19 is not referenced in this ARP. OP-17(RHR) is referenced for draining the Torus. Also, the HPCI System lesson plan states that "<a href="#">Operation below 2100 rpm may result in failure of the AOP due to repeated cycling</a>". This does not agree with your plausibility for choice C &amp; D. If anything, someone could confuse this with bearing damage also.</p> <p>9/4/14 Changed choice to HPIC Hard card for injection.</p>
86	H	2	X										X	B 2008 NRC Exam	U	<p>295022 LOSS OF CRD PUMPS</p> <p>AA2 Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS: 02 CRD system status.</p> <p>Wouldn't an RO know that he can control the CRD flow controller in manual via the normal OP? Add the words to 2<sup>nd</sup> half question to state it's following a loss of a CRD Pump. AOP-2.0 step that reference OP is not included as reference.</p> <p>9/4/14 Licensee agreed to add the words to the 2<sup>nd</sup> part to improve plausibility of the 2<sup>nd</sup> question.</p>

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			
87	H	3	X										M  2004 NRC Exam	E          S	295025 HIGH REACTOR PRESSURE G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm.  Wording of 1 <sup>st</sup> question is weak and could lead to subset issue. Change to say that "To obtain the above indications, Rx pressure reached a maximum pressure of no less than...." 9/24 Agreed with wording on the question that the license used.	
88 #7P	H	2				X							X	N	   	

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			
90	H	2	X											N	E	295031 REACTOR LOW WATER LEVEL G2.4.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.
															S	In the stem, state that the Rx mode switch is placed in SD as directed per GOI...  Verified GP procedure contains step to place mode switch in SD. Also changed A to 4 hrs vs. 1 hr.
91	H	3												N	E	295033 HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS G2.02.44 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.
															S	Missing Attachment referenced in the question? Also, verify this is not a direct lookup. Reference provided.
92	H	3												N	S	295038 HIGH OFF-SITE RELEASE RATE EA2 Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: 03 Radiation levels
93	F	2												N	S	400000 COMPONENT COOLING WATER SYSTEM (CCWS) A2 Ability to (a) predict the impacts of the following on the CCWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: 01 Loss of CCW pump.  Only addresses the 1 <sup>st</sup> half of the KA statement. OK
94 #8P	H	3											X	M? BFN Bank	U E	G2.1.39 Knowledge of conservative decision making practices. RO's IA's are to trip the unit if THI is entered. R: Will rewrite question for scram but that is not RO knowledge. <a href="#">7/24/14 Changes made by the licensee. Modified? Original question not included.</a>
															S	<a href="#">A comma is required in choice A. (With...MODE 1,). What procedure contains the criteria to scram the unit?</a>

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			
95	F	2												N	E	G2.2.3 (multi-unit license) Knowledge of the design, procedural, and operational differences between units.  The combination in Distractor C does not seem plausible.
															S	9/4/14 Agree with plausibility.
96 #9P	H	3	X											M? 2008 NRC Exam		G2.2.37 Ability to determine operability and/or availability of safety related equipment. Don't need to give Limit (Secs) in the stem, this is given in the TS. Position misspelled. Distractor D not plausible. LCO 3.1.5 never directs BOTH actions. Distractor C is technically correct. It does have to be declared SLOW or INOP.  R: Plant will continue working on to clear up.
															E	7/24/14 Changes made by the licensee. Remove the "reference provided" from all questions on the exam. INOPERABLE is always correct for this question therefore A & C not plausible.
															S	Will reword to say will SLOW or not SLOW.
97	F	2												B 2007 NRC Exam	S	G2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions.
98	H	2												B 2010-2 NRC Exam	S	G2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

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			
99 #10P	H	2	X										X	B 2008 NRC Exam	U          S	<p>G2.4.27 Knowledge of "fire in the plant" procedures.</p> <p>Not SRO Only. C &amp; D can be determined using RO knowledge. These are IA's of AOP-32.</p> <p>Why do we need to tell them that they are in the General Fire Plan? Stem states you do NOT enter AOP-32, therefore why would you enter the procedure after entering the two procedures given? Not logical.</p> <p>R: Reviewing still to make corrections. Suggested asking basis for the mitigating action of a step within the procedure.</p> <p><a href="#">7/24/14 Changes made by the licensee.</a></p>
100	H	2	X											N	E    S	<p>G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm.</p> <p>4<sup>th</sup> bullet should be followed by 5<sup>th</sup> bullet "Inboard and Outboard MSIV logic lights are illuminated".</p>

Facility: <u>BRUNSWICK</u>		Date of Exam: <u>10/21/14</u>		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>	
Item Description		Initials			
		a	b	c	
1.	Clean answer sheets copied before grading	RS	P	AK	
2.	Answer key changes and question deletions justified and documented <u>(NONE)</u>	RS	P	AK	
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	RS	P	AK	
4.	Grading for all borderline cases (80 $\pm$ 2% overall and 70 or 80, as applicable, $\pm$ 4% on the SRO-only) reviewed in detail	RS	P	AK	
5.	All other failing examinations checked to ensure that grades are justified <u>(NONE)</u>	RS	P	AK	
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	RS	P	AK	
Printed Name/Signature		Date			
a. Grader	<u>Robert Bolin Robert Bolin</u>	<u>10/21/14</u>			
b. Facility Reviewer(*)	<u>Jerry Pierce Jerry Pierce</u>	<u>10/22/14</u>			
c. NRC Chief Examiner (*)	<u>Phillip G. Capelant Phillip G. Capelant</u>	<u>10/29/14</u>			
d. NRC Supervisor (*)	<u>GERALD J. McCoy Gerald J. McCoy</u>	<u>12/8/2014</u>			
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					