

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

* Rick Baldwin was initially CE; however Bruno Caballero took over due to unforeseen circumstances.

Facility:		Date of Examination:		
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.	LB	NA	TBM
	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.	LB	NA	TBM
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	LB	NA	TBM
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	LB	NA	TBM
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.	LB	NA	TBM
	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.	LB	NA	TBM
	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.	LB	NA	TBM
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.	LB	NA	TBM
	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	LB	NA	TBM
	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.	LB	NA	TBM
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.	LB	NA	TBM
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	LB	NA	TBM
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	LB	NA	TBM
	d. Check for duplication and overlap among exam sections.	LB	NA	TBM
	e. Check the entire exam for balance of coverage.	LB	NA	TBM
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	LB	NA	TBM
a. Author <u>Bob Bell</u> b. Facility Reviewer (*) <u>LEONARD R. BAUER</u> c. NRC Chief Examiner (#) <u>BRUNO CABALLERO</u> d. NRC Supervisor <u>MALCOLM T. WIDMANN</u>		Printed Name/Signature <u>Bob Bell</u> <u>Leonard R. Bauer</u> <u>Bruno Caballero</u> <u>Malcolm T. Widmann</u>		Date 3-30-10 3-30-10 3-31-10 03/31/10
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 ^{4/5 - 4/19/10} ~~4/12/09~~ as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of ^{4/5 - 4/19/10} ~~4/12/09~~ 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. Bob Bolin	EXAM AUTHORITY	<i>Robert Bolin</i>	6/22/09	<i>Robert Bolin</i>	4/27/10
2. MICHAEL NEMEC	EXAM REVIEWER	<i>Michael Neme</i>	6/22/09	<i>Michael Neme</i>	4/20/10
3. Mike O'Dell	ops / Validation	<i>Mike O'Dell</i>	11/12/09	<i>Mike O'Dell</i>	4/23/10
4. Leonard K. Feller	Facility Representative	<i>Leonard R. Feller</i>	11/20/09	<i>Leonard R. Feller</i>	4/20/10
5. Edward C. Hawkins	Simulator Support	<i>Edward C. Hawkins</i>	11/14/09	<i>Edward C. Hawkins</i>	4/21/10
6. Charles VanSlyke	Simulator Support	<i>Charles VanSlyke</i>	1/14/10	<i>Charles VanSlyke</i>	4/21/10
7. Dwayne Wolf	OPS / Validation	<i>Dwayne Wolf</i>	1/16/10	<i>Dwayne Wolf</i>	4/23/10
8. W. M. Naylor	OPS / Validation	<i>W.M. Naylor</i>	1/16/10	<i>W.M. Naylor</i>	4/21/10
9. Archie Lucky	OPS Training HN	<i>Archie Lucky</i>	2/2/10	Archie Lucky via Email	N-1
10. ALAN KENNEDY	OPSTRAIN CR3	<i>Alan Kennedy</i>	2-2-10	Alan Kennedy via Email	N-1
11. Rick Mearle	OPS TRNG - RHP	<i>Rick Mearle</i>	2/2/10	Rick Mearle via Email	N-1
12. Doug DILLMANN	OPS/VALIDATION	<i>Doug Dillmann</i>	2-15-10	<i>Doug Dillmann</i>	4-26-10
13. JIMMY BOOKER	CR3 / VALIDATION	<i>Jimmy Booker</i>	2-15-10	<i>Jimmy Booker</i>	4-26-10
14. Williams, Michael	OPS/VALIDATION	<i>Michael Williams</i>	2-15-10	<i>Michael Williams</i>	4/23/10
15. Jerry Pierce	OPS / Validation	<i>Jerry Pierce</i>	021510	<i>Jerry Pierce</i>	042110

NOTES:

N-1 These people are not at Brunswick and signed off via email which is attached
Robert Bolin: 4-27-10

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/5-4/9/10 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 4/5-4/9/10 From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1. <u>Gustav Grosch</u>	<u>Lead IT Analyst / PPC</u>	<u>[Signature]</u>	<u>2/5/10</u>	<u>[Signature]</u>	<u>4/21/10</u>
2. <u>Jeremy Johnson</u>	<u>SRO Validator</u>	<u>[Signature]</u>	<u>2/10/10</u>	<u>[Signature]</u>	<u>4/21/10</u>
3. <u>Michael O. Long</u>	<u>CRS / Validator - SRO</u>	<u>[Signature]</u>	<u>3/15/10</u>	<u>[Signature]</u>	<u>4-23-10</u>
4. <u>Matt Kouch</u>	<u>SRO Validator</u>	<u>[Signature]</u>	<u>3/15/10</u>	<u>[Signature]</u>	<u>4/21/10</u>
5. <u>MARK H. SCHALL</u>	<u>SRO VALIDATOR</u>	<u>[Signature]</u>	<u>3-17-10</u>	<u>[Signature]</u>	<u>4-21-10</u>
6. <u>Mike Williams</u>	<u>TRNG MGR</u>	<u>[Signature]</u>	<u>3/12/10</u>	<u>[Signature]</u>	<u>4/21/10</u>
7. <u>HANS WESTERMARK</u>	<u>REACTOR ENG / BESS</u>	<u>[Signature]</u>	<u>3-22-10</u>	<u>[Signature]</u>	<u>4-21-10</u>
8. <u>Nils Dahlin</u>	<u>contractor</u>	<u>[Signature]</u>	<u>3-25-10</u>	<u>Nils DAHLIN</u>	<u>via email N-1</u>
9. <u>Jeffrey DeRose</u>	<u>SIMULAN support</u>	<u>[Signature]</u>	<u>4/5/10</u>	<u>[Signature]</u>	<u>4/21/10</u>
10. <u>Dean Kahan</u>	<u>OPS</u>	<u>[Signature]</u>	<u>4-5-10</u>	<u>[Signature]</u>	<u>4-21-10</u>
11. <u>STEVE GLASSON</u>	<u>INSTRUCTOR</u>	<u>[Signature]</u>	<u>4-8-10</u>	<u>[Signature]</u>	<u>04/20/10</u>
12. <u>MIKE O'NEILL</u>	<u>OPS</u>	<u>[Signature]</u>	<u>4/14/10</u>	<u>[Signature]</u>	<u>4/27/10</u>
13. <u>Tony Pearson</u>	<u>OTT SUPV.</u>	<u>[Signature]</u>	<u>04/14/10</u>	<u>[Signature]</u>	<u>04/20/10</u>
14. <u>Michael Kinney</u>	<u>EN Staff</u>	<u>[Signature]</u>	<u>04/20/2010</u>	<u>[Signature]</u>	<u>04/20/10</u>
15. <u>Donna Dillmann</u>	<u>Ro VPI, DATA</u>	<u>[Signature]</u>	<u>4/22/10</u>	<u>[Signature]</u>	<u>4/22/10</u>

NOTES:

u-1 Not at Brunswick and signed off via email which is attached
Robert Bell 4-21-10

Nemec, Michael

From: Lucky, Archie
Sent: Monday, April 26, 2010 10:47 AM
To: Nemec, Michael
Subject: RE: NRC Security Agreement Post-Exam Signoff

I just got back from vacation. I am very pleased to see you have 10 for 10.

I could not get the voting button to work. But...you can sign me off.

To the best of my knowledge, Archie Lucky did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered 4/5 - 4/20/2010. 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.

Call me when you have some time.

Archie Lucky

Senior Nuclear Operations Instructor
Licensed Operator Continuing Training
Harris Nuclear Plant
919-362-3386
VNet 772-3386



From: Nemec, Michael
Sent: Tuesday, April 20, 2010 4:40 PM
To: Bain, Don; Beller, Leonard; Bolin, Bob; Booker, Jimmy; Dahlin, Nils; Dillmann, Doug; Grosch, Gustav; Hawkins, Edward; Johnson, Jeremy (BNP); Kennedy, Alan T.; Knuth, Matt; Long, Michael; Lucky, Archie; Moore, Rick; Naylor, Michael; Nemec, Michael; Nils Home (nils@advantagenets.com); O'dell, Robert; Pearson, Tony; Pierce, Jerry; Schall, Mark; Vanslyke, Chuck; Westermarck, Hans; Williams, Michael D.; Williams, Michael S.; Wolf, Dwayne
Subject: NRC Security Agreement Post-Exam Signoff
Importance: High

All,
HLC 2010-1 has completed all phases of NRC examination. Please stop by the exam room (across from the EOF) to sign off the agreement and turn in your HLC Exam Security Badge.

For those of you not currently located within the Brunswick Nuclear Plant area (Nils, Archie, Alan, and Rick), acknowledge the statement below by voting (using the button in the upper left hand corner), and I will use the voting reply to sign you off the agreement.

To the best of your knowledge, **YOU** did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered 4/5 - 4/20/2010. From the date that you entered into this security agreement until the completion of examination administration, you did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations.

Nemec, Michael

From: Kennedy, Alan T.
Sent: Thursday, April 22, 2010 9:00 AM
To: Nemec, Michael
Subject: I have not compromised the HLC 2010-1 exam security agreement: NRC Security Agreement Post-Exam Signoff

Nemec, Michael

From: Moore, Rick
Sent: Tuesday, April 20, 2010 8:04 PM
To: Nemec, Michael
Subject: I have not compromised the HLC 2010-1 exam security agreement: NRC Security Agreement Post-Exam Signoff

Nemec, Michael

From: Nils Dahlin [nils@advantagenets.com]
Sent: Tuesday, April 20, 2010 9:15 PM
To: Nemec, Michael
Subject: RE: NRC Security Agreement Post-Exam Signoff

Hi Mike,

My version of Outlook does not have a "vote" option. You will have to use this response as my official "signing off".

How was the test? 100% pass rate? I hope so.

Best wishes,

Nils Dahlin

From: Nemec, Michael [mailto:Michael.Nemec@pgnmail.com]
Sent: Tuesday, April 20, 2010 4:40 PM
To: Bain, Don; Beller, Leonard; Bolin, Bob; Booker, Jimmy; Dahlin, Nils; Dillmann, Doug; Grosch, Gustav; Hawkins, Edward; Johnson, Jeremy (BNP); Kennedy, Alan T.; Knuth, Matt; Long, Michael; Lucky, Archie; Moore, Rick; Naylor, Michael; Nemec, Michael; Nils Home (nils@advantagenets.com); O'dell, Robert; Pearson, Tony; Pierce, Jerry; Schall, Mark; Vanslyke, Chuck; Westermarck, Hans; Williams, Michael D.; Williams, Michael S.; Wolf, Dwayne
Subject: NRC Security Agreement Post-Exam Signoff
Importance: High

All,
HLC 2010-1 has completed all phases of NRC examination. Please stop by the exam room (across from the EOF) to sign off the agreement and turn in your HLC Exam Security Badge.

For those of you not currently located within the Brunswick Nuclear Plant area (Nils, Archie, Alan, and Rick), acknowledge the statement below by voting (using the button in the upper left hand corner), and I will use the voting reply to sign you off the agreement.

To the best of your knowledge, YOU did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered 4/5 - 4/20/2010. From the date that you entered into this security agreement until the completion of examination administration, you did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations.

Michael Nemec

Operations Initial Training
Brunswick Nuclear Plant
910.457.2204

Facility: Brunswick Date of Examination: April 2010

Examination Level: RO **SRO-I** Operating Test Number: FINAL

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M, D	Core Performance Check - APRM parameter check
Conduct of Operations	R, M, P R, P	Drywell Average Air Temperature Calculation (SRO-I only) Refueling Technical Specifications
Equipment Control	R, D	RCC Clearance
Radiation Control	R, M	Calculation of Stay Times
Emergency Procedures/Plan	R, M	(SRO-I only) Emergency Action Level Determinations

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

* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom
 (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
 (N)ew or (M)odified from bank (≥ 1)
 (P)revious 2 exams (≤ 1; randomly selected)

*Rec'd
3/29/10*

Conduct of Operations

Core Performance Check RO/SROI R, M, D

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 banked modified Administrative JPM that will require the examinee perform 1PT-01.11 recognizing APRM GAF adjustment required. Modified to allow performance in a classroom setting and CMFLPD limit exceeded.

Conduct of Operations

Drywell Average Air Temperature Calculation (RO Only) R, M, P

K/A 2.1.20 Ability to interpret and execute procedure steps

This is a modified classroom Administrative JPM that will require the examinee perform OPT-16.2. Modified to allow performance in a classroom setting and values changed resulting in different answer. This JPM was used on one of the last two NRC exams (November 08) and was randomly selected for this exam.

Conduct of Operations

Evaluate Refueling Technical Specifications (SRO-I Only) R, P

K/A 2.1.40 Knowledge of refueling administrative requirements

This is a banked classroom Administrative JPM that requires the examinee to evaluate Technical Specifications to allow removal of Shutdown Cooling from operation during Refueling operations. This JPM was used on one of the last two NRC exams (April 08) and was randomly selected for this exam. Modified to include core alteration allowance.

Equipment Control

RCC Clearance R, D

K/A 2.2.13 Knowledge of tagging and clearance procedures

This is a banked classroom Administrative JPM that will require the examinee identify Clearance Boundaries for RBCCW Pump 2C by completing Attachment 4 of OPS-NGGC-1301.

Radiation Control

Calculation of Stay Times R, M

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

This is a modified banked classroom Administrative JPM that will require the examinee to determine the total dose accumulated for two workers and if any Brunswick administrative dose limitations will be exceeded. Modified the values and area resulting in a different answer.

Emergency Procedures/Plan

Emergency Action Level Determinations (SRO-I Only) R, M

K/A 2.4.29 Knowledge of the Emergency Plan

This is a modified banked classroom Administrative JPM that will require the examinee to classify an emergency per PEP-02.1. Modified to incorporate NEI 99-01 EALs.

*Rec'd
3/29/10*

Facility: Brunswick

Date of Examination: April 2010

Exam Level: RO SRO-I

Operating Test No.: Final

Control Room Systems[@] (8 for RO); (7 for SRO-I)

System / JPM Title	Type Code*	Safety Function
a. Bypass a LPRM	S, D	7
b. Restart RBHVAC with Failure to Isolate	S, A, M	9
c. Place B Loop RHR in SPC IAW hard card – NSW header failure	S, A, P	5
d. Place HPCI in Pressure control	S, A, P	3
e. Place UAT Backfeed in service	S, D	6
f. Secure Main Turbine with failure of PCB to open	S, A, N	4
g. SULCV in service after scram	S, L, D	2
h. (RO only) Restart CRD	S, D	1

In-Plant Systems[@] (3 for RO/SRO-I)

i. LEP-01 Alternate Coolant Injection, SLC w/ Fire Water	R, M, E	2
j. Fire Pump power supply to alternate	D, A	8
k. SAMA DG	R, P, M, E	6

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

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

*Rec'd
3/29/10*

a. Bypass a LPRM

215005 A2.02

Ability to predict impacts on APRM and based on those predictions, use procedures to correct, control or mitigate consequences of those abnormal conditions.

This is a banked simulator JPM that will require the examinee to bypass an LPRM.

b. Restart RBHVAC with Failure to Isolate

288000 A3.01

Ability to monitor Plant Ventilation System automatic isolation/initiation signals in the control room

This is a modified banked simulator JPM that will require the examinee to restart the RB Ventilation system. As an alternate path when the fans are started the high radiation condition alarm re-occur and the examinee will have to isolate the system.

c. Place B Loop RHR in SPC IAW hard card – NSW header failure

219000 A4.12

Ability to manually operate and/or monitor in the control room: suppression pool temperature.

This is a banked simulator JPM that will require the examinee to place the B loop of RHR into SPC. As an alternate path they will have to use the conventional service water header. This is an engineered safety feature JPM. This JPM was used on one of the last two NRC exams (Nov. 08) and was randomly selected for this exam.

d. Place HPCI in Pressure Control

295025 EA1.04

Ability to operate and/or monitor the following as they apply to High Reactor Pressure: HPCI (plant specific)

This is a banked simulator JPM that will require the examinee to place HPCI into pressure control mode of operation. As an alternate path there is a exhaust diaphragm failure. This JPM was used on one of the last two NRC exams (Nov. 08) and was randomly selected for this exam.

e. Place UAT Backfeed in service

262001 A2.03

Use procedure to mitigate consequences of loss of off-site power.

This is a banked simulator JPM that will require the examinee energize 4 kV Bus from the UAT.

*Rec'd
3/29/10*

f. Main Turbine Shutdown

245000 A2.01

Ability to predict impacts of a turbine trip on the Main Turbine Generator and Auxiliary Systems; and based on those predictions, use procedures to correct, control or mitigate consequences of those abnormal conditions.

This is a new simulator JPM that will require the examinee to shutdown the turbine. As an alternate path one of the PCBs will fail to auto open and the examinee will have to open the PCB manually.

g. SULCV in service after scram

295001 A4.02

Ability to manually start/control a RFP in the control room.

This is a banked low power simulator JPM that will require the examinee to place the Startup Level Control Valve in service, restart a Reactor Feed Pump and restore RPV water level.

h. (RO only) Restart CRD

201001 A2.01

Ability to predict the impact of a CRD pump trip on the CRD Hydraulic System and use procedures to correct, control or mitigate the consequences.

This is a banked simulator JPM that will require the examinee to restart the CRD system.

i. LEP-01 Alternate Coolant Injection, SLC w/ Fire Water

295031 EA1.08

Ability To Operate/Monitor Alternate Coolant Injection Systems.

This is an in-plant JPM that will require the examinee to simulate aligning Fire Water to the SLC pumps for alternate coolant injection per LEP-01. This JPM is performed in the RCA. This JPM was modified due to a plant modification incorporating a new connector to the fire water hose.

j. Fire Pump power supply to alternate

286000 A1.05

Ability to predict and/or monitor changes in parameters associated with operating the Fire Protection System controls including: System lineups.

This is a banked in-plant JPM that will require the examinee to simulate the transfer of the Electric Fire Pump to its alternate power supply and start the Diesel Fire Pump locally with a battery failure and having to use the other battery as an alternate path.

k. SAMA DG

295003 AA1.02

Ability to Operate and/or Monitor Emergency Generators as it applies to a Station Blackout

This is a banked in-plant JPM that will require the examinee to simulate aligning the SAMA Diesel to a battery charger. This JPM is performed in the RCA. This JPM was modified due to a plant modification to the equipment. This JPM contains actions for a Station Blackout.

*Rec'd
3/29/10*

Facility: <u>Brunswick</u>		Date of Examination: <u>April 2010</u> Operating Test Number: <u>Final</u>		
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).	AB	WBS	BM
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	AB	WBS	BM
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	AB	WBS	BM
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	AB	WBS	BM
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	AB	WBS	BM
2. Walk-Through Criteria		--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: <ul style="list-style-type: none"> – detailed expected actions with exact criteria and nomenclature – system response and other examiner cues – statements describing important observations to be made by the applicant – criteria for successful completion of the task – identification of critical steps and their associated performance standards – restrictions on the sequence of steps, if applicable 	AB	WBS	BM
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.	AB	WBS	BM
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.		AB	WBS	BM
	Printed Name / Signature	Date		
a.	Author <u>Bob Bolia / Robert Bell</u>	<u>3-30-10</u>		
b.	Facility Reviewer(*) <u>LEONARD R. BELL / Leonard R. Bell</u>	<u>03/30/2010</u>		
c.	NRC Chief Examiner (#) <u>BRUNO CABALLERO / B. Caballero</u>	<u>3-30-10</u>		
d.	NRC Supervisor <u>MALCOLM T. WIDMAN / [Signature]</u>	<u>03/31/10</u>		
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

Rec'd
3-30-10

Facility: <u>Brunswick</u>		Date of Exam: <u>4/10</u> Scenario Numbers: <u>1/2/3/4/5</u> Operating Test No.: <u>Final</u>		
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.	LB	VM	BM
2.	The scenarios consist mostly of related events.	LB	VM	BM
3.	Each event description consists of <ul style="list-style-type: none"> • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable) 	LB	VM	BM
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.	LB	VM	BM
5.	The events are valid with regard to physics and thermodynamics.	LB	VM	BM
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	LB	VM	BM
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.	LB	VM	BM
8.	The simulator modeling is not altered.	LB	VM	BM
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.	LB	VM	BM
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.	LB	VM	BM
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	LB	VM	BM
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).	LB	VM	BM
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	LB	VM	BM
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes		
		1	2	3
1.	Total malfunctions (5-8)	6	7	5
2.	Malfunctions after EOP entry (1-2)	1	4	2
3.	Abnormal events (2-4)	3	3	2
4.	Major transients (1-2)	1	2	2
5.	EOPs entered/requiring substantive actions (1-2)	2	2	3
6.	EOP contingencies requiring substantive actions (0-2)	2	3	2
7.	Critical tasks (2-3)	3	2	3

Rec'd
3-30-10

Utility: Brunswick

Date of Exam: April 2010 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 (*)		
		3			1			2			5				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													
<input checked="" type="checkbox"/> RO 1 <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1											1	1	1	0
	NOR						1			2				2	1	1	1
	I/C		2a, 7, 8			4,6,			4,6,9					8	4	4	2
	MAJ		6			7			5,8					4	2	2	1
	TS													0	2	2	
<input checked="" type="checkbox"/> RO 2 <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX					3								1	1	1	0
	NOR			2									3	2	1	1	1
	I/C			3,4,5		2,6,7							1,5	8	4	4	2
	MAJ			6		7							5,6	4	2	2	1
	TS													0	2	2	
<input checked="" type="checkbox"/> RO 3 <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX								1					1	1	1	0
	NOR			2		1								2	1	1	1
	I/C			3,4,5		4,6,		3a,7,10						8	4	4	2
	MAJ			6		7		5,8						4	2	2	1
	TS													0	2	2	
<input checked="" type="checkbox"/> 4 RD <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX								1					1	1	1	0
	NOR			2		1								2	1	1	1
	I/C			3,4,5		4,6,		3a,7,10						8	4	4	2
	MAJ			6		7		5,8						4	2	2	1
	TS													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.

*Rec'd
3/29/10*

Facility: <u>Brunswick</u>		Date of Exam: <u>APRIL 2010</u>		Operating Test No.: <u>FINAL</u>														
APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)			
		3			1			2			5				R	I	U	
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP					
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 1 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	1							1					3	3	1	1	0
	NOR	2							2						2	1	1	1
	I/C	2a,3,4,5,7,8							3,3a,4,6,7,9,10					4,7	15	4	4	2
	MAJ	6							5,8					5,6	5	2	2	1
	TS	3							3						2	0	2	2
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 2 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX				3					1				3	3	1	1	0
	NOR				1									3	2	1	1	1
	I/C				2,4,5,6,7				3a,7,10				1,4,5,7	12	4	4	2	
	MAJ				7				5,8				5,6	5	2	2	1	
	TS				2,5								1,4	4	0	2	2	
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 3 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	1				3			1						3	1	1	0
	NOR	2							2						2	1	1	1
	I/C	2a,3,4,5,7,8				2,6,7			3,3a,4,6,7,9,10						16	4	4	2
	MAJ	6				7			5,8					4	2	2	1	
	TS	3							3					2	0	2	2	
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 4 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1		3										2	1	1	0
	NOR				1						2				2	1	1	1
	I/C		2a, 7, 8		2,4,5,6,7						4,6,9				11	4	4	2
	MAJ		6		7						5,8				4	2	2	1
	TS				2,5										2	0	2	2
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 5 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	1				3			1						3	1	1	0
	NOR	2							2						2	1	1	1
	I/C	2a,3,4,5,7,8				2,6,7			3,3a,4,6,7,9,10						16	4	4	2
	MAJ	6				7			5,8						4	2	2	1
	TS	3							3						2	0	2	2
<input type="checkbox"/> RO <input checked="" type="checkbox"/> SRO-I 6 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1		3										2	1	1	0
	NOR				1						2				2	1	1	1
	I/C		2a, 7, 8		2,4,5,6,7						4,6,9				11	4	4	2
	MAJ		6		7						5,8				4	2	2	1
	TS				2,5										2	0	2	2

*Rec'd
2/29/10*

Facility: Brunswick		Date of Examination: April 2010				Operating Test No.: FINAL										
Competencies	APPLICANTS															
	RO1 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO2 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO3 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO4 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	3	1	2	5	3	1	2	5	3	1	2	5	3	1	2	5
Interpret/Diagnose Events and Conditions	2a,5,6,7,8	4,6,7,8	4,5,6,9		3,4,5,6	2,6,7,8		1,5	3,4,5,6	4,6,7,8	3a,7,10		3,4,5,6	4,6,7,8	3a,7,10	
Comply With and Use Procedures (1)	1,2a,5,6,7,8	1,4,6,7,8	2,4,5,6,9,12		2,3,4,5,6	2,3,6,7,8		1,3,5,6	2,3,4,5,6	1,4,6,7,8	1,3a,5,7,8,10,12		2,3,4,5,6	1,4,6,7,8	1,3a,5,7,8,10,12	
Operate Control Boards (2)	1,2a,5,6,7,8	1,4,6,7,8	2,4,5,6,9,12		2,3,4,5,6,9	2,3,6,7,8		1,3,5,6	2,3,4,5,6,9	1,4,6,7,8	1,3a,5,7,8,10,12		2,3,4,5,6,9	1,4,6,7,8	1,3a,5,7,8,10,12	
Communicate and Interact	All	All	All		All	All		All	All	All			All	All	All	
Demonstrate Supervisory Ability (3)																
Comply With and Use Tech. Specs. (3)																
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

Instructions:

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

*Rec'd
3/29/10*

Facility: Brunswick Date of Examination: April 2010 Operating Test No.: FINAL

Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I1 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I2 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I3 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I4 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	3	1	2	5	3	1	2	5	3	1	2	5	3	1	2	5
Interpret/Diagnose Events and Conditions	2a,3,4,5,6,7,8		3,4,5,6,7,9,10	4,7		2,3,4,5,6,7,8	3a,7,10	1,4,5,7		2a,3,4,5,6,7,8	2,6,7,8	3,4,5,6,7,9,10		2a,5,6,7,8	2,3,4,5,6,7,8	4,5,6,9
Comply With and Use Procedures (1)	All		All	3,4,5,6,7		All	1,3a,5,7,8,10,12	All		All	2,3,6,7,8	All		1,2a,5,6,7,8	All	2,4,5,6,9,12
Operate Control Boards (2)				3,4,5,6,7			1,3a,5,7,8,10,12				2,3,6,7,8			1,2a,5,6,7,8		2,4,5,6,9,12
Communicate and Interact	All		All	All		All	All	All		All	All	All		All	All	All
Demonstrate Supervisory Ability (3)	All		All			All		All		All		All		All		
Comply With and Use Tech. Specs. (3)	3		3			2,5		1,4		3		3		2,5		

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

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

*Rec'd
3/29/10*

Facility: Brunswick		Date of Examination: April 2010				Operating Test No.: FINAL										
Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I5 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I6 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	3	1	2	5	3	1	2	5	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	2a,3,4,5,6,7,8	2,6,7,8	3,4,5,6,7,9,10		2a,5,6,7,8	2,3,4,5,6,7,8	4,5,6,9									
Comply With and Use Procedures (1)	All	2,3,6,7,8	All		1,2a,5,6,7,8	All	2,4,5,6,9,12									
Operate Control Boards (2)		2,3,6,7,8			1,2a,5,6,7,8		2,4,5,6,9,12									
Communicate and Interact	All	All	All		All	All	All									
Demonstrate Supervisory Ability (3)	All		All			All										
Comply With and Use Tech. Specs. (3)	3		3			2,5										
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

Instructions:

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

Rec'd 3/29/10

Facility: BRUNSWICK		Date of Exam: APRIL 2010																		
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	1	1	N/A			2	1	N/A			1	7	1	2	3			
	Tier Totals	5	4	4	N/A			6	4	N/A			4	27	4	6	10			
2. Plant Systems	1	3	2	3	2	2	3	3	3	2	1	2	26	2	3	5				
	2	1	1	1	1	1	1	2	1	1	1	1	12	0	1	2				
	Tier Totals	4	3	4	3	3	4	5	4	3	2	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								2	2	1	2	

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7. *The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note # 1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295001AK1.03	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.6	4.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Thermal limits.....
295003AA2.05	Partial or Complete Loss of AC / 6	3.9	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Whether a partial or complete loss of A.C. power has occurred.....
295004AA1.02	Partial or Total Loss of DC Pwr / 6	3.8	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Systems necessary to assure safe plant shutdown.....
295005AA1.07	Main Turbine Generator Trip / 3	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A.C. electrical distribution.....
295006AK1.02	SCRAM / 1	3.4	3.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shutdown margin.....
295016G2.4.1	Control Room Abandonment / 7	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
295018AA1.02	Partial or Total Loss of CCW / 8	3.3	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	System loads.....
295019G2.2.37	Partial or Total Loss of Inst. Air / 8	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment
295021AA2.02	Loss of Shutdown Cooling / 4	3.4	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RHR/shutdown cooling system flow
295023AK3.03	Refueling Acc Cooling Mode / 8	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation isolation.....
295024G2.2.37	High Drywell Pressure / 5	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295025EA2.05	High Reactor Pressure / 3	3.4	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Decay heat generation.....
295026EA1.01	Suppression Pool High Water Temp. / 5	4.1	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool cooling.....
295028EK3.05	High Drywell Temperature / 5	3.6	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor SCRAM.....
295030EK2.09	Low Suppression Pool Wtr Lvl / 5	2.5	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SPDS/ERIS/CRIDS/GDS: Plant-Specific.....
295031EK3.03	Reactor Low Water Level / 2	4.1	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spray cooling.....
295037EK1.03	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.2	4.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Boron effects on reactor power (SBLC).....
295038EK2.12	High Off-site Release Rate / 9	3.5	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Feedwater leakage control: BWR-6.....
		<i>Re-selected 295 038 K2.10</i>										<i>N/A</i>		
600000AK2.01	Plant Fire On Site / 8	2.6	2.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sensors / detectors and valves
700000AK1.02	Generator Voltage and Electric Grid Disturbancecs	3.3	3.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Over-excitation

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295008AK1.01	High Reactor Water Level / 2	3.0	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Moisture carryover.....
295014AA2.03	Inadvertent Reactivity Addition / 1	4.0	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cause of reactivity addition.....
295015AK3.01	Incomplete SCRAM / 1	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bypassing rod insertion blocks.....
295020G2.4.1	Inadvertent Cont. Isolation / 5 & 7	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
295032EK2.02	High Secondary Containment Area Temperature / 5	3.6	3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary containment ventilation.....
295033EA1.05	High Secondary Containment Area Radiation Levels / 9	3.9	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Affected systems so as to isolate damaged portions....
295035EA1.01	Secondary Containment High Differential Pressure / 5	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary containment ventilation system.....

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
203000K1.01	RHR/LPCI: Injection Mode	2.8	2.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Condensate storage and transfer system: Plant-Specific <i>N/A</i>
<i>re-selected 203000 K1.02</i>														
205000G2.4.21	Shutdown Cooling	4.0	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the parameters and logic used to assess the status of safety functions				
206000K4.02	HPCI	3.9	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	System isolation: BWR-2,3,4
209001K3.01	LPCS	3.8	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor water level
209001K3.03	LPCS	2.9	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency generators
211000K1.01	SLC	3.0	3.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Core spray line break detection: Plant-Specific
211000K1.09	SLC	3.2	3.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Core spray system: Plant-Specific
<i>enough SLC K/A's re-selected 264000 K1.07</i>														
212000K2.01	RPS	3.2	3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RPS motor-generator sets
215003A2.02	IRM	3.5	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IRM inop condition				
215004K5.03	Source Range Monitor	2.8	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changing detector position
215005A2.05	APRM / LPRM	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of recirculation flow signal				

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
215005A2.07	APRM / LPRM	3.2	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recirculation flow channels flow mismatch
		<i>Re-selected 215005 A2.04</i>												
217000A1.01	RCIC	3.7	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCIC flow
217000A1.04	RCIC	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor pressure
218000K3.01	ADS	4.4	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Restoration of reactor water level after a break that does not depressurize the reactor when required
223002A3.03	PCIS/Nuclear Steam Supply Shutoff	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SPDS/ERIS/CRIDS/GDS: Plant-Specific
239002A4.04	SRVs	4.3	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool temperature
259002K6.04	Reactor Water Level Control	3.1	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor feedwater flow input
261000A3.01	SGTS	3.2	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	System flow
262001K6.01	AC Electrical Distribution	3.1	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D.C. power
262001K6.02	AC Electrical Distribution	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Off-site power
262002G2.4.3	UPS (AC/DC)	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to identify post-accident instrumentation.
		<i>Re-selected 262002 G.2.4.11 N/A on UPS</i>												

RO

ES-401, REV 9

T2G1 BWR EXAMINATION OUTLINE

FORM ES-401-1

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
263000K2.01	DC Electrical Distribution	3.1	3.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Major D.C. loads
264000A1.01	EDGs	3.0	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lube oil temperature
300000K5.13	Instrument Air	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Filters
400000K4.01	Component Cooling Water	3.4	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Automatic start of standby pump

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
201001A1.03	CRD Hydraulic	2.9	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CRD system flow				
201002K6.01	RMCS	2.5	2.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Select matrix power
201006K5.01	RWM	3.3	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Minimize clad damage if a control rod drop accident (CRDA) occurs: P-Spec(Not-BWR6)
214000A3.04	RPIS	3.5	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCIS: Plant-Specific					
216000K2.01	Nuclear Boiler Inst.	2.8	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Analog trip system: Plant-Specific
230000A1.06	RHR/LPCI: Torus/Pool Spray Mode	3.3	3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool level				
234000A4.02	Fuel Handling Equipment	3.4	3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control rod drive system						
259001A2.06	Reactor Feedwater	3.2	3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of A.C. electrical power				
272000K3.05	Radiation Monitoring	3.5	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Offgas system
288000K1.04	Plant Ventilation	2.6	2.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Applicable component cooling water system: Plant-Specific <i>N/A</i>
290002G2.4.46	Reactor Vessel Internals	4.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.							

re-selected 288000 K1.01

RO

ES-401, REV 9

T2G2 BWR EXAMINATION OUTLINE

FORM ES-401-1

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

RO SRO

290003K4.01 Control Room HVAC 3.1 3.2 System initiations/reconfiguration: Plant-Specific

RO

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.27	Conduct of operations	3.9	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function.								
G2.1.31	Conduct of operations	4.6	4.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.								
G2.1.39	Conduct of operations	3.6	4.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of conservative decision making practices								
G2.2.15	Equipment Control	3.9	4.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine the expected plant configuration using design and configuration control documentaion								
G2.2.25	Equipment Control	3.2	4.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.								
G2.2.39	Equipment Control	3.9	4.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of less than one hour technical specification action statements for systems.								
G2.3.14	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities								
G2.3.6	Radiation Control	2.0	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to approve release permits								
G2.4.1	Emergency Procedures/Plans	4.6	4.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.								
G2.4.9	Emergency Procedures/Plans	3.8	4.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.								

Re-selected G 2.2.4 (duplicate on SRO)

Repeated on SRO Re-selected G2.3.15

↳ Re-selected G 2.3.14

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295006G2.2.22	SCRAM / 1	4.0	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.						
295021AA2.03	Loss of Shutdown Cooling / 4	3.5	3.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor water level					
295023G2.4.46	Refueling Acc Cooling Mode / 8	4.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.						
		<i>Unable to write: Re-selected 295023 G 2.4.49</i>												
295026EA2.03	Suppression Pool High Water Temp. / 5	3.9	4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor pressure.....					
295028EA2.05	High Drywell Temperature / 5	3.6	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Torus/suppression chamber pressure: Plant-Specific...					
295038G2.2.42	High Off-site Release Rate / 9	3.9	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to recognize system parameters that are entry-level conditions for Technical Specifications						
600000G2.2.37	Plant Fire On Site / 8	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment						

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:	
		RO	SRO												
295008AA2.05	High Reactor Water Level / 2	2.9	3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Swell.....							
295014G2.1.19	Inadvertent Reactivity Addition / 1	3.9	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Ability to use plant computer to evaluate system or component status.								
<i>re-selected 295014 G 2.1.25</i>															
295029G2.1.7	High Suppression Pool Wtr Lvl / 5	4.4	4.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.								

KA	NAME / SAFETY FUNCTION:	IR											TOPIC:				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G					
		RO	SRO														
212000A2.12	RPS	4.0	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Main turbine stop control valve closure								
217000G2.4.8	RCIC	3.8	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.									
239002G2.2.25	SRVs	3.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.									
262002G2.1.23	UPS (AC/DC)	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.									
300000A2.01	Instrument Air	2.9	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air dryer and filter malfunctions								

KA	NAME / SAFETY FUNCTION:	IR											TOPIC:			
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G				
		RO		SRO												
204000G2.2.3	RWCU	3.8	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(multi-unit license) Knowledge of the design, procedural and operational differences between units. <i>N/A</i>							
		<i>Re-selected 204000 G2.2.25</i>														
214000A2.03	RPIS	3.6	3.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Overtravel/in-out							
233000G2.4.34	Fuel Pool Cooling/Cleanup	4.2	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects <i>None</i>								
		<i>Re-selected 233000 G2.4.6</i>														

KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G												TOPIC:			
		RO	SRO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G2.1.42	Conduct of operations	2.5	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of new and spent fuel movement procedures
G2.1.5	Conduct of operations	2.9	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to locate and use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
G2.2.15	Equipment Control	3.9	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine the expected plant configuration using design and configuration control documentaion
G2.2.22	Equipment Control	4.0	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.
G2.3.11	Radiation Control	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to control radiation releases
G2.4.17	Emergency Procedures/Plans	3.9	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP terms and definitions.
G2.4.35	Emergency Procedures/Plans	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO T3	G 2.3.6	KA less than 2.5, actually 2.0. KA reselected by Chief Examiner (CE) selected G. 2.3.14
RO T3	G 2.2.15	KA is repeated on the SRO examination. Did not want to have the SRO have the same KA two times. KA reselected by the CE. Selected G 2.2.4
SRO T1G2	295014G2.1.19	KA reselected by the CE. Selected 295014G2.1.25
SRO T2G2	204000G2.2.3	No unit differences. KA reselected by the CE. Selected 204000G2.2.25
SRO T2G2	233000G2.4.34	No RO tasks outside the main control associated with the spent fuel pool/Clean up system. KA replaced by the CE. Selected 233000G2.4.6
RO T2G1	211000K1.09	Had enough SLC KA's. KA replaced by the CE. Selected 264000K1.07
RO T2G1	215005A2.07	KA replaced by the CE. CE selected by the CE 215005A2.04
RO T3	G 2.3.14	KA is repeated on SRO Exam.
		G 2.3.15 selected by CE 1/19/10
RO T1G1	295038 K2.12	Brunswick does not have FW leakage Control
		295038 K2.10 selected by CE 1/19/10
RO T2G2	288000 K1.04	Brunswick does not have component sealing water to plant ventilation.
		288000 K1.01 selected by CE 1/19/10
RO T2G1	203000 K1.01	Plant specific transfer system on RHR is not applicable. 203000 K1.02 selected by CE
		12/1/09
SRO T1G1	295023 G2.4.46	Could not write SRO level question with plausible answers G2.4.49 selected by CE on 2/9/10
RO T2G1	262002 G2.04.03	Brunswick does not have PAM indications powered from VPS. 262002 G2.04.11 selected by Bruno Cabrello 4/6/10

Rec'd
4/15/10

Facility: <u>Brunswick</u>		Date of Exam: <u>4/20/10</u>		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	VB	TBU			
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	RB	VB	TBU			
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	RB	VB	TBU			
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).	N/A	N/A	TBU			
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	VB	TBU			
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	VB	TBU
	32 14	0 10	43 121			
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	VB	TBU
	36 13	39 122				
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	RB	VB	TBU			
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	VB	TBU			
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	RB	VB	TBU			
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	VB	TBU			
a. Author	Printed Name / Signature			Date		
b. Facility Reviewer (*)	<u>Bob Behin / [Signature]</u>			<u>4/15/10</u>		
c. NRC Chief Examiner (#)	<u>LEONARD P. BELLER / [Signature]</u>			<u>04/15/2010</u>		
d. NRC Regional Supervisor	<u>BRUNO CABALLERO / [Signature]</u>			<u>4/16/10</u>		
	<u>MALCOLM T. MOUWANI / [Signature]</u>			<u>04/16/10</u>		
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.					

Rec'd
4/15/10

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	Backward	Q=K/A	SRO Only				
																	5 Unsat SRO questions (20% borderline)
																	15 Unsat RO questions (20% borderline)

Instructions

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

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).
3. Check the appropriate box if a psychometric flaw is identified:
 - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
 - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
 - The answer choices are a collection of unrelated true/false statements.
 - The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
 - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).
4. Check the appropriate box if a job content error is identified:
 - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
 - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
 - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
 - The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).
6. Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f.
7. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only				
1	H	2	x				x									E S	201001 A1.03, High, Bank 1. Partial: Because the stem does not specify which way the operator is throttling, then an applicant can argue any of the choices correct. 2. Stem Focus: Because of the lead in wording starts out with "restarting the system", the question is confusing because the applicant doesn't know which pump was running or restarted. Clarify better>>The Unit was operating when the running CRD pump tripped, the CRD is being restarted....." 3. Comments incorporated. Question is SAT.
2	H	3	x			x										E S	201002K6.01, Bank, High 1. Stem Focus and/or Cred Dist: Specify the 2 nd part of "A" and "B" [full core display, 4 rod group display, ERFIS, process computer] in order to ensure the plausibility of the 2 nd part of "C" and "D." The 2 nd fill-in-the blank-statement can be modified to accomplish this. 2. Stem Focus: Identify the "Emergency IN" switch in quotations as seen, is the word IN capitalized in your nomenclature, if so/not make it either way. 3. Comments incorporated. Question is SAT
3	F	2														S	201006 K5.01, Low, Bank,

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	Backward	Q=K/A	SRO Only				
4	H	3	X			x										E S	<p>203000 K1.02, High, New</p> <p>1. Stem Focus: Is it assumed in the question that both these alarms come in simultaneously? It seems that the second alarm would come in some time later, since the pressure in the RHR loop should decrease fast and the volume being pumped into the Suppression Chamber would be ONLY a small amount. The valve has not failed open, just is seated improperly. This needs to be cleared up. Add a time frame that the other alarm comes in to ensure operational validity.</p> <p>2. Stem Focus: Ask the licensee to explain why the word "only" is needed in the 2nd part of the fill-in-the-blank statement.</p> <p>3. Stem Focus: Provide the annunciator window location in parenthesis after the alarm window wording.</p> <p>4. Cred Dist: Subsequently recognized that "a" and "b" were not plausible because of low torus level condition. 4/13/10</p> <p>5. Recommended testing knowledge of torus alignment during a LOCA and expected flow rate. Question is SAT.</p>
5	H	3				x						x				U S	<p>205000 G 2.04.21, High, Bank</p> <p>1. Q=K/A: KA does NOT Match because this is a Tier 2 K/A, which should test the applicants' knowledge of the safety related functions of the system operation. If this were a Tier 1 K/A, then a loss of shutdown cooling would be appropriate.</p> <p>Suggest testing the applicants' knowledge of the minimum required flow rate when operating the shutdown cooling SYSTEM (Tier 2) to ensure core heat removal and preclude stagnation or mode changes.</p> <p>2. Cred Dist: "C" and "D" are not plausible because under the LOOP conditions proposed, NO flow would be available in Recirc or RHR due to the loss of power.</p> <p>3. Licensee changed question to test applicants' knowledge of how reactor pressure would respond following an RPS MG set trip (with shutdown cooling in service) and when a mode change would occur. Question is SAT.</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	Backward	Q=K/A	SRO Only			
6	F	2	X	X			X								E	<p>206000 K4.02, Low, Bank</p> <p>1. Cues: Change the temperature at which the isolation occurs and make it higher so as NOT to have the applicant recognize a temperature that they are familiar with. Change this to 203 deg. F so that the applicants have to recognize that they are above the setpoint vs simply recognizing the setpoint.</p> <p>2. Stem Focus: For the word "current" either bold, underline or identify it so it is NOT missed by the applicant. When I read this question I did.</p> <p>3. Partial: Licensee, is it possible that D could be considered as correct since the exact temperature sensor/location designators are not provided in the stem?</p> <p>4. Comments incorporated. Question is SAT.</p>
7	H	3	X									X			U S	<p>209001 K3.01, High, New</p> <p>1. Q=K/A: This question does not test the applicants knowledge of how a loss of Core Spray affects RPV water level. The K/A is only testing the applicants' knowledge of available power supplies following a LOOP when DG1 is under clearance.</p> <p>2. The "theme" of this question overlaps with Q#28.</p> <p>3. Stem Focus: Add a line space between the IC and the busses.</p> <p>4. Licensee argued that Core Spray was unit specific with respect to power supplies whereas RHR has cross-unit power supplies. Licensee also stated that question was testing how a malfunction of core spray would affect level since the applicant had to evaluate the LOCA and loss of power. Comments incorporated. Question is SAT.</p>
8	H	3	X												E S	<p>209001 K 3.03, High, Bank</p> <p>1. Tough K/A to hit.</p> <p>Stem Focus: An applicant can argue that there is no correct answer because the stem question asks for the "cause" of the DG1 problems and "D" is not really the "cause." The blown fuses may be a symptom of a larger problem, but may not be the "cause" of the DG1 problems. Discuss w/ licensee.</p> <p>2. Agreed to test applicants' knowledge of how the DG output breaker responds when a core spray pump was running and its control power fuses blew and then a LOCA occurred. Question is SAT.</p>
9	F	2													S	211000 K 1.01, Low, Bank.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	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			
10	F	2													S	212000 K 2.01, Low, Bank 1. Stem Focus: The stem question does not solicit the 1 st portion response of the fill-in-the-blank question. Re-word stem question to ask for which MG set(s) is/are affected in addition to EPA breakers.
11	F	2	X			X									E S	214000 A 3.04, Low, Bank 1. Stem Focus: Several grammar errors (four rod display GOES out, then GOES out again (vs go); COMES on (vs come on). 2. Stem Focus: Need to add quotations around FF. Also need to include a semi-colon after FF to ensure the applicants' know that a separate issue is being presented, i.e., whether or not an inferred position is provided. 3. Cred Dist: "B" is not plausible because it does not provide the plausible inferred position of 12, i.e., it is not similar to "D." 4. Comments incorporated. Question is SAT.
12	H	3	X												E S	215003 A2.02, High, New 1. Stem Focus: the words "on the high voltage power supply for..." in the 1 st sentence is confusing and not necessary to elicit the correct response. Re-word the 1 st sentence as follows: <i>"A plant startup was in progress when the high voltage power supply to IRM G failed low. All IRMs are on Range 1."</i> 2. Stem Focus: Split out the fill-in-the-blank statements into two separate sentences. 3. Stem Focus: Underline the word "clear" in the 2 nd fill-in-the-blank statement. 4. Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A			
13	H	3	X											E S	<p>215004, K5.03, High. New</p> <ol style="list-style-type: none"> 1. Stem Focus: Because distractors C and D have 2 actions while A and B have only one, re-word the stem question as follows: <i>WOOTF is the <u>minimum</u> required action(s) that will clear the control rod block?</i> 2. Stem Focus: In the first part of the stem, the question talks about a "control rod block." In the last part of the stem the question refers to an annunciator (is that what italics means?). Is it necessary to include an alarm, or can the question simply state to clear the control rod block. 3. Distracter analysis: The description for distractor D states that IRM B and D are in Div II and are below 3, is this true or is it IRM F vice D as the answer states? 4. Comments incorporated. Question is SAT.
14	H	3									X			U S	<p>215005 A2.04, High, New.</p> <ol style="list-style-type: none"> 1.Q=K/A: The proposed question does not meet the K/A because the 2nd part of the fill-in-the-blank statement can be answered without the name of the procedure. Suggest testing the applicants' knowledge of required AOP to enter or some required AOP action that deals with overall mitigative strategy. 2. Question was originally sat because Chief Examiner got RO vs SRO confused. [As long as the choices are procedurally directed actions, then the 2nd part of the question meets the intent of the A2 K/A – EVEN IF SYSTEM KNOWLEDGE CAN BE USED TO DETERMINE THE CORRECT ANSWER.]

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	Backward	Q=K/A	SRO Only				
15	H	2				X							X			U E S	215005A2.05, High, New 1. Q=K/A: The question does not test the K/A because the second part of choices "B" and "D" can be eliminated by knowing how the RBM system works. After "B" and "D" are eliminated, the applicant does not have to know what the procedure requires. 2. Cred Dist: (borderline) "B" and "D" are not plausible because the RBM B has no association with APRM 1. Change the APRM to 4. 3. the question can be answered by using knowledge of is what is the procedure action, the applicant has to know the system response and to know that RBM B never transfer automatically to APRM 1. NOT plausible, makes this UNSAT 4. Question was originally ENHANCEMENT because Chief Examiner got RO vs SRO confused. [As long as the choices are procedurally directed actions, then the 2 nd part of the question meets the intent of the A2 K/A – EVEN IF SYSTEM KNOWLEDGE CAN BE USED TO DETERMINE THE CORRECT ANSWER.] 5. Comments incorporated. Question is SAT
16	F	2	X			X										E S	216000 K 2.10, Low, Bank 1. Stem Focus: Include the word "panel" for "C" and "D" 2. Cred Dist: Discuss w/ licensee about using the power supplies for the ECCS Trip Cabinets instead of the ones listed in "A" and "B" to add plausibility. Alternatively, suggest a 250VDC cabinet 3. Licensee wrote question to include 125 VDC Panel 3A and 125 VDC Panel 4A. Question is SAT.
17	H	3		X												E S	217000 A1.01, High, Bank 1. Cues: The information related to "low water level" in the 1 st sentence is not necessary to elicit the correct response, i.e., simply state that RCIC automatically initiated. 2. Cues: In the "current plant status" the applicant should already know that the F045 will be closed following a high water level trip. 3. Cues: Does the F013 also automatically close? If not, then the information about F013 is acceptable. If it does, then this is a cue. 4. Comments incorporated. Question is SAT.

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			
18	H	3	X												S	217000 A1.04, High, New 1. Stem Focus: Ask the licensee if the word "stabilized" is strong enough to ensure that applicants' cannot argue more than one correct answer. 2. Comments incorporated. Question was SAT.
19	H	3	X			X									U E S	218000 K3.01, High, New. 1. Q=KA: The KA is not being met because the applicants' are not being <i>directly</i> tested on the water level restoration method following a loss/malf of the ADS. Instead, this question is testing the applicants' knowledge of whether the ADS logic will initiate, which may be <i>indirectly</i> testing their knowledge of whether the vessel is depressurized following a loss/malf of the ADS. Suggest asking a 2 part question to test the applicants' knowledge of 1) will ADS automatically initiate (yes/no) and 2) <u>when</u> it will initiate (for the two "yes" choices) or what the minimum required reactor water level is for a manual ED (for the "no" choices). By doing this, the reactor water level parameter is being tested. 2. Cred Dist: "A" is not plausible because the fluid flow detection would only occur AFTER the ADS valve opening; therefore, it is not logical that the sonic detectors provide input to the <i>initiation</i> of ADS. 3. Stem Focus: The stem question does not solicit a "reason" for whether ADS will or will not initiate even though each choice provides a "reason." Ensure the stem question is worded to elicit both parts of each choice. 4. Licensee argued that question met the K/A because it tested the applicants' knowledge of whether ADS will/will not actuate AND which RHR loop will subsequently be available. Question was originally an ENHANCEMENT. Other comments incorporated. Question is SAT.
20	F	2													S	223002 A 3.03, Bank, High. 1. Discuss with the licensee why this question is a Higher level question. It may be a Memory. If there is some diagnosis involved, then it may be a higher question. 2. Licensee agreed with Fundamental (Lower) Cog classification. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
21	H	3	X					X								E S	230000 A1.06, High, New. 1. Job-Link: Is it verifiable in the simulator that narrow range torus level will slightly rise following the initiation of pool sprays? If not, then an applicant can successfully argue that this item is not valid. If this phenomena <u>is</u> reproducible on the simulator, then include the exact values of containment parameters in the stem based on the simulator test. 2. Stem Focus: Provide the name and number of the level indicator being referred to in the fill-in-the-blank statement. 3. Stem Focus: Is the slight level rise going to occur immediately when sprays are initiated? If so, then the word "immediately" needs to be included. Or is this a gradual level rise? Discuss w/ licensee. 4. Licensee verified in the simulator. All other comments incorporated. Question is SAT.
22	H		X					X								E S	234000 A 4.02, High, Bank, 1. Stem Focus: An applicant can argue that there is no correct answer because of the words "adverse consequences" in the stem question. 2. Stem Focus: Instead of using the term "select block", re-word to test applicants' knowledge of whether or not 1) a rod can be selected and 2) whether the Control Rod Out Permissive light on the apron section will be lit or off. 3. Stem Focus: Provide the control rod number in the stem. 4. Stem Focus: The 3 rd and 4 th bullets are not necessary to elicit the correct response, i.e., the rod will be selected if it is being withdrawn and the rod select power will be on if it is being withdrawn. 5. Stem Focus: the words "for uncoupling" in the last part of the stem question are confusing in their placement in this question. These words are not necessary to elicit the correct response. 6. Stem Focus: Provide the position of the mode switch instead of saying the unit is in Mode 5 because the rod logic is critical for the applicant to deduce. 7. Job-Link: Include the name and number of the refueling procedure in the stem that's being used by the operator to uncouple the rod. 8. Comments incorporated. Question is SAT.

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				
23	F	2	X				X						X			E S	239002 A 4.04, Bank, Low 1. Stem Focus: remove the word "correct" from the Which one of the following (WOOTF) statement. 2. Partial: An applicant can potential argue that there is no correct answer because of the words "just reached" versus exceeded or at. 3. Stem Focus: The Blue Bar information is not needed to elicit the correct response. 4. Q=K/A: (borderline) The question is only asking for the alarm setpoint. None of the information about the SRVs is needed to get the correct answer. Discuss w/ licensee. 5. Comments incorporated. Question is now SAT.
24	H	3	X			X							X			U E S	259001 A 2.06, High, Bank, 1. Q=K/A: The KA is not being met because the question does not test the RO applicants' ability to use procedures. The 2 nd portion of the question can be answered without knowledge of procedures used to correct, control, or mitigate. Suggest testing RO knowledge of either AOP or APP specifics, i.e., the correct one to enter. 2. Q=K/A: The KA is not being met because the question does not test the applicants' knowledge of how a loss of AC power will affect the feedwater system. The proposed question tests the applicants' knowledge of how a loss of digital control signal affects the feed pumps; however, because the question does not require knowledge of power supplies, the K/A is not being met. Suggest modifying question so that the applicant is tested on the power supply to the DFCS. 3. Stem Focus: Split out the 2 nd bullet into two separate bullets, i.e., RFP Manual controller (include number) and DFCS Selector Switch (include number). 4. Cred Dist: Choices "C" and "D" are not plausible because the 2 nd bullet already provides information that controller is in Manual. 5. Question was originally ENHANCEMENT because Chief Examiner got RO vs SRO confused. [As long as the choices are procedurally directed actions, then the 2 nd part of the question meets the intent of the A2 K/A – EVEN IF SYSTEM KNOWLEDGE CAN BE USED TO DETERMINE THE CORRECT ANSWER.] 6. Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6.	7.	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A			
25	H	2	x			x									E S 259002 K6.04, High New, 1. Cred Dist: "B" and "D" are borderline plausible because the feedpumps speed will not change if the DFCS transfers to 1-element. The question needs to be re-worked to test the applicants knowledge of 1) Will RPV level change? And 2) Will DFCS transfer to 1-element or remain in 3-element. 2. Stem Focus: Put the statement in parenthesis (Assume NO operator Actions) 3. Stem Focus: Change stem to read: The unit is operating at power when a loss of the "B" Feed water Flow indicator occurs, WOOTF identifies the effect of this on DFCS control and reactor water level? 4. Comments incorporated. Question is SAT.
26	H	2	X						X						E S 261000 A3.01, New 1. Stem Focus or #/units: Re-word the stem question and the fill-in-the-blank statements (to be consistent with the control panel and eliminate the vague term "the RO would verify") as follows: <i>Given these plant conditions, which ONE of the following choices predicts the SBGT flow indications at the XU-51 panel?</i> SBGT Train A flow (FI-3150-1) is _____ scfm. SBGT Train B flow (FI-3151-1) is _____ scfm. 2. Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
27	F	2	X					X			X					E S	<p>262001 K6.01, Bank</p> <p>1. Stem Focus and/or Partial: The term "<i>manually initiated, automatically executed fast bus transfer</i>" uses conflicting words, i.e., manual and automatic.</p> <p>Suggest the following to ensure applicants cannot argue potentially partially correct answers are not confused:</p> <p>2. #/units: The fill-in-the-blank statements do not specify what voltage busses are being described, i.e., it should say 4KV Bus 1B, etc.</p> <p><i>A loss of 125VDC Panel 9A has occurred with the Unit operating at 100%.</i></p> <p><i>Which ONE of the following identifies whether the 4160 V Bus can still be manually transferred from its normal power source to its alternate source without a power interruption?</i></p> <p><i>4160 V Bus 1B _____ be transferred without power interruption.</i></p> <p><i>4160 V Bus 1C _____ be transferred without power interruption.</i></p> <p>A. <i>can still; can still</i></p> <p>B. can still; cannot</p> <p>C. <i>cannot; can still</i></p> <p>D. <i>cannot; cannot</i></p> <p>3. Comments incorporated. Question is SAT.</p>
28	F	2	X													E S	<p>262001 K6.02, New</p> <p>1. Stem Focus: The word "<i>correctly</i>" is not necessary to elicit the answer or to preclude an appeal since the question begins with "Which ONE of the following...".</p> <p>2. Stem Focus: Modify the fill-in-the-blank statements as follows: <i>The 2B RHR Pump _____ lost its power supply.</i> <i>The 2-E11-F015B, LPCI Inboard Injection Valve, _____ lost its power supply.</i></p> <p>3. Discuss w/ the licensee how this question is different than Q#7.</p> <p>4. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only				
29	F	3				X					X					E	<p>262000 G2.04.03, New</p> <ol style="list-style-type: none"> #/units: The term "UPS" needs to be specific as to the exact power supply bus, panel, etc., including the full noun name, i.e., 120 V UPS Distribution Panel 1-V9A (verify correct with the licensee). #/units: Each of the choices needs to have the exact component number and noun name as listed on its associated control panel label. For example, the Reactor Pressure Vessel Recorder should also include its associated number, C32-LPR-R608 Cred Dist: "D" is not plausible because the stem asks for one instrument (i.e., an instrument) whereas "D" is plural. Licensee subsequently determined (because of comment #1) that OI-50.5 load list stated that all PAM instruments are 125 VDC or E-bus power supply panels, i.e., K/A not applicable. Chief Examiner randomly re-selected K/A 262002, G2.411. Licensee re-worked question to test applicants' knowledge of whether the Loss of UPS requires AOP-2.0 entry and an action listed in AOP 12.0. (symptom from AOP-2.0 and TCC-V117 action) QUESTION IS SAT.
30	F	2				X					X					U S	<p>263000 K2.01, Bank</p> <ol style="list-style-type: none"> Cred Dist: "A" and "B" are not plausible because the turbine auxiliaries are never an ESF load <u>nor</u> are they (emergency oil pumps) typically AC loads; therefore, an applicant could eliminate these choices solely based on the presumption that the EBOP is not an ESF load or an AC load. Suggest providing all four choices with DC sources. #/units: Include the exact name and designator of the power supply to the EBOP (and for all distracters), e.g., 250 VDC Switchgear 1B, for Unit 1, 480VAC Bus E5., etc. Licensee incorporated comments. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
31	H	1				X	X									U S	<p>264000 A1.01, Bank</p> <ol style="list-style-type: none"> Cred Dist: "C" and "D" are not plausible because the fill-in-the-blank statement states that initially the DG2 oil temperature will _____ as the load on the diesel is increased. Since the 1st part of "C" and "D" states "lower", this is contrary to any engine, i.e., increasing load makes the oil get hotter. LOD=1: The 1st part of this question can be answered using knowledge from the generic fundamentals exam section (knowledge associated with an engine generating heat) even though this is the plant specific exam. Partial: An applicant can also argue that "B" is correct because the 2nd part of the question deals with a 3 way TCV. One part of the 3way TCV will throttle closed to ensure no oil is bypassing the heat exchanger; however, an applicant can argue that the other part of the 3way TCV is throttling open to admit more oil thru the heat exchanger. Licensee changed the question. New question is SAT.
32	H	2				X										E S	<p>264000 K1.07</p> <ol style="list-style-type: none"> Cred Dist: "A" (8 seconds) is not plausible because there is no electricity to the pumps yet. The stem states that the diesels energize the busses at 10 seconds. Since the site has lost power and the diesels haven't yet energized the busses, then there is no electricity available to the LPCI pumps. Ask the licensee when the diesels (what time) will auto-start based on the sequence of events. Discuss w/ licensee. Re-worked the time choices to eliminate 8 seconds. Question is SAT.

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				
33	H	2		X		X		X								E S	<p>272000 K 3.05, Bank, High</p> <p>1. Cred Dist: "D" is not plausible because IF the A SJAE rad monitor is in the INOP position (as stated in the stem) and then the B SJAE rad monitor lost power, THEN any <i>subsequent</i> hi-hi rad condition could never have any effect because there are only the two rad monitors and they're both out of service.</p> <p>"C" is not plausible because of the word <i>irrespective</i>, i.e., it's not logical for a system design that would allow the charcoal filters to be <i>continuously</i> bypassed <i>irrespective</i> of any radiation condition.</p> <p>Suggest keeping the 1st part of "A" and "B" and testing the applicants knowledge of another piece of knowledge associated such as the expected position of the inlet/outlet isolation valves or system flow indication.</p> <p>2. Job-Link: Is it acceptable to perform PT-4.1.7 when AOG is bypassed and a ODCM compensatory measure is required? Is it acceptable in accordance with ODCM 7.3.10 to operate the unit indefinitely when the AOG system is bypassed? Ask the licensee whether either unit has continuously operated with AOG bypassed. Discuss the feasibility of performing this type of test when the AOG is bypassed w/ licensee.</p> <p>3. Cue: Re word the stem as follows to avoid cueing the applicant to the status of the AOG system, instead, provide the position of the valve:</p> <p><i>Unit 1 is operating at 100% power with the AOG SYSTEM BYPASS VALVE, AOG-HCV-102, in the OPEN position and the control switch located at Panel XU-80 is in the AUTO position.</i></p> <p>4. Licensee re-worked the question. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
34	H	2	X												E	<p>288000 K1.04, Bank, High</p> <ol style="list-style-type: none"> Stem Focus: Add parenthesis after the stem question (<i>Assume each fan is started one-at-a-time</i>) to preclude an applicant stating that the total starting current may exceed the loading capability. Stem Focus: Re-word the stem question as follows to ensure clarity with respect to the 3850 KW value and number/type of fans being started: <i>WOOTF identifies whether the maximum allowed diesel generator load will be exceeded if:</i> <ul style="list-style-type: none"> two supply fans and two exhaust fans are powered from MCC 1XG and one supply fan and one exhaust fan are powered from MCC 1XH? <i>(Assume each fan is started one at a time.)</i> Comments incorporated. Question is SAT.
35	H	2				X				X					U S	<p>290002 G2.04.46, New</p> <ol style="list-style-type: none"> Cred Dist: "A", "B", and "D" are not plausible because "C" (correct answer) is the only choice that deals with the vessel. "B" and "D" are not plausible because there's no way that these conditions can be received without first getting "C." (subset issue too) Suggest testing the applicants' knowledge of when the RPV Flange Seal Leak alarm will be received (600 psig vs some other plausible pressure) and which additional alarm represents a failure of both O-rings (Seal Leakage Flow Detection Hi (wrong) OR PRI CTMT HI/LO PRESS (right)) #/units: Ensure that the annunciator location is provided in parenthesis following each alarm. For the exam, ensure that the exact annunciator window wording is used for all alarms (this question looks acceptable from the perspective of the wording on the alarms). Question re-worked to test applicants' knowledge of which O-ring had failed and the type of instrumentation used to detect this failure. Question is SAT.

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	Backward	Q=K/A	SRO Only			
36	F	2	X												E S	<p>290003 K4.01, New</p> <ol style="list-style-type: none"> 1. Stem Focus: Add the alarm window location in parenthesis after alarm window names provided in each choice. Ensure that the alarm wording is exactly as provided on the control board. 2. Stem Focus: spell out the word "auto" (automatically) and CREV (Control Room Emerg...) 3. Stem Focus: Re-word the stem question to ask the following: "Which ONE of the following valid alarm conditions will result in an automatic start of the CREV?" (consider each choice separately) 4. Comment incorporated. Question is SAT.
37	F	1													U S	<p>295001 K1.03, Bank</p> <ol style="list-style-type: none"> 1. LOD = 1: This question can be answered solely using the knowledge associated with the generic fundamentals exam section; i.e., when core flow goes down, the power that will cause transition boiling goes down. This is the plant specific written exam; therefore, the question should be associated with a plant specific knowledge. 2. Question re-worked to test applicants knowledge of 1 hour action associated with adjusting thermal limits following a single recirc pump trip.
38	H	2	X				X								E	<p>295003 A2.05, New</p> <ol style="list-style-type: none"> 1. Partial: An applicant can also argue that "B" is correct because it is not necessarily wrong to enter AOP-36.1 <i>first</i>..and THEN transition over to AOP-36.2. Because the choices aren't exclusive, then there is more than one correct answer. 2. Stem Focus: In the initial conditions, provide a list of all of the breaker indications associated with the SAT and UAT transformers, and switchyard PCBs to test the applicants' ability to determine the AC power availability based on control board indications. 3. Licensee re-worked question. Question is SAT.

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	Backward	Q=K/A	SRO Only				
39	H	2	X													E S	295004 A1.02, Bank <ol style="list-style-type: none"> 1. Stem Focus: State that HPCI and RCIC are being used to restore level and THEN a loss of Battery Bus 2A-1 and 2A-2 subsequently occurs. This will provide a timeline to ensure that the applicant assesses the <u>subsequent</u> loss of the battery busses on HPCI/RCIC operation. As currently written, it is unclear which comes first, the HPCI and RCIC running or the loss of the battery boards. 2. Stem Focus: The word "correctly" is not necessary to elicit the correct response since the stem question states which ONE of the following... 3. Stem Focus: Re-word the stem question as follows: <i>Given these plant conditions, WOOTF choices completes both statements?</i> 4. Stem Focus: Re-word the fill-in-the-blank statement to ask the applicant about the capability to trip on high water level (maintained or not). As written, the applicant may be confused that he/she is supposed to know the actual RPV water trend. 5. Stem Focus: Ask the licensee why the wording associated with RCIC tripping on high water level is different than the wording associated with HPCI tripping on high water level. 6. Comments incorporated. Question is SAT.
40	H	2														S	2950005 A1.07, Bank

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
41	F	2														U E S	<p>1. Q=K/A: The K/A is testing the applicants' knowledge of the definition of SHUTDOWN MARGIN in Tech Specs. The ATWS condition on Unit 2 is not related NOR is it needed to choose the correct answer. The K/A is supposed to test the applicants' knowledge of the ATWS condition as it relates to shutdown margin. Section 295006 in the K/A catalog is reserved specifically for the ATWS abnormal condition in BWRs and is a Tier 1 topic in the written exam sample plan. The question must test the applicants' knowledge of an ATWS. As written, the question only tests the applicants' recall of the Tech Spec definition of shutdown margin. Suggest changing the stem to make one of the other choices correct and this may hit the K/A, i.e., required minimum tank level at which a cooldown can be commenced.</p> <p>2. Chief Examiner didn't see that K/A was for "Scram" (NOT the ATWS condition discussed above.). Question was originally ENHANCEMENT. Licensee subsequently resolved by listing 9 rods at position 02 and testing applicants' knowledge of whether shutdown and the required procedure to insert rods.</p>
42	F	1	X									X				E S	<p>295008, K1.01</p> <p>1. LOD=1 and/or (borderline) Q=KA: The proposed test item may not meet the intent of the KA because it does not test the applicants' knowledge of the "so what" if lower steam quality exiting the vessel, i.e., the operational implications. Suggest testing the applicant's knowledge of the operational implication: turbine damage (correct) vs NPSH (incorrect).</p> <p>2. Stem Focus: The word "correctly" is not necessary to elicit the correct response because the stem states which ONE of the following.</p> <p>3. Comments incorporated. Question is SAT</p>
43	H	2	X													E S	<p>295014, A2.03</p> <p>1. Stem Focus: Re-word "A" to state: <i>An uncoupled control rod which was inserted at position 06 drops to position 48.</i></p> <p>2. Stem Focus: Re-word "C" to state: <i>Following the start of a circulating water pump, the 2A Recirc Pump speed rises from 62% to 64% speed.</i></p> <p>3. Stem Focus: Provide the initial and final values of core thermal power and main generator electrical output in the stem.</p> <p>4. Comments incorporated. Question is SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
44	F	2					X								E S	<p>295015 K3.01, New</p> <p>1. Partial: An applicant can successfully argue that "A" and "B" are also correct because RWM does input to the RMCS to initiate SELECT BLOCKS. The LEP-02 procedure provides guidance to override ALL blocks generated from the RWM to allow control rods to be selected and inserted. Suggest the following:</p> <p><i>WOOTF choices completes both statements in accordance with LEP-02, Alternate Control Rod Insertion?</i></p> <p><i>The RWM is bypassed using the _____.</i></p> <p><i>The reason that the RWM is bypassed position is because the _____.</i></p> <p>A. Keylock switch; Emergency Rod In Switch will not work when an Insert Block exists</p> <p>B. Joystick; Emergency Rod In Switch will not work when an Insert Block exists</p> <p>C. Keylock switch; Mode Switch in Shutdown generates a control rod block</p> <p>D. Joystick; Mode Switch in Shutdown generates a control rod block</p> <p>2. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
45	F	2	S			S									E S	<p>295016 G2.4.1, New</p> <ol style="list-style-type: none"> Note: It is acceptable to apply this generic K/A to the Control Room Abandonment AOP since no EOP for control room abandonment exists at Brunswick. Cred Dist: "A" and "B" are not plausible because the stem does not include information that could be mis-interpreted as a requirement to enter the ASSD network, i.e. no fire anywhere. Also, "C" and "D" are the only choices that include the phrase "control room" which is similar to the first two words in the question. This combination makes "A" and "B" not plausible. Suggest including information that a heater drain pump room fire is in progress and an unrelated toxic gas enters the control room. Suggest testing the applicants' knowledge of the next required action IAW AOP-32 (for Unit 1) once the turbine has been tripped. See the following choices: <ul style="list-style-type: none"> A. Immediately place the mode switch to shutdown <i>B. Wait until steam flow is 3x10 lbm/hr THEN place the mode switch to shutdown</i> <i>C. Trip both Recirc Pumps</i> <i>D. Manually scram the reactor</i> Stem Focus: The word "correctly" is not necessary to elicit the correct response because the stem states which ONE of the following. Discuss w/ licensee whether question is F or H level of knowledge. Licensee re-worked question. Question is SAT.
46	F	2	X			X									E S	<p>295018 A1.02</p> <ol style="list-style-type: none"> Cred Dist: "D" is not plausible because it is not a system load such as a pump. Suggest changing this choice to "indefinitely" and re-word the stem question as follows: Stem Focus: The stem question should include the phrase "without cooling water." Re-word the stem as follows: <i>A manual reactor scram was performed on Unit 2 following a complete loss of RBCCW. WOOTF identifies MAXIMUM time that a CRD pump can be operated without cooling water in accordance with OAOP-16.0, RBCCW System Failure?</i> Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other		6.	7.	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only	B/M/N			
47	F	2	X				X										E S 295019 G2.2.37, Bank 1. Partial: "A" can also be argued as correct if the applicant interprets the question to ask for the initial effect on the MSIVS, i.e., the accumulators will hold the MSIV open initially. Discuss w/ licensee. 2. Stem Focus: Re-word the 1 st sentence to be precise for the header that has depressurized, i.e., the Pneumatic Nitrogen Supply is not affected. Discuss the following w/ licensee: <i>The unit is operating at 100% power. The Unit 2 Non-Interruptible Instrument Air (RNA) Header pressure has lowered to 65 psig due to a leak.</i> <i>WOOTF predicts how the Outboard MSIVs will be affected if the RNA Header pressure remains at this value, including the reason?</i> A. <i>Remain open; the Pneumatic Nitrogen System is supplying the valve actuators in Mode 1</i> B. <i>Remain open; the Backup Nitrogen System is automatically re-aligned to the valve actuators</i> C. <i>Immediately close due to an automatic isolation signal</i> D. <i>Eventually drift closed due to the diminishing pneumatic supply to the actuator</i> 3. Comments incorporated. Question is SAT.

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	Backward	Q=K/A	SRO Only			
48	H	2						X							E	<p>295020 G2.4.1</p> <p>Note: Typically, the easiest way to hit the "Inadvertent Containment Isolation" K/A category is to write a question involving the trip of one RPS MG set.</p> <p>Note: The licensee stated that the Brunswick EOPs do not have any immediate operator actions, so the question was written for only the EOP entry portion of the Generic K/A statement > "<i>Knowledge of EOP entry conditions and immediate actions steps</i>". This approach (testing applicants' knowledge of EOP entry conditions) will work; however, discuss w/ licensee the option to test applicants' knowledge of those actions in the EOP network which require immediate action, e.g., unsafe region of graph requiring ED or ATWS conditions requiring immediate action to lower level. The term "immediate actions steps" is not exclusively referring to operation immediate actions in AOPs.</p> <ol style="list-style-type: none"> 1. Job-Link: An applicant can successfully argue that this question is invalid because following a reactor scram and inadvertent Group 1 isolation, the RVCP flowchart has already been entered. Even though the stem question specifically asks the applicants to identify the latest time before a manual reactor scram is required due to high torus temperature, this is irrelevant at the point when the scram and group 1 occurred. Suggest writing a question where an RPS MG set tripped and causes a SCCP flowchart or PCCP flowchart entry condition. Alternatively, write a question for a RIP valve penetration that is inadvertently closed during testing activities, that causes a half scram signal (alarm) in conjunction with some other plant condition that results in a full scram signal where the scram does not occur. 2. Licensee wrote question to test applicants' knowledge of 1st torus temp requiring PCCP entry and any additional EOP requirements. Question is SAT.

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				
49	H	2					X								M	U S	<p>295021 A2.02</p> <ol style="list-style-type: none"> There are several problems with this test question, which preclude it from being used on the exam. Chief Examiner grade as "U." Partial: "A" can be successfully argued as correct because if shutdown cooling is lost, eventually the vessel will re-pressurize into Mode 3. Partial: "B" can be successfully argued as correct because if vessel level was <i>decreasing</i>, then the REACTOR WATER LEVEL HIGH/LOW annunciator would be in alarm, even at the point at which the low level isolation occurred. Partial: An applicant can successfully argue that there is no correct answer because the way choice "C" is worded implies that the alarm is intermittently clearing and re-alarmed. This choice should be re-worded as "Annunciator CORE SPRAY OR RHR PUMPS RUNNING begins flashing, i.e., clears." Licensee replaced question with one testing alternate shutdown cooling knowledges. New Question is SAT.
50	F	1				X										U S	<p>295023 K3.03 Low, Bank</p> <ol style="list-style-type: none"> Cred Dist: Second part of C & D is not plausible because a "ground level" release will never be a reason for starting SBGT because this affects the general population. LOD=1: This question will not discriminate. <p>Suggest writing a question to test the applicants' knowledge of the required actions from AOP-5.0 following a dropped fuel bundle, including the reason why CREV is an immediate operator action.</p> <ol style="list-style-type: none"> Ensure final version does not overlap with Q 57 & 59 with respect to RB Vent Rad levels and RB HVAC and SBGT operation. Licensee re-worked to test applicants' knowledge of whether the auto isolation occurred and the reason why isolation is required. Question is SAT.
51	H	3	X			X										E S	<p>295024 G2.02.37 High, New</p> <ol style="list-style-type: none"> Cred Dist: B is not plausible because the HPCI turbine is still tripped, i.e., opening the discharge valve won't cause injection. Stem Focus: Re-word "D" to: <i>"only if the High Water Level Signal Reset Pushbutton is depressed FIRST and the Injection Valve manually opened."</i> Comments incorporated. Question is SAT.

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	Backward	Q=K/A	SRO Only				
52	H	3	X			X										E S	<p>295025 A2.05 High, New</p> <p>1. Stem Focus: The 2nd part of the stem question is difficult to understand because of the word "this decision" and the phrase "regardless of off-site power status."</p> <p>2. Stem Focus: It may not be clear to the applicants' that the question is NOT asking about inventory makeup, i.e., the design of RCIC to accommodate inventory at the 15 minute point after a scram is a very high plausibility answer if the applicant does not see that the stem question is asking for reactor pressure control.</p> <p>3. Cred Dist: D is not plausible because it suggests that HPCI and RCIC can provide enough steam flow immediately after a scram and it takes 2 hours to be within the capacity of just HPCI.</p> <p>4. Cred Dist: Second part of A & C are not plausible because they don't answer the question.</p> <p>5. Discuss a cleaner way to ask a 2 part question w/ the licensee.</p> <p>6. Licensee re-worked question. Question is SAT.</p>
53	H	3	X							X						E S	<p>295026 A1.01 High, New</p> <p>1. Stem Focus: Ensure that "C" and "D" are worded to imply a sequence; i.e., use the word "first."</p> <p>2. #/units: Ensure that the exact label wording for the Think Switch and the 2/3 core height switches are provided in this question. Do NOT use the word "Think" switch.</p> <p>3. Licensee stated that label says "Think Switch". Comments incorporated. Question is SAT.</p>
54	F	2				X	X					X				U S	<p>295028 K3.05 Low, New</p> <p>1. Backwards Logic: This 2-part question is disjointed because it mixes the requirement for a scram with the actions needed before initiating drywell sprays.</p> <p>2. Partial: "C" can also be argued as correct because if temperature cannot be restored and maintained less than 300 degrees a scram is also required.</p> <p>3. Cred Dist: The 2nd part of "A" and "C" should say "reactor operation at power is not allowed or desired without recirc pumps in service." ← this is the REASON for the scram IAW OI-37.8. If the 2nd part is worded as such, then the drywell cooler distracter choices don't make sense.</p> <p>4. Licensee re-worked question. Question is SAT.</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	Backward	Q=K/A	SRO Only			
55	F	2				X									E S	<p>295030 K2.09 Low, New</p> <p>1. Cred Dist: Cyan is not plausible because there is no information in the stem that suggests that the input would be bad. Suggest making a 2-part question keeping the yellow and red display answers but including another knowledge item associated with the SPDS display</p> <p>2. Licensee pointed out that Cyan is one of the colors listed on the process computer. Question is SAT.</p>
56	F	2	x				x								E S	<p>295031 K3.03 High, New</p> <p>1. Partial: The stem of the question creates a subset issue in that if 4700 gpm would provide adequate core cooling, then 5000 gpm surely would. Suggest re-wording the fill-in-the-blank statement as follows: <i>WOOTF completes the statement in accordance with 0EOP—1-UG?</i> <i>"With reactor water level at the _____, the minimum required injection rate from one core spray pump to ensure adequate core cooling is _____."</i></p> <p>A. <i>jet pump suction, 4700 gpm</i> B. <i>jet pump suction, 5000 gpm</i> C. <i>top of active fuel, 4700 gpm</i> D. <i>top of active fuel, 5000 gpm</i></p> <p>2. Stem Focus: Incorporate the User's Guide name and number in the stem as "in accordance with 0EOP-01-UG</p> <p>3. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
57	H	2	X			X									E S	<p>295032 K2.02 High, New</p> <p>1. Note: Ensure no Overlap with # 59 and 50 with respect to RB Vent Rad levels and RB HVAC and SBGT operation.</p> <p>2. Cred Dist: The 2nd part of "B" is not plausible, i.e., continuing to operate HVAC because the rad monitor reading are not reliable is not logical.</p> <p>2. Stem Focus: The stem question does not elicit the 2nd part of the choices. Split out each choice as follows:</p> <ul style="list-style-type: none"> A. Continue to operate HVAC; B. Continue to operate HVAC; C. Isolate HVAC and start SBGT; D. Isolate HVAC and start SBGT; <p>3. Licensee re-worked to test applicants' knowledge of whether to continue or to ensure isolation, including the reason. Question is SAT.</p>
58	H	3	X				X								E S	<p>295033 A1.05 High, New</p> <p>1. Partial: An applicant can successfully argue that "D" is correct because RWCU is supposed to auto-isolate; therefore, it is always right to ensure automatic actions occur. Also, the applicant can argue that not enough information is presented in the stem to absolutely pinpoint the leak on the SDV. There could be other sources that an applicant can argue. Discuss the following with the licensee:</p> <p><i>WOOTF identifies the source of the leak and the required actions?</i></p> <ul style="list-style-type: none"> A. SDV; open 7 ADS valves B. RBCCW; open 7 ADS valves C. SDV; cooldown with Tech spec limits D. RBCCW; cooldown within Tech spec limits <p>2. Stem Focus: Change the Rad and Temperature values to "approaching max safe."</p> <p>3. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
59	F	2	X			X									E S	<p>295035 A1.01 Low, Bank</p> <p>1. Ensure no overlap with 57 & 50 with respect to RB Vent Rad levels and RB HVAC and SBTG operation.</p> <p>2. Cred Dist: A is not plausible because the choice does not provide the location of the area rad monitor, i.e., "A" only states the alarm window but should also state the rad monitor location causing the alarm (a plausible one). As written, the ARM could be anywhere in the Rx Bldg.</p> <p>3. Stem Focus: Re-word the stem question to include the phrase "a condition that <u>automatically</u> trips the Reactor Building..."</p> <p>Alternatively, consider the following: <i>The unit is operating at 100% power and the following alarm is received:</i> RX BLDG DIFF PRESS HIGH/LOW WOOTF completes the following statement? <i>The Reactor Building Supply and Exhaust Fans _____ receive a trip signal and the Standby Gas Treatment System _____ receive a start signal.</i> A. will / will B. will / will NOT C. will NOT / will D. will NOT / will NOT</p> <p>4. Comments incorporated. Question is SAT.</p>
60	F	1				X									U S	<p>295037 K1.03 Low, New</p> <p>1. LOD=1: An applicant can answer this question based on the knowledge from the generic fundamentals exam section. This is the plant specific written exam.</p> <p>2. Cred Dist: "A" and "B" are not plausible because voids are not a positive reactivity effect.</p> <p>3. Licensee re-worked question to test applicants' knowledge of the minimum SLC tank level and the pounds of borax required. Question is SAT.</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	Backward	Q=K/A	SRO Only			
61	H	2				X									U S	<p>295038 K2.10 Low, New</p> <p>1. Cred Dist: The 2nd part of "B" and "D" are not plausible because a the reason for a Hi radiation alarm is never to prevent a hydrogen explosion.</p> <p>Suggest writing a question dealing with a reactor startup when the MVPs are running and the operator subsequently receives high MSL rad. Test the applicants' knowledge of the auto-actions (MVP trip and OG-V7 closure). K/A will be hit from the standpoint that MSL rad is indirectly related to high offsite release rate. Alternatively, write a question dealing with the entry conditions associated with EOP-04-RRCP and actions related to off-gas system.</p> <p>2. Licensee re-worked question to test applicants' knowledge of how hogging pumps respond to one MSL rad monitor being in the Hi-Hi alarm condition. Question is SAT.</p>
62	F	2	X												E S	<p>300000 K5.13 Low, Bank</p> <p>1. Stem Focus: Remove "as the filter continues to plug".</p> <p>2. Comments incorporated. Question is SAT.</p>
63	F	2	X				X								E S	<p>400000 K4.01 Low, Bank</p> <p>1. Note: Because NUREG 1123 does not include a category for service water, the service water system (at Brunswick) can be classified as a "component cooling water system" in the "Plant Service Systems." Refer to OL Feedback FAQ 401.51. This is acceptable to hit K/A</p> <p>2. Ensure no overlap with scenario event?</p> <p>3. Stem focus: Add CSW before system in the beginning of the stem. Discuss the location of the pressure transmitter w/ the licensee to ensure that an applicant cannot argue no correct answer.</p> <p>4. Stem Focus and/or Partial: If the applicant does not know the auto-start set point of the standby pump, he/she can deduce that "A" and "B" are not correct based on the way the fill-in-the-blank statement is worded., i.e., if he thinks 65 is the set point, then he will pick 40 psig to be sure because of the statement wording. The way the question is worded, even if 65 is correct, 40 will also be correct. Same argument for the 2nd part of the question. Suggest including the words "minimum" and "earliest time when" so eliminate this concern.</p> <p>5. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
64	F	2				X									E S	<p>600000 K2.01 Low, New</p> <p>1. Cred Dist: (borderline) The 2nd part of "A" and "C" is not plausible because a fire suppression system never waits for the system to shutdown before it initiates, e.g., sprinkler systems initiate when the fire is in progress. IF the plausibility is that the train will experience high temperature during a LOCA, then there may be some plausibility to these choices.</p> <p>Recommend for 2nd part: <i>If a fire is indicated, the fire suppression system for a SBGT carbon bank _____ automatically inject. (Assume No Operator Actions).</i> Answer is <i>will</i> or <i>will NOT</i>.</p> <p>2. Comments incorporated. Question is SAT.</p>
65	H	2	X				X								E S	<p>700000 K1.02 High, New</p> <p>1. Stem Focus: Add "windings" after <u> (1) </u>.</p> <p>2. Stem Focus: Change "would overheat" to "could overheat". You are right on the line if you have 60 psig hydrogen.</p> <p>3. Job-Link: Discuss the associated hydrogen pressure and 100% load with the licensee to ensure that the plot on the spider graph is correct. Licensee provide rated power? The attachment looks like ~960 MWe. Licensee state if the distribution curve going to be an attachment?</p> <p>3. Stem Focus: Re-word the fill-in-the-blank statement to use the words "most limiting component." Break up the fill-in-the-blank statement into two sentences.</p> <p>4. Comments incorporated. Question is SAT.</p>
66	F	2													S	<p>G2.01.27 Low, New</p> <p>1. Stem Focus: Provide an "in accordance with" phrase in the stem question. Cannot be system description, must be licensed document such as Tech Spec Bases.</p> <p>2. Comment incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only			
67	H	2	X			X									U E S	G2.01.31 Low, New 1. Cred Dist: "C" & "D" are not plausible because the controls for the CREV system are on U2 only (no switch on Unit 1) and because the damper (RED) indication will always be correct when the fan is running. 2. Stem Focus: Change Red to Open and Green to Closed. 3. Changed original classification from U to E because the mechanical equipment room fans have to be placed in the OFF position. Comments incorporated. Question is SAT.
68	H	2	X												E S	G2.01.39 High, Previous Exam 1. Stem Focus: Re-word "D" as follows: <i>"states that rod positioning restrictions may be waived in the Scram Avoidance Region of the power to flow map."</i> 2. Licensee re-worked to test applicants' knowledge of when single notch (vs continuous) is required/allowed using a fill-in-the-blank statement on page 27 of OI-1.02. Question is SAT.
69	F	2	X												E	G2.02.04 Low, Bank 1. Overlap with the in-plant JPM. Discuss w/ the licensee. 2. Stem Focus: Re-word the stem to make "A" read as follows: <i>"The Electric Fire Pump can only be started locally."</i> This will ensure it's plausibility. 3. The JPM tested applicants' ability to locally start electric fire pump whereas this question tests applicants' knowledge of which control room location could start fire pump. Comment incorporated. Question is SAT.

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	Backward	Q=K/A	SRO Only			
70	F	2	X				X								E S	<p>G2.02.25 Low, New</p> <ol style="list-style-type: none"> 1. Partial: To ensure no other answers can be argued as correct, include the phrase "in accordance with Tech Spec Bases 2.1.1, Reactor Core Safety Limits" to the stem question. 2. Stem Focus: Eliminate the fill-in-the-blank statement so that the correct choice can exactly match the sentence on page B2.1.1-1 of the TS bases. 3. Stem Focus: make the wording for "A" and "B" exactly match the 10CFR50 wording associated with the ECCS design criteria. <i>"The calculated total oxidation shall no where exceed 0.17 times the total cladding thickness before oxidation."</i> <i>"The calculated changes in core geometry shall be such that the core remains amenable to cooling."</i> 4. Comments incorporated. Question is SAT.
71	H	3	X			X									E S	<p>G2.02.39 High, Bank</p> <ol style="list-style-type: none"> 1. Stem Focus: State what happened with the other CRD pump... failed to start, tagged out... 2. Stem Focus: Include the phrase <i>"in accordance with" Tech Spec 3.1.5, Control Rod Scram Accumulators.</i> 3. Cred Dist: C is not plausible because IF an immediate scram is required, waiting for AO confirmation is never required. <i>Recommend answers for :</i> A. Scram is required immediately. B. Restore charging water header to > 940 psig within 20 min or scram. C. Fully insert CR 18-19 immediately and declare INOP within 1 hour. D. Scram is required ONLY if a second accumulator alarm is received. 4. Comments incorporated. Question is SAT.

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			
72	F	2				X									U S	<p>G2.03.14 Low, New</p> <ol style="list-style-type: none"> 1. Cred Dist: "A" and "B" are not plausible because with more hydrogen there is more radiation. Before hydrogen was added, turbine building rad levels were drastically lower. When hydrogen water chemistry is in service, there's always higher rad levels. Suggest testing the applicants' knowledge of the second portion of the fill-in-the-blank statement and one other piece of knowledge. 2. Licensee to explain the distracter analysis which states being at a lower power level as if a power reduction had occurred and had something to do with the answer. Explain. 3. Licensee re-worked question to test applicants' knowledge of how reactor power is derived for the HWC system and why the turbine bldg rad levels rise. Question is SAT.
73	F	2				X									E S	<p>G2.03.15 Low, New</p> <ol style="list-style-type: none"> 1. Cred Dist: "D" not plausible because there is not a way to read this number on this meter. Recommendation: Is there an interlock or required action associated with this meter or this rad level? Make it a 2 part question. 2. Question should have been SAT because licensee explained credibility of D.
74	F	2				X									U S	<p>G2.04.01 Low, Bank</p> <ol style="list-style-type: none"> 1. Cred. Dist: "A" not plausible because it's the only answer that doesn't involve a vent path and the question asks for entry to a "Release" control procedure. 2. Cred. Dist: "D" not plausible because entry to any procedure associated with radiation release is always at the HI alarm (Choice "C") versus the HI-HI alarm (Choice "D"). Ask the licensee for an example. 3. Licensee re-worked question. Question is SAT.

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			
75	H	3	X				X									<p>E S</p> <p>G2.04.09 High, Bank</p> <p>1. Stem Focus: Not sure if CRD is the only system injecting or its available and nothing is injecting. If CRD is the only system injecting and 19 CRs are still out, is it plausible that reactor water level is stable? Need to clarify.</p> <p>2. Partial: Ask the licensee when the APRM downscale lights (apron section) illuminate. The annunciator set point is 2.4%. If the downscale lights (apron section) have the same set point as the annunciator, then there is a possibility for multiple correct answers. The EOP asks whether the operator can determine power to be below 2%; however, there is no information in the stem to positively determine that the power level is less than 2%. Licensee explain how the information provided establishes power less than 2% or modify the question stem to do so.</p> <p>3. Licensee provided technical reference which allows using the apron section lights even though setpoint was 2.4 % (EOP-01-NL, page 68 of 256). Question is SAT.</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	Backward	Q=K/A	SRO Only				
76	F	3	X										X	X		U S	<p>204000 G 2.02.25, NEW, Low,</p> <p>1. Q=K/A: The current question tests applicants knowledge of a PCIS instrument, i.e., SLC control switch, which is testing the knowledge that SLC "needs" cleanup isolated only when the rods are out. The proposed question is not testing Tech Specs associated with RWCU, instead, it is testing Tech Specs knowledge associated with when SLC is required.</p> <p>There are RWCU Tech Specs for F001 & F004, or sampling; suggest testing knowledge associated with PCIV F001 being inoperable, including either procedure selection or tech specs (or bases) knowledge. Ensure no overlap with Q# 83. If these are not doable, then discuss replacing K/A with Chief Examiner.</p> <p>2. SRO-only: The 1st part of the question can be deduced using the knowledge of "when" the SLC PCIS function is required; i.e., only when rods are withdrawn > Modes 1 & 2. ROs are expected to know the LCO statement and applicability, i.e., the information "above the line"; i.e., when the equipment is required to be operable, i.e., pumps, valves, etc. The 2nd part of the question can be deduced <u>solely</u> using systems knowledge of the rod block logic and mode switch position. Just because the information is listed in the bases does not mean that the question requires bases knowledge to answer.</p> <p>3. Stem Focus: The word "NOT" is to be avoided. Re-work question to avoid the use of the word NOT in the stem fill-in-the-blank question.</p> <p>4. Stem Focus: The grammar associated with the 2nd part of choices "A" and "C" does not flow with the grammar of the fill-in-the-blank statement.</p> <p>5. Licensee stated that the RWCU portion of the PCIS Tech Spec included the SLC control switch, i.e., the SLC control switch was an RWCU PCIS instrument; however, the proposed question can still be answered solely using RO knowledge.</p> <p>6. Licensee re-worked question to test SRO applicants' knowledge of TS 3.6.1.3 content. Question is SAT.</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	Backward	Q=K/A	SRO Only			
77	H	3	X			X									E S	<p>212000 A2.12, Bank, High</p> <ol style="list-style-type: none"> Chief Examiner Note: This question may be an EXACT repeat used on a recent Brunswick NRC exam. Suggest an enhancement to change the 2nd part of the question to test applicants knowledge of the tech spec bases knowledge associated with the control valve fast closure signal, i.e., <u>the reactor scram reduces the amount of energy required to be absorbed and ensures that the MCPR SL is not exceeded.</u> Cred Dist: Ask the licensee to explain why "C" and "D" are plausible. If the <u>only</u> reason is that this question was previously used on another NRC exam, then modify the stem with other voltage and frequency indications to make "C" and "D" more plausible. Stem Focus: Make this question a little easier to read. Separate the alarms with a descriptor that states; the following alarms are in alarm I or words to that effect. #/units: In the explanation of the question, the abbreviations TCV and TSV are used, however, these are NOT used in the question. Is there a reason for this? Should the word Turbine be put in each of the first parts of the question? Comments incorporated. Question is SAT.
78	H	3				X	X								U E S	<p>214000 A 2.03, New, High</p> <ol style="list-style-type: none"> Cred Dist: The 2nd part of "B" and "D" are not plausible because 1) the stem does not include any information which may make these choices plausible; 2) a SRO applicant who does <i>not</i> know the requirements of Tech Spec 3.1.3 can reasonably deduce that these choices do not place the failed equipment in a safe condition and 3) the actions listed in the 2nd part of "B" and "D" do not exist in Tech Spec 3.1.3. The package indicates the question is both, Low Cog Level and High Cog level. Ask licensee to identify which it is? Licensee argued that based on the fact the Control Rod Operability TS 3.1.3 Action C contained a note dealing with RWM TS 3.3.2.1 this question should only be ENHANCEMENT. Partial: Chief Examiner subsequently pointed out that based on their argument, then "D" was also a correct answer. Comments incorporated. Question is SAT.

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			
79	H	3		X									X		E S	<p>217000 G2.04.08, New, High</p> <ol style="list-style-type: none"> SRO-only: The listed actions include RO knowledge of the ATWS/EOP overall mitigative strategies [i.e., ROs are required to know 1) that RCIC is not required to be terminated and prevented and 2) is the only available source for boron injection.] One area of SRO level knowledge (with respect to prescribing or selecting a procedure) is knowledge of the content of the procedure versus knowledge of the procedure's overall mitigative strategy or purpose. <u>If</u> the question was linked to 10CFR55.43 (b) (5) [procedure selection], then the applicant must be tested on which procedure is required without the accompanying actions listed in each choice. Suggest testing the applicants' knowledge of 1) whether RCIC is required (or not required) to be isolated (this hits K/A) and 2) which procedure leg is used to perform emergency depressurization later. Cues: Instead of using the phrase "Given the following ATWS conditions..." say "The following conditions currently exist on Unit Two." Applicant should be able to deduce an ATWS exists. Removed the "terminated and prevented" and re-worked question to a 2-part question to test SRO applicants' knowledge of whether RCUC was required to remain running or be isolated AND the procedure which directs this action (AOP-5 or SCCP). Question is SAT.

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	3	X				X						X		E S	<p>233000 G 2.04.06, New, High</p> <ol style="list-style-type: none"> Partial: From an appeal standpoint, there may be room for an applicant to argue no correct answer based on the stem wording of "first makeup source to be used." Does AOP-38 <i>clearly</i> state that there is a preferred order? [AOP-38 lists items in an order of 1, 2, 3, and so on; however, an applicant can successfully argue that this listing does not constitute an implied hierarchy.] Discuss the word "first" in the stem question w/ the licensee. SRO-only: Modify the stem to clearly test the applicants' knowledge of 1) which procedure is required and 2) whether or not RRCP is required to be entered or not as follows: <ol style="list-style-type: none"> AOP-38; RRCP is required to be entered AOP-38; RRCP is NOT required to be entered 0EDMG-002; RRCP is required to be entered 0EDMG-002; RRCP is NOT required to be entered Stem Focus: The 2nd bullet information about the test weight is not needed to answer the question. The bullet can simply say that fuel pool level is rapidly lowering. Licensee argued that procedure did specify a hierarchy. Some of the amplifying comments in the choices (i.e., "hoses and via Fuel Pool cooling") were eliminated to add plausibility. Question is SAT.

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				
81	F	1					X									E S	<p>239002 G2.02.025, New, Low</p> <ol style="list-style-type: none"> Partial: "D" can also be argued as correct since the TS bases has the following wording: <i>"The overpressure protection system must accommodate the most severe pressurization transient. Evaluations have determined that the most severe transient is the closure of all main steam isolation valves (MSIVs), followed by reactor scram on high neutron flux (i.e., failure of the direct scram associated with MSIV position)"</i> Re-work the 2nd part of the question to be <u>EXACT</u> with the bases wording (do not paraphrase) and ensure plausibility of alternate choice. Add a line space between the first part between identifies: and the (1). LOD = 1; This question may not discriminate between a competent and incompetent operator. If the comments for item #1 are incorporated, this may remedy. Discuss w/ licensee. Licensee re-worked question to align more closely with the basis. Comments incorporated. Question is SAT.
82	H	3	X													E S	<p>262002 G 2.01.23, New, High</p> <ol style="list-style-type: none"> Stem Focus: The first sentence is not needed to elicit the correct answer. Suggest re-working the stem to present the applicant with the corresponding alarms that are present following the loss of the Main Stack Rad Monitor normal power supply (<u>all</u> alarms that would be received), and then testing the applicants knowledge of the 1) failure and 2) required procedure and/or tech specs. LOK: Do not agree with level of knowledge. This question is a memory not a higher cognitive question. Stem Focus: Underline the word <u>lost</u> to ensure the applicants read this word or bold, whatever is ok. Licensee argued that the plausibility of U1 procedures is because the power supply will originate from U1 AFTER transferring. Licensee argued that asking the procedure was minutia (based on validation); however, Chief Examiner disagreed. Question is SAT.

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			
83	H	3	X				X								E S	<p>295006 G 2.02.22, New, High</p> <ol style="list-style-type: none"> Ensure this question does not overlap the re-worked Q#76 Note to Chief Examiner: The first part of the question (1) tests the applicants' knowledge of which piece of equipment (level switch alarm or isolation valve) has malfunctioned and the associated TS, which is RO knowledge. [ROs are expected to know the LCO statement, applicability, and any notes, i.e., the information above the double line separating the actions from the LCO and applicability statements for standardized TS.] The second part of the question (2), requires the applicant to understand <i>when</i> the TS action statement must be timed from. This requirement is identified in 0EOP-01-UG and appears to be SRO-only knowledge. Partial: "C" can also be argued as correct since the words "when the condition occurred" are vague; i.e., an applicant can argue that this phrase means the same thing as "RSP is exited." Suggest adding times to the stem (for when F004 failed to close and when EOPs were exited) and then suggest the following: <i>Which ONE of the following identifies the required actions in accordance with 0EOP-01-UG and Tech Spec 3.6.1.3, Primary Containment Isolation Valves (PCIVs)?</i> <ol style="list-style-type: none"> The LCO start time is 09:00; The required Tech Spec 3.6.1.3 actions for the F004 are fully met The LCO start time is 11:00; The required Tech Spec 3.6.1.3 actions for the F004 are fully met The LCO start time is 09:00; The required Tech Spec 3.6.1.3 actions for the F004 are NOT fully met The LCO start time is 11:00; The required Tech Spec 3.6.1.3 actions for the F004 are NOT fully met Stem Focus: Is it necessary to have the reason for the inability for F004 failed to close due to motor overload? Instead, can it be limited to "failed to close on a valid signal?" What clue does the information provide or NOT provide. Stem Focus: Is RSP a recognized abbreviation? If not add Reactor Scram procedure. The full name is used in question 84. Comments incorporated. Question is SAT.

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			X										U S	<p>295008 A 2.05, New, Higher</p> <ol style="list-style-type: none"> 1. Cred Dist: "B" and "D" are not plausible because the stem states that a scram has occurred; therefore, the guidance for water level control is not in accordance with an alarm response procedure. An unknowledgable SRO applicant can correctly arrive that "C" is correct solely based on knowledge of shrink and swell effects after opening an SRV <i>IF</i> he knows that the water level control is in the scram procedure. This is RO knowledge of overall mitigative strategy. Because the applicants know that the EOP network has been entered, an alarm procedure is not plausible. 2. Stem Focus: Remove the word "<i>correctly</i>" in the first sentence. 3. Stem Focus: Add a line space between the first sentence and the first question. 4. Stem Focus: In (1), need to underline <u>initial</u> this will ensure the applicants know where they are being asked to determine the response. We could actually use the word IMMEDIATE. 5. Licensee re-worked question to change to RVCP procedure decision step. Question is SAT.

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
85	H	2	X			X							X		U E S	<p>295014, G 2.01.25, New, High</p> <ol style="list-style-type: none"> Cred Dist: "D" is not plausible because nothing in the stem identifies that turbine bypass is or is NOT out of service to invoke TS 3.7.6. Discuss w/ licensee. "B" is not plausible because it lists an administrative procedure requirement for a manual reactor scram. SRO-only: (borderline) Since each of the procedure choices include an accompanying action, an applicant may be able to deduce the correct answer using the RO knowledge associated with the overall strategy for reducing feed water temperature, including the requirements for a unit shutdown or immediate scram. To target "procedure selection", streamline each choice to only list a procedure (no actions). Alternatively, re-work the stem to test the applicants knowledge of the reasons and Tech Spec allowances following an inadvertent reactivity addition as for the following proposed choices: <ol style="list-style-type: none"> <i>Unit Operation within the bounds of the Loss of Feedwater Heating Analysis is assured</i> <i>A thermal limit penalty is required in accordance with Tech Specs for continued operation</i> <i>Unit Operation within the bounds of the Loss of Feedwater Heating Analysis is assured</i> <i>A thermal limit penalty is NOT required</i> <i>Unit Operation within the bounds of the Loss of Feedwater Heating Analysis is NOT assured</i> <i>A thermal limit penalty is required in accordance with Tech Specs for continued operation</i> <i>Unit Operation within the bounds of the Loss of Feedwater Heating Analysis is NOT assured</i> <i>A thermal limit penalty to allow continued operation is NOT allowed; a unit shutdown is required</i> Stem Focus: The stem needs to be tightened, example, the applicants do not know, from the way the question is now, how much the bypass valve is open. We need to add that it is FULL open, so there is no question when it comes to determining if distractors actions will or will not work. Stem Focus: The first sentence could be shortened to make it easier to read. Add the last sentence to the first. "Unit 2 is operating at 74% power with an initial FW Temperature of 404 F when" This would be better.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				B/M/N
																	<p>5. Stem Focus: Since the required action is listed in 2OP-32, this should be in the stem of the question to ensure no other plant procedure can create another partially correct answer.</p> <p>6. Licensee argued that since OI-1.01 (BNP Conduct of Ops Supplement) stated that FWHOOS required a thermal limit penalty that "B" and "D" were plausible. Question should have originally been an ENHANCEMENT.</p> <p>7. Licensee re-worked question to test the SRO applicants' knowledge of whether continued operation was allowed and the required action or procedure. Question is SAT.</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				
86	H	3	X					X						X		U E S	<p>295021A 2.03, New, High</p> <ol style="list-style-type: none"> 1. SRO-only: RO knowledge can be used to eliminate "A" and "C" because the fuel pool system flow path requires the gates to be removed. Therefore, the correct answer ("B") can be deduced solely using RO knowledge of fuel pool system flow path and minimum required level for natural circ. Additionally, applicants are responsible for AOP entry conditions, including the overall mitigative strategy associated with AOP-15. Suggest testing applicants knowledge of Technical Specifications 3.4.7, 3.4.8, 3.9.7, and 3.9.8 for actions required for loss of RHR shutdown cooling. 2. Stem Focus: This question could be shortened to have a statement like #76 has, Which one of the following (WOOTF) completes the statement(s) below? 3. Stem Focus: Highlight the word "minimum" in (1). 4. Job Link: Does AOP-15.0 specifically preclude using the RHR loop for decay heat removal when the F009 is in mid-position? Are the pumps able to be manually started (on the Diesels) with only the F009 problem? Discuss w/ the licensee. 5. Stem Focus: Choices "A" and "C" provide the name/description using Alternate Decay Heat Removal, however, the procedure uses Alternate Shutdown Cooling Mode Utilizing the Fuel Pool Heat Exchangers (8.10 vs 8.16). Why not use the same words. The one in the procedure. 6. Stem Focus: PFCCS and SSFPC not defined. 7. Licensee argued that they had a section of OP-17 that allowed fuel pool cooling with the gates installed. Question should have been an ENHANCEMENT. 8. Licensee re-worked the item to test SRO applicants' knowledge of min required level (following a loss of SDC'g) for natural circ and the ALERT threshold point on RCS pressure. Question is SAT.

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	2	X						X				X			U E S	<p>295023 G2.04.49, New, High</p> <ol style="list-style-type: none"> Q=K/A: None of the choices present operator actions even though the K/A (and stem) require the applicant to identify the correct immediate operator action. <i>IF</i> the CREV automatically starts, then "<i>ensuring</i>" the CREV has started is not a required operator immediate action. What is the required operator immediate action? Discuss w/ the licensee. Additionally, this K/A may be very difficult to hit from the SRO license level since immediate operator actions are by their very nature "RO knowledge." Discuss replacing K/A with Chief Examiner, if necessary. Minutia: The proposed SRO portion of this question tests the applicants knowledge of details in FSAR Section 6.4.4.1.2 (Fuel Handling Accident Analysis) pertaining to a postulated fuel handling accident dose to the control room operator. The proposed question links a required automatic action to an accident analysis in the FSAR for a postulated fuel handling accident. Testing information in the FSAR is usually not done on the initial exam; however, if the licensee agrees that this level of detail is not minutia, then the stem should be modified to say "<i>in accordance with the FSAR Fuel Handling Accident Analysis.</i>" add line space between the question and (1). Stem Focus: Include "in accordance with ..." to the 1st item in the stem question, i.e., 0AOP-0.5.0. Stem Focus: The Design Fuel Handling accident is not explicit, is it a dropped fuel bundle as discussed in the stem of the question? Is this clear enough that the stem is a DBA? The 2nd portion of the stem question should include "in accordance with" something. Discuss w/ the licensee. The licensee argued that the CREV did not automatically start; therefore, question should have been an ENHANCEMENT. AOP-5, Section 4.0 has a general discussion section which supports the basis. Question is SAT.
88	H	3														S	<p>295026, A 2.03, High, Previous</p> <ol style="list-style-type: none"> List where this question was previously used (plant & year) in the question writeup. Verify w/ licensee exactly which portions of the HCTL curve will be provided to applicants to ensure that the directions for which line must be used are not provided (as listed in the UG).

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				
89	H	3	X				X									E S	295028 A 2.05, High, New, 1. Stem Focus: Delete the 1 st phrase in the first fill-in-the-blank statement, i.e., "As DW temperature rises" is not needed to elicit the correct response. 2. Partial: Why is "A" wrong? What proof does the licensee have that "A" is wrong? Verify on the simulator. 3. Licensee verified on the simulator. Comments incorporated. Question is SAT.
90	H	3	X										X			U S	295029 G 2.01.07, Bank, High 1. SRO-only: The SRO applicants' knowledge of procedure selection is not being tested because each of the choices includes an accompanying action associated with HPCI equipment limitations. RO knowledge can be used to determine that NPSH is not a concern (i.e., no need to lower rpm) and hot torus water is the need for transferring HPCI back to the CST. The SRO applicants ability to select the correct procedure is not being testing because the actions in each choice have their basis in HPCI equipment operating limitations. 2. Stem Focus: Change the stem question to ask "WOOTF completes the following statement?" 3. Licensee re-worked question to test SRO applicants' knowledge of reason for shifting sources during an ATWS w/ Gp 1 isolation AND procedure that requires. Question is SAT.

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	Backward	Q=K/A	SRO Only				
91	H	3	X													E S	<p>295038 G 2.02.42, High, New,</p> <p>1. Stem Focus: The words "controlling document" are not well defined since the document choices are Tech Specs and ODCM. Suggest re-writing the stem as follows: <i>The Unit is operating at 100% power and both SJAE Offgas Radiation Monitor readings have increased 50%. WOOTF completes the statement?</i> <i>In accordance with _____, the release rate must be confirmed within limits within _____.</i></p> <p>A. ODCM 7.3.2, Radioactive Gaseous Effluent Monitoring Instrumentation; 4 hours B. Tech Spec 3.7.5, Main Condenser Offgas; 4 hours C. ODCM 7.3.2; 12 hours D. TS 3.7.5, 12 hours</p> <p>2. Comments incorporated. Question is SAT.</p>
92	H	3	X										X			U E S	<p>3000000 A2.01, High, New,</p> <p>1. SRO-only: "B" and "D" can be eliminated using RO knowledge because the Service Air Low Pressure alarm procedure is associated with turbine building equipment; whereas the Rx Bldg BFIVs are located in the Reactor Building and are operated on a different air system. Once "B" and "D" are eliminated (using solely RO knowledge), then "C" can be eliminated solely by knowing the systems knowledge associated with SA-PV-5067. The SRO applicants' are not being tested on procedure selection because the correct answer can be deduced solely using RO systems knowledge.</p> <p>2. Stem Focus: In the stem, remove the words, "due to a malfunction of the Air Dryer," because this is not necessary to elicit the correct answer.</p> <p>3. Stem Focus: Delete the word "correct" in the stem question because this is not necessary to elicit the correct answer.</p> <p>4. Stem Focus: place a line space between the sentence WOOTF and (1). And put a line space between (1) and (2).</p> <p>5. Licensee argued that service air affects the Rx Bldg (as evidenced by Air Receiver low pressure). Question should have been ENHANCEMENT.</p> <p>6. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only				
93	H	3						X								E S	600000 G 2.02.37, High, New 1. Job Link: Has the licensee ever operated in Single Loop Operation for an extended period of time due to abnormal seal leakage? Discuss this with the licensee, if this has not been done, then an applicant can argue that the premise of the question is operationally invalid. 2. Job Link: The premise of the question is that the plant is implementing fire procedures; however, the choices represent "business-as-usual" operation procedures. The stem question asks for "the procedure which provides this guidance under the above plant conditions?" Do the fire procedures reference OAP-025, BNP Integrated Scheduling? Discuss w/ the licensee how the Integrated Scheduling procedure is related to fire procedures. The Site Incident Commander will request that MCC 2XA-2 be de-energized in accordance with a local fire procedure, not BNP Integrated Scheduling. Discuss w/ licensee. As written, this question does not appear to be operationally valid. 3. Licensee replaced with new question testing SRO applicants' knowledge of how a fire in the U2 Rx Bldg 20' North would affect RHR equipment AND the required procedure the CRS must enter. (pre-fire plan). Question is SAT.
94	H	2	X			X										U E S	G 2.01.05, High, New 1. Cred Dist: "B" and "D" are not plausible because 1) there is no action statement listed in TS 5.2.2, Facility Staff Organization, when staffing is below minimum and 3) the stem includes the term "ASSD"; therefore an applicant can reasonably "guess" that "A" and "C" are possible correct answers since both of these choices use the similar acronym. Suggest keeping the 2 nd part of the question as written (document which provides guidance for dropping below minimum complement) but develop another testable item for the SRO applicants. 2. Stem focus: The fill-in-the-blank statement should have the words "required by" instead of "provided by.. 3. LOK: Appears that this item is memory level. Discuss w/ the licensee how the applicant uses higher cognitive skills. 4. Licensee argued that there is a checklist listed in the LCOS computer program that targets Tech Spec 5.2.2 for writing an LCO against. Question should have been an ENHANCEMENT. 5. Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
95	H	3		X											S	<p>S 2.01.42, High, Bank</p> <ol style="list-style-type: none"> Cues: The first sentence is not necessary to elicit the correct response. Comment incorporated. Question is SAT.
96	H	3		X			X								E S	<p>S G 2/02/02, High, New.</p> <ol style="list-style-type: none"> Partial: An applicant can successfully argue that both "A" and "B" are correct, i.e., question would have to be deleted since the applicants can argue that if the equipment is inoperable, therefore it is unavailable from a Tech Spec perspective. Ask the licensee to provide documentation which states when 2OP-16, Section 8.12 is permitted. If not defined, then this further supports that two correct answers exist. Cues: Ensure that the proposed reference is not a direct look up. Licensee re-worked question to test SRO applicants' knowledge of operable/inoperable [when APP-A-3, 3-5 alarm present] AND available/unavailable. Question is SAT.

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	Backward	Q=K/A	SRO Only				
97	H	3	x	x			x	x								E S	<p>S G 2.02.22, High, New,</p> <p>1. Partial: An applicant can also argue "C" as correct because pump speed is causing the flow mismatch, i.e., the loop flow mismatch is a result of the pump speed mismatch; therefore both are correct. Suggest the following:</p> <p><i>Unit 1 is operating at 79% power with the following conditions:</i></p> <ul style="list-style-type: none"> • Jet Pump Flow Loop A 22 Mlbs/hr • Jet Pump Flow Loop B 33 Mlbs/hr • Total Core Flow (U1CPWTCF) 55 Mlbs/hr <p><i>WOOTF completes both statements in accordance with Tech Spec 3.4.1, Recirculation Loops Operating and Bases?</i></p> <p><i>The current Jet Pump Flow Mismatch _____.</i></p> <p><i>When Jet Pump Flows are NOT matched within limits, THEN _____.</i></p> <p>A. <i>Is within limits; the loop with the higher flow must be considered not in operation</i></p> <p>B. <i>Is NOT within limits; the loop with the higher flow must be considered not in operation</i></p> <p>C. <i>Is within limits; the loop with the lower flow must be considered not in operation</i></p> <p>D. <i>Is NOT within limits; the loop with the lower flow must be considered not in operation.</i></p> <p>2. Job Link: Discuss w/ the licensee when the criteria for mismatch loops changed from pump speeds to jet pump flows. Ask the licensee for the basis of why this change occurred.</p> <p>3. Stem Focus: For parameters provided in the stem, include the associated instrument ID #, including exact wording on the label.</p> <p>4. Cue: The 1st portion of the fill-in-the-blank statement contains a cue as to which loop must be considered not in operation. This information is not necessary to answer either the first or second portion of the statement.</p> <p>5. Comments incorporated. Question is SAT.</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	Backward	Q=K/A	SRO Only				
98	H	2-3				x	x									U S	<p>S 2.02.11, High, New,</p> <ol style="list-style-type: none"> Cred Dist: "B" and "C" are not plausible because if the containment pressure was very high to threaten the PCPL-A limit, then venting within <i>normal limits</i> does not make sense. If the applicants reason that venting within normal release limits is not logical when pressure is extremely high, then "B" and "D" can be eliminated. Partial: The stem uses the phrase "control drywell pressure" and does not specify the current value of drywell pressure and the trend; consequently, the applicant could assume that drywell pressure was 2 psig and argue that there is no correct answer or that "B" is also correct since both Section 1 and Section 2 attempt to vent the torus first within release limits to "control" the pressure. Suggest writing a two part question which tests applicants' ability to recognize conditions (trends, etc) when venting <i>within</i> offsite release rates <i>is required</i> and the correct procedure SEP-01 Section 2 or Section 3. Licensee argued; however, Chief Examiner disagreed. Licensee replaced item to test applicants' procedure selection knowledge. Question is SAT.
99	H	3	x			x										U E S	<p>SG 2.04.17, High, New</p> <ol style="list-style-type: none"> Cred Dist: "A" and "C" are not plausible because primary containment flooding will not remedy a situation when the reactor remains pressurized. Primary containment flooding is a level contingency not a pressure contingency. Stem Focus: The stem states that there are "non-ATWS conditions"; however, the term "<i>minimum alternate reactor flooding pressure</i>" is rooted in the ATWS event. This could cause applicants to choose the wrong answer. Suggest deleting the non-ATWS comment. Discuss w/ licensee. Licensee argued that Primary Containment Flooding was required when a minimum # of SRVs was not available during both non-ATWS and ATWS. Question should have been ENHANCEMENT. Comments incorporated (to streamline). Question is SAT.

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	Backward	Q=K/A	SRO Only			
100	H	3											x		U S	SG2.04.35 1. SRO-only: Based on the conditions provided in the stem, it is apparent that the scram air header failed to vent; i.e., venting the scram air header is required. This correct answer can be selected without having knowledge of the content of the procedure. The correct answer can be deduced solely using systems knowledge. 2. Licensee removed the titles and asked which section of the procedure was required. Verified w/ Ops Mgmt that this was not minutia since there are no titles for sub-sections of procedure. Question is SAT.

Facility: BRUNSWICK				Date of Exam: 4/20/10		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	BRN	N/A	RSB						
2. Answer key changes and question deletions justified and documented	N/A		N/A						
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	BRN		RSB						
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	BRN		RSB						
5. All other failing examinations checked to ensure that grades are justified	N/A		RSB						
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	BRN	N/A	RSB						
Printed Name/Signature		Date							
a. Grader	<u>BRUNO CABALLERO / B. Caballero</u>			<u>5-5-10</u>					
b. Facility Reviewer(*)	<u>N/A</u>			<u>N/A</u>					
c. NRC Chief Examiner (*)	<u>RICHARD S. BALDWIN / Richard Baldwin</u>			<u>5/5/2010</u>					
d. NRC Supervisor (*)	<u>LEALDOW T. WIDMANN / Lealdow Widmann</u>			<u>05/27/10</u>					
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.									