

Facility: <u>Farley 2013-301</u>		Date of Examination: <u>6/17/13</u>
Examinations Developed by: <u>Facility</u>		NRC
<u>Written</u> <u>Operating Test</u>		Written / Operating Test

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

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

## ES-201-2

## Examination Outline Quality Checklist

Facility: Farley Nuclear Plant    Date of Examination: June 17, 2013    Operating Test Number: FA2013-301				
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.	ft	no	ft
	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.	ft	no	ft
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	ft	no	ft
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	ft	no	ft
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.	ft	no	ft
	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.	ft	no	ft
	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.	ft	no	ft
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.	ft	no	ft
	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	ft	no	ft
	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.	ft	no	ft
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.	ft	no	ft
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	ft	no	ft
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	ft	no	ft
	d. Check for duplication and overlap among exam sections.	ft	no	ft
	e. Check the entire exam for balance of coverage.	ft	no	ft
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	ft	no	ft
a. Author <u>Billy Thornton / Billy Thornton</u> b. Facility Reviewer (*) <u>Gary Ohmstede / Gary Ohmstede</u> c. NRC Chief Examiner (#) <u>Phillip B. Capen / Phillip B. Capen</u> d. NRC Supervisor <u>NALCOLT T. WIDMANN / NALCOLT T. WIDMANN</u>		Printed Name/Signature Date 05/30/13 05/30/13 6/10/13 06/10/13		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

ES-201-3

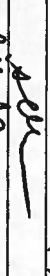


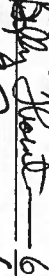






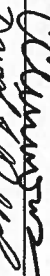



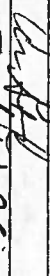
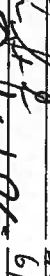




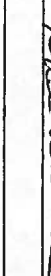
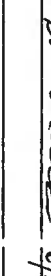




Examination Security Agreement

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the weeks June 17 - July 2, 2013 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of July 17 - July 25, 2013. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Gary Ohmstede	Lead Instr exam development		10-10-12		6-26-13	
2. Billy Thornton	OPS TRN INST / Facility author		10-22-12		6-26-13	
3. Aaron Forsha	OPS TRN INST / Facility author		10-11-12		6-26-13	
4. Stan Jackson	OPS TRN INST / Facility author		10-15-12		6/26/13	
5. Darryl Stevenson	Control Tech		10-17-12		6/26/13	
6. Mike Galle	Simulator Coordinator		10-12-12		6/26/13	
7. Candice Clemmons	Engineer II		10-11-12		6/26/13	
8. David L Reed	OPS Manager Support		10-30-12		6/26/13	
9. Tracey Forsha	Admin Asst.		10-31-12		6/26/13	
10. A. Wheeler, Eric	Nuclear Technician Specialist		2-05-13		6/26/13	
11. David Shipman	SSS		5-20-13		6/26/13	
12. Ronald Surber	Inspector / Supervisor		6-11-13		6/26/13	
13. Dan Williams	OPS Rec Evaluator		6-18-13		6/26/13	
14.						
15.						

NOTES:

ES-201-3

Examination Security Agreement

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the weeks June 17 - July 2, 2013 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of June 17 - June 25, 2013. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. <u>Lance Spence</u>	<u>PO</u>	<u>[Signature]</u>	<u>2/11/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	
2. <u>Robert McCreary</u>	<u>PO</u>	<u>[Signature]</u>	<u>11/20/13</u>	<u>[Signature]</u>	<u>7/2/13</u>	
3. <u>Doug Timmerman</u>	<u>SSS</u>	<u>[Signature]</u>	<u>2/11/13</u>	<u>[Signature]</u>	<u>6-27-13</u>	(2)
4. <u>Dave Hildebrandt</u>	<u>SS</u>	<u>[Signature]</u>	<u>2-11-13</u>	<u>[Signature]</u>	<u>6-27-13</u>	
5. <u>Tim Hillier</u>	<u>SSS</u>	<u>[Signature]</u>	<u>2/18/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	
6. <u>Will Sonnell</u>	<u>SSS</u>	<u>[Signature]</u>	<u>2/18/13</u>	<u>[Signature]</u>	<u>7/14/13</u>	
7. <u>Kevin Folmar</u>	<u>PO</u>	<u>[Signature]</u>	<u>2/25/13</u>	<u>[Signature]</u>	<u>7/2/13</u>	
8. <u>Christian Christian</u>	<u>SSJ</u>	<u>[Signature]</u>	<u>2/15/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	(1)
9. <u>Adam Hutchins</u>	<u>PO</u>	<u>[Signature]</u>	<u>2/25/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	
10. <u>Keith Greer</u>	<u>PO</u>	<u>[Signature]</u>	<u>3/11/13</u>	<u>[Signature]</u>	<u>6/28/13</u>	
11. <u>Keith Barrow</u>	<u>PO</u>	<u>[Signature]</u>	<u>3-4-13</u>	<u>[Signature]</u>	<u>7-1-13</u>	
12. <u>John Math</u>	<u>SSS</u>	<u>[Signature]</u>	<u>3/11/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	
13. <u>Roosevelt Scott Jr</u>	<u>PO</u>	<u>[Signature]</u>	<u>3-11-13</u>	<u>[Signature]</u>	<u>6/28/13</u>	
14. <u>Todd Smith</u>	<u>PO</u>	<u>[Signature]</u>	<u>3-11-13</u>	<u>[Signature]</u>	<u>6-28-13</u>	
15. <u>Janice Green</u>	<u>Admin</u>	<u>[Signature]</u>	<u>4-30-13</u>	<u>[Signature]</u>	<u>6-29-13</u>	

NOTES: (1) PER TELEPHONE ON 7/2/13 W/ [Signature] SS  
 (2) PER TELEPHONE ON 7/29/13 [Signature] SS

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ES-201-3



Examination Security Agreement

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the weeks June 17 - July 2, 2013 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of June 17 - June 25, 2013 from the date that I entered into this security agreement until the completion of examination administration. I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (X)	DATE	SIGNATURE (X)	DATE	NOTE
1. Ron Aiello	Exam Review		7/16/13		7/17/13	
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NOTES:



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

**1. Pre-Examination**

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the weeks June 17 - July 2, 2013 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

**2. Post-Examination**

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of June 12 - June 25, 2013. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. <u>MAT SCHMADOK</u>	<u>WGLC 3/4 LT LEAD</u>	<u>[Signature]</u>	<u>6/14/13</u>	<u>[Signature]</u>	<u>6/27/13</u>	
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NOTES:

Facility: <u>Farley Nuclear Plant</u> Examination Level: <b>RO X</b>		Date of Examination: <u>June 17, 2013</u> Operating Test Number: <u>FA2013-301</u>			
Administrative Topic (see Note)	Type Code*	Describe activity to be performed			
a. A.1.a Conduct of Operations	R, N	Title: Evaluate Inoperable Plant Computer Based Alarm Functions This will be a task to determine Acceptance Criteria by comparing GRPI to DRPI, and comparing NI readings to the COLR.  G2.1.37                      4.3/4.6			
b. A.1.b Conduct of Operation	R, D	Title : Determine The Minimum Amount And Duration Required For An RCS Boration Given an RCS Temp < 525°F and an emergency boration flowrate, determine the amount of boration required & the time of boration per AOP-27.0. [calculate per step 9.3]  G2.1.7 4.4/4.7              G2.1.25 3.9/4.2 G2.1.20 4.6/4.6			
c. A.2 Equipment Control	R, N	Title: RCP Seal Injection Leakage Test This will be a task to determine RCP SI leakage and evaluate Acceptance Criteria test per STP-8.0, RCP Seal Injection Leakage Test.  G2.2.12                      3.7/4.1			
d. A.3 Radiation Control	R, D	Title: Determine Access Personnel Exposure Determine if total personnel exposure for a containment entry is acceptable without exceeding the dose margin limits and which route allows the lowest exposure.  G2.3.4                      3.2/3.7			
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.					
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;">* Type Codes &amp; Criteria:</td> <td style="width: 55%;">           (C)ontrol room, (S)imulator, or Class(R)oom                      <b>4</b>            (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs &amp; RO retakes)                      <b>2</b>            (N)ew or (M)odified from bank (≥ 1)                      <b>2</b>            (P)revious 2 exams (≤ 1; randomly selected)                      <b>0</b> </td> <td style="width: 10%;"></td> </tr> </table>			* Type Codes & Criteria:	(C)ontrol room, (S)imulator, or Class(R)oom <b>4</b> (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) <b>2</b> (N)ew or (M)odified from bank (≥ 1) <b>2</b> (P)revious 2 exams (≤ 1; randomly selected) <b>0</b>	
* Type Codes & Criteria:	(C)ontrol room, (S)imulator, or Class(R)oom <b>4</b> (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) <b>2</b> (N)ew or (M)odified from bank (≥ 1) <b>2</b> (P)revious 2 exams (≤ 1; randomly selected) <b>0</b>				

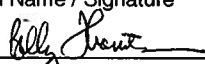
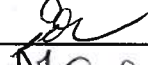


**ES-301-1****Administrative Topics Outline**

Facility: <u>Farley Nuclear Plant</u> Examination Level: <b><u>SRO X</u></b>		Date of Examination: <u>June 17, 2013</u> Operating Test Number: <u>FA2013-301</u>			
Administrative Topic (see Note)	Type Code*	Describe activity to be performed			
a. A.1.a Conduct of Operations	R, N	Title: Evaluate Inoperable Plant Computer Based Alarm Functions This will be a task to determine Acceptance Criteria by comparing GRPI to DRPI, and comparing NI readings to the COLR, then evaluate Tech Specs to determine if action is required. (SRO)  G2.1.37                      4.3/4.6			
b. A.1.b Conduct of Operation	R, D	Title : Determine The Minimum Amount And Duration Required For An RCS Boration Given an RCS Temp < 525°F and an emergency boration flowrate, determine the amount of boration required & the time of boration per AOP-27.0 [calculate per step 9.3]  G2.1.7 4.4/4.7                      G2.1.25 3.9/4.2 G2.1.20 4.6/4.6			
c. A.2 Equipment Control	R, N	Title: RCP Seal Injection Leakage Test This will be a task to determine RCP SI leakage and evaluate Acceptance Criteria test per STP-8.0, RCP Seal Injection Leakage Test, then evaluate Tech Specs. (SRO)  G2.2.12                      3.7/4.1			
d. A.3 Radiation Control	R, D	Title: Determine Access Personnel Exposure Determine if total personnel exposure for a containment entry is acceptable without exceeding the dose margin limits and which route allows the lowest exposure.  G2.3.4                      3.2/3.7			
e. A.4 Emergency Procedures/Plan <b>SRO ONLY</b>	R, D	Title: Classify an Emergency Event per NMP-EP-110, Emergency Classification Determination and Initial Action, and complete Checklist 1, Classification Determination.  G2.4.41                      SRO 4.6			
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.					
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;">* Type Codes &amp; Criteria:</td> <td style="width: 55%;">           (C)ontrol room, (S)imulator, or Class(R)oom            (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs &amp; RO retakes)            (N)ew or (M)odified from bank (≥ 1)            (P)revious 2 exams (≤ 1; randomly selected)         </td> <td style="width: 10%; text-align: right; vertical-align: top;"> <b>5</b>  <b>3</b>  <b>2</b>  <b>0</b> </td> </tr> </table>			* 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)	<b>5</b> <b>3</b> <b>2</b> <b>0</b>
* 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)	<b>5</b> <b>3</b> <b>2</b> <b>0</b>			



Facility: <u>Farley Nuclear Plant</u>			Date of Examination: <u>June 17, 2013</u>		
Exam Level: <b>RO</b> <input checked="" type="checkbox"/> <b>SRO-I</b> <input checked="" type="checkbox"/> SRO-U- <input type="checkbox"/>			Operating Test No.: <u>FA2013-301</u>		
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)					
System / JPM Title			Type Code*	Safety Function	
a. CRO-065C: Perform an Emergency Boration 024AA2.02 RO-3.9 SRO-4.4 024AA2.01 RO-3.8 SRO-4.1			A, D, L, S	1	
b. CRO-406A: Verify CTMT Isolation Phase "A" Is Actuated And Aligned 013A4.01 RO-4.5 SRO-4.8			A, D, L, S	2	
c. CRO-333C: Perform The Required Actions For Transfer to Simultaneous Cold Leg and Hot Leg Recirculation 006A4.07 RO-4.4 SRO-4.4 011EA1.11 RO-4.2 SRO-4.2			A, D, L, S	3	
d. CRO-043: (modified) Start the 1C RCP. 003A1.01 RO-2.9 SRO-2.9 003A2.02 RO-3.7 SRO-3.9			A, L, M, S	4P	
e. CRO-239: (modified) Align Service Water to the AFW System 061A1.05 RO-3.6 SRO-3.7 009EA1.11 RO-4.1 SRO-4.1 009EA2.39 RO-4.3 SRO-4.7			L, M, S	4S	
f. CRO-406E: Two Train Verification Of ECCS Equipment 064A4.06 RO-3.9 SRO-3.9			A, D, S	6	
g. CRO-071: Lower The Refueling Cavity Level Using The Residual Heat Removal System 034A1.02 RO-2.9 SRO-3.7			D, S	8	
h. CRO-395D: Obtain the Value of Thermocouple J12 017A4.01 RO-3.8 SRO-4.1			D, S, P	<b><u>RO ONLY</u></b> 7	
In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)					
i. SO-344: Start Up An Instrumentation Inverter 062A2.03 RO-2.9 SRO-3.4 057AA1.01 RO-3.7 SRO-3.7			D	6	
j. SO-New: Start the MDFP and #2 DDFP locally 086A3.01 RO-2.9 SRO-3.3 086A4.01 RO-3.3 SRO-3.3			E, N,	8	

j. SO-386: (Modified) Commence a Waste Gas Release 071A2.02 RO-3.3 SRO-3.6 071A4.09 RO-3.3 SRO-3.5 071A4.26 RO-3.1 SRO-3.9	M, R	9
@ 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	
(A)lternate path	4-6 / 4-6 (5/5)	
(C)ontrol room	(0/0)	
(D)irect from bank	≤ 9 / ≤ 8 (7/6)	
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 (1/1)	
(EN)gineered safety feature	- / - -----	
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 (5/5)	
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 (4/4)	
(P)revious 2 exams	≤ 3 / ≤ 3 (randomly selected) (1/0)	
(R)CA	≥ 1 / ≥ 1 (1/1)	
(S)imulator	(8/7)	

Facility: Farley Nuclear Plant    Date of Examination: June 17, 2013    Operating Test Number: FA2013-301				
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).	fg	ko	ph
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	fg	ko	ph
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	fg	ko	ph
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	fg	ko	ph
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	fg	ko	ph
2. Walk-Through Criteria		--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> <li>• initial conditions</li> <li>• initiating cues</li> <li>• references and tools, including associated procedures</li> <li>• reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee</li> <li>• operationally important specific performance criteria that include: <ul style="list-style-type: none"> <li>– detailed expected actions with exact criteria and nomenclature</li> <li>– system response and other examiner cues</li> <li>– statements describing important observations to be made by the applicant</li> <li>– criteria for successful completion of the task</li> <li>– identification of critical steps and their associated performance standards</li> <li>– restrictions on the sequence of steps, if applicable</li> </ul> </li> </ul>	fg	ko	ph
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.	fg	ko	ph
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.		fg	ko	ph
Printed Name / Signature		Date		
a. Author:	Billy Thornton / 	05/30/13		
b. Facility Reviewer(*)	Gary Ohmstede / 	05/30/13		
c. NRC Chief Examiner (#)	Phillip F. Capant / 	6/10/13		
d. NRC Supervisor	Malcolm T. Widmann / 	06/10/13		
NOTE:    * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

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

<b>Facility:</b> Farley <b>Date of Exam:</b> June 17, 2013 <b>Scenario Numbers:</b> 2/3/5/6 <b>Operating Test No.:</b> FA2013-301					
<b>QUALITATIVE ATTRIBUTES</b>		<b>Initials</b>			
		<b>a</b>	<b>b*</b>	<b>c#</b>	
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.	fg	no	AM	
2.	The scenarios consist mostly of related events.	fg	no	AM	
3.	Each event description consists of <ul style="list-style-type: none"> <li>the point in the scenario when it is to be initiated</li> <li>the malfunction(s) that are entered to initiate the event</li> <li>the symptoms/cues that will be visible to the crew</li> <li>the expected operator actions (by shift position)</li> <li>the event termination point (if applicable)</li> </ul>	fg	no	AM	
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.	fg	no	AM	
5.	The events are valid with regard to physics and thermodynamics.	fg	no	AM	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	fg	no	AM	
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.	fg	no	AM	
8.	The simulator modeling is not altered.	fg	no	AM	
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.	fg	no	AM	
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.	fg	no	AM	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	fg	no	AM	
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).	fg	no	AM	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	fg	no	AM	
<b>Target Quantitative Attributes (Per Scenario; See Section D.5.d)</b>		<b>Actual Attributes</b> <b>Scenario Numbers:</b> <b>2 / 3 / 5 / 6</b>			
1.	Total malfunctions (5-8)	7 / 10 / 10 / 8	fg	no	AM
2.	Malfunctions after EOP entry (1-2)	3 / 4 / 5 / 3	fg	no	AM
3.	Abnormal events (2-4)	4 / 5 / 5 / 4	fg	no	AM
4.	Major transients (1-2)	1 / 3 / 2 / 2	fg	no	AM
5.	EOPs entered/requiring substantive actions (1-2)	1 / 2 / 1 / 1	fg	no	AM
6.	EOP contingencies requiring substantive actions (0-2)	0 / 1 / 1 / 1	fg	no	AM
7.	Critical tasks (2-3)	3 / 2 / 3 / 2	fg	no	AM

Facility: **Farley Nuclear Plant**Date of Exam: **June 17, 2013**Operating Test No.: **FA2013-301**

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			5			6										
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
															R	I	U	
<b>M A S T E R</b>	RX		5			6			1							1	1	0
	NOR			5			2 6			1						1	1	1
	I/C	1 2 3 4 7 9	1 3 7	2 4 7 9	1 3 4 5 8 10	1 4 8	3 5 8 10	2 3 4 5 7	2 4 7	3 5 7						4	4	2
	MAJ	6 8 9	6 8 9	6 8 9	7 9	7 9	7 9	6 8	6 8	6 8						2	2	1
	TS	2 3 5			1 3 4			2 5								0	2	2
SRO-i <input checked="" type="checkbox"/>	RX														0	1	1	0
	NOR														0	1	1	1
	I/C														0	4	4	2
	MAJ														0	2	2	1
	TS														0	0	2	2
RO1 <input checked="" type="checkbox"/>	RX								1						1	1	1	0
	NOR														0	1	1	1
	I/C								2 4 7						3	4	4	2
	MAJ								6 8						2	2	2	1
	TS														0	0	2	2
BOP1 <input checked="" type="checkbox"/>	RX														0	1	1	0
	NOR			5			2 6								3	1	1	1
	I/C			2 4 7 9			3 5 8 10								8	4	4	2
	MAJ			6 8 9			7 9								5	2	2	1
	TS														0	0	2	2

## Instructions:

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

Facility: **Farley Nuclear Plant**Date of Exam: **June 17, 2013**Operating Test No.: **FA2013-301**

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			5			6										
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
															R	I	U	
<b>M A S T E R</b>	RX		5			6			1							1	1	0
	NOR			5			2 6			1						1	1	1
	I/C	1 2 3 4 7 9	1 3 7	2 4 7 9	1 3 4 5 8 10	1 4 8	3 5 8 10	2 3 4 5 7	2 4 7	3 5 7						4	4	2
	MAJ	6 8 9	6 8 9	6 8 9	7 9	7 9	7 9	6 8	6 8	6 8						2	2	1
	TS	2 3 5			1 3 4			2 5								0	2	2
SRO-i <input checked="" type="checkbox"/>  Renaud	RX														0	1	1	0
	NOR														0	1	1	1
	I/C	1 2 3 4 7 9						2 3 4 5 7							11	4	4	2
	MAJ	6 8 9						6 8							5	2	2	1
	TS	2 3 5						2 5							5	0	2	2
RO2 <input checked="" type="checkbox"/>  Renaud	RX					6									1	1	1	0
	NOR														0	1	1	1
	I/C					1 4 8									3	4	4	2
	MAJ					7 9									2	2	2	1
	TS														0	0	2	2
BOP2 <input checked="" type="checkbox"/>	RX														0	1	1	0
	NOR														5	1	1	1
	I/C														14	4	4	2
	MAJ														8	2	2	1
	TS														0	0	2	2

## Instructions:

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Facility: **Farley Nuclear Plant**Date of Exam: **June 17, 2013**Operating Test No.: **FA2013-301**

A P P L I C A N T	E V E N T  T Y P E	S c e n a r i o s													T O T A L	M I N I M U M (·)			
		3			5			6											
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N								
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P						
																R	I	U	
M A S T E R	RX		5			6			1								1	1	0
	NOR			5			2 6			1							1	1	1
	I/C	1 2 3 4 7 9	1 3 7	2 4 7 9	1 3 4 5 8 10	1 4 8	3 5 8 10	2 3 4 5 7	2 4 7	3 5 7							4	4	2
	MAJ	6 8 9	6 8 9	6 8 9	7 9	7 9	7 9	6 8	6 8	6 8							2	2	1
	TS	2 3 5			1 3 4			2 5									0	2	2
SRO-i <input checked="" type="checkbox"/>	RX															0	1	1	0
	NOR															0	1	1	1
	I/C				1 3 4 5 8 10											6	4	4	2
	MAJ				7 9											2	2	2	1
	TS				1 3 4											3	0	2	2
RO3 <input checked="" type="checkbox"/>	RX		5													1	1	1	0
	NOR															0	1	1	1
	I/C		1 3 7													3	4	4	2
	MAJ		6 8 9													3	2	2	1
	TS															0	0	2	2
BOP3 <input checked="" type="checkbox"/>	RX															0	1	1	0
	NOR									1						1	1	1	1
	I/C									3 5 7						3	4	4	2
	MAJ									6 8						2	2	2	1
	TS															0	0	2	2

## Instructions:

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

Facility: **Farley Nuclear Plant**Date of Exam: **June 17, 2013**Operating Test No.: **FA2013-301**

A P P L I C A N T	E V E N T  T Y P E	S c e n a r i o s													T O T A L	M I N I M U M (·)		
		2			3			5			6							
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
																R	I	U
<b>M A S T E R</b>	RX		1			5			6			1				1	1	0
	NOR			5			5			2 6			1			1	1	1
	I/C	2 3 4 6 7 8	2 4 8 7	3 6 8	1 2 3 4 7 9	1 3 7	2 4 7 9	1 3 4 5 8 10	1 4 8	3 5 8 10	2 3 4 5 7	2 4 7	3 5 7			4	4	2
	MAJ	7	7	7	6 8 9	6 8 9	6 8 9	7 9	7 9	7 9	6 8	6 8	6 8			2	2	1
	TS	4 6			2 3 5			1 3 4			2 5					0	2	2
SRO-i <input checked="" type="checkbox"/>	RX														0	1	1	0
	NOR														0	1	1	1
	I/C	2 3 4 6 7 8			1 2 3 4 7 9			1 3 4 5 8 10			2 3 4 5 7				23	4	4	2
	MAJ	7			6 8 9			7 9			6 8				8	2	2	1
	TS	4 6			2 3 5			1 3 4			2 5				10	0	2	2
RO <input checked="" type="checkbox"/>	RX		1			5			6			1			4	1	1	0
	NOR														0	1	1	1
	I/C		2 4 8 7			1 3 7			1 4 8			2 4 7			13	4	4	2
	MAJ		7			6 8 9			7 9			6 8			8	2	2	1
	TS														0	0	2	2
BOP <input checked="" type="checkbox"/>	RX														0	1	1	0
	NOR			5			5			2 6			1		5	1	1	1
	I/C			3 6 8			2 4 7 9			3 5 8 10			3 5 7		14	4	4	2
	MAJ			7			6 8 9			7 9			6 8		8	2	2	1
	TS														0	0	2	2

## Instructions:

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- 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.
- 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.

<b>Facility:</b> Farley Nuclear Plant <b>Date of Examination:</b> June 17, 2013 <b>Operating Test No.:</b> FA2013-301													
Competencies	APPLICANTS												
	SRO-I    X				RO    X				BOP    X				
	SCENARIO				SCENARIO				SCENARIO				
	2	3	5	6	2	3	5	6	2	3	5	6	
Interpret/Diagnose Events and Conditions	2 3 4 6 7 8	1 2 3 4 5 6 8 9	1 3 4 5 9	2 3 4 5 6 7 8	2 4 7 8	1 3 5 7	1 4 8	2 4 7	3 6 8	2 4 5 7 9	3 5 8 10	3 5 7	
Comply With and Use Procedures (1)	2 3 4 5 6 7 8	1 3 4 5 6 7 8 9	1 3 4 8 9 10	1 2 3 4 5 6 7 8	2 4 7 8	1 3 7	1 4 6 7 8	1 4 7	3 5 6 8	2 4 7 9	2 3 5 6 8 10	1 3 5 7	
Operate Control Boards (2)					1 2 4 7 8	1 3 5 7	1 4 6 8	1 2 4 7 8	3 5 6 8	2 4 5 7 9	2 3 5 6 8 10	1 3 5 7 8	
Communicate and Interact	2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 9	1 3 4 5 6 8 9	1 2 3 4 5 6 7 8	2 4 7 8	1 3 5 7 8 9	1 4 6 8	1 2 4 7 8	3 5 6 8	2 4 5 6 7 9	2 3 5 6 7 8 10	1 3 5 7 8	
Demonstrate Supervisory Ability (3)	1 2 3 4 6 7 8	1 2 3 4 5 7 8 9	1 3 4 5 6 8 10	1 2 3 4 5 6 7 8									
Comply With and Use Tech. Specs. (3)	4 6	2 3 5	1 3 4	2 5									
Notes: (1) Includes Technical Specification compliance for an RO.      (2) Optional for an SRO-U. (3) Only applicable to SROs.													

**Instructions:**

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

Facility: Farley		Date of Exam: 2013 June																	
Tier	Group	RO K/A Category Points												SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1	3	3	3				3	3				3	18	3	3	6		
	2	1	2	1				2	1				2	9	2	2	4		
	Tier Totals	4	5	4				5	4				5	27	5	5	10		
2. Plant Systems	1	2	3	3	3	3	2	2	3	2	2	3	28	3	2	5			
	2	1	1	1	1	1	1	1	1	1	0	1	10	2	1	3			
	Tier Totals	3	4	4	4	4	3	3	4	3	2	4	38	5	3	8			
3. Generic Knowledge and Abilities Categories					1		2		3		4		10		1	2	3	4	7
					2		2		3		3				2	2	2	1	
<p>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).</p> <p>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.</p> <p>3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.</p> <p>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.</p> <p>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.</p> <p>6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</p> <p>7. *The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to section D.1.b of ES-401 for the applicable KAs.</p> <p>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.</p> <p>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..</p>																			

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
007EA2.06	Reactor Trip - Stabilization - Recovery / 1	4.3	4.5	<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"/>	Occurrence of a reactor trip
008AK1.01	Pressurizer Vapor Space Accident / 3	3.2	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"/>	Thermodynamics and flow characteristics of open or leak- ing valves
009EK2.03	Small Break LOCA / 3	3	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"/>	S/Gs
011EK2.02	Large Break LOCA / 3	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"/>	Pumps
015AA2.02	RCP Malfunctions / 4	2.8	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"/>	Abnormalities in RCP air vent flow paths and/or oil cooling system
022AK1.04	Loss of Rx Coolant Makeup / 2	2.9	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"/>	Reason for changing from manual to automatic control of charging flow valve controller
025AA1.01	Loss of RHR System / 4	3.6	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"/>	RCS/RHRS cooldown rate
026AG2.4.50	Loss of Component Cooling Water / 8	4.2	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 checked="" type="checkbox"/>	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.
038EK3.02	Steam Gen. Tube Rupture / 3	4.4	4.5	<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"/>	Prevention of secondary PORV cycling
054AA2.05	Loss of Main Feedwater / 4	3.5	3.7	<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"/>	Status of MFW pumps and regulating valves
056AK3.02	Loss of Off-site Power / 6	4.4	4.7	<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"/>	Actions contained in EOP for loss of offsite power

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
062AA1.07	Loss of Nuclear Svc Water / 4	2.9	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"/>	Flow rates to the components and systems that are serviced by the SWS; interactions among the components
065AG2.4.11	Loss of Instrument Air / 8	4.0	4.2	<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 abnormal condition procedures.
077AK3.02	Generator Voltage and Electric Grid Disturbances / 6	3.6	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"/>	Actions contained in abnormal operating procedures for voltage and grid disturbances
WE04EA1.1	LOCA Outside Containment / 3	4.0	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"/>	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
we05EG2.4.2	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	4.5	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"/>	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
WE11EK2.1	Loss of Emergency Coolant Recirc. / 4	3.6	3.9	<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"/>	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
WE12EK1.1	Uncontrolled Depressurization of all S/Gs3.4	3.8		<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"/>	Components, capacity, and function of emergency systems.



KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001AA2.01	Continuous Rod Withdrawal / 1	4.2	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"/>	Reactor tripped breaker indicator
036AG2.1.7	Fuel Handling Accident / 8	4.4	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 checked="" type="checkbox"/>	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
037AK1.01	Steam Generator Tube Leak / 3	2.9	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"/>	Use of steam tables
051AK3.01	Loss of Condenser Vacuum / 4	2.8	3.1	<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"/>	Loss of steam dump capability upon loss of condenser vacuum
059AK2.01	Accidental Liquid RadWaste Rel. / 9	2.7	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"/>	Radioactive-liquid monitors
068AK2.07	Control Room Evac. / 8	3.3	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"/>	ED/G
076AA1.04	High Reactor Coolant Activity / 9	3.2	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"/>	Failed fuel-monitoring equipment
we08EG2.4.6	RCS Overcooling - PTS / 4	3.7	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 checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
WE15EA1.3	Containment Flooding / 5	2.8	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"/>	Desired operating results during abnormal and emergency situations.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
003A3.05	Reactor Coolant Pump	2.7	2.6	<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"/>	RCP lube oil and bearing lift pumps
004K3.08	Chemical and Volume Control	3.6	3.8	<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"/>	RCP seal injection
005A2.02	Residual Heat Removal	3.5	3.7	<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"/>	Pressure transient protection during cold shutdown
006K5.06	Emergency Core Cooling	3.5	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"/>	Relationship between ECCS flow and RCS pressure
006K6.18	Emergency Core Cooling	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"/>	Subcooling margin indicators
007K5.02	Pressurizer Relief/Quench Tank	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"/>	Method of forming a steam bubble in the PZR
008K2.02	Component Cooling Water	3.0	3.2	<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"/>	CCW pump, including emergency backup
010A2.01	Pressurizer Pressure Control	3.3	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"/>	Heater failures
012A4.06	Reactor Protection	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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reactor trip breakers
013G2.1.19	Engineered Safety Features Actuation	3.9	3.8	<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"/>	Ability to use plant computer to evaluate system or component status.
022A1.03	Containment Cooling	3.1	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"/>	Containment humidity

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
022K4.03	Containment Cooling	3.6	4.0	<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 containment isolation
026K2.01	Containment Spray	3.4	3.6	<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"/>	Containment spray pumps
039K1.09	Main and Reheat Steam	2.7	2.7	<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"/>	RMS
059A4.01	Main Feedwater	3.1	3.1	<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"/>	<input type="checkbox"/>	MFW turbine trip indication
059G2.2.44	Main Feedwater	4.2	4.4	<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 checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
061A3.01	Auxiliary/Emergency Feedwater	4.2	4.2	<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"/>	AFW startup and flows
061K5.01	Auxiliary/Emergency Feedwater	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"/>	Relationship between AFW flow and RCS heat transfer
062K3.01	AC Electrical Distribution	3.5	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"/>	Major system loads
063A1.01	DC Electrical Distribution	2.5	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"/>	Battery capacity as it is affected by discharge rate
064K3.02	Emergency Diesel Generator	4.2	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"/>	ESFAS controlled or actuated systems
064K6.07	Emergency Diesel Generator	2.7	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"/>	Air receivers

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
073A2.02	Process Radiation Monitoring	2.7	3.2	<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"/>	Detector failure
073G2.2.42	Process Radiation Monitoring	3.9	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 recognize system parameters that are entry-level conditions for Technical Specifications
076K2.08	Service Water	3.1	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"/>	ESF-actuated MOVs
076K4.03	Service Water	2.9	3.4	<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"/>	Automatic opening features associated with SWS isolation valves to CCW heat exchanges
078K1.01	Instrument Air	2.8	2.7	<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"/>	Sensor air
103K4.06	Containment	3.1	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"/>	Containment isolation system

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
011K2.02	Pressurizer Level Control	3.1	3.2	<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"/>	PZR heaters
014K5.01	Rod Position Indication	2.7	3.0	<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"/>	Reasons for differences between RPIS and step counter
017K6.01	In-core Temperature Monitor	2.7	3.0	<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"/>	Sensors and detectors
029A1.02	Containment Purge	3.4	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"/>	Radiation levels
033K4.05	Spent Fuel Pool Cooling	3.1	3.3	<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"/>	Adequate SDM (boron concentration)
035A2.01	Steam Generator	4.5	4.6	<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"/>	Faulted or ruptured S/Gs
045K1.19	Main Turbine Generator	3.4	3.6	<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"/>	ESFAS
055A3.03	Condenser Air Removal	2.5	2.7	<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"/>	Automatic diversion of CARS exhaust
071K3.05	Waste Gas Disposal	3.2	3.2	<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"/>	ARM and PRM systems
079G2.4.34	Station Air	4.2	4.1	<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 RO tasks performed outside the main control room during an emergency and the resultant operational effects

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.18	Conduct of operations	3.6	3.8	<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"/>	Ability to make accurate, clear and concise logs, records, status boards and reports.
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 checked="" type="checkbox"/>	Ability to locate and use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
G2.2.20	Equipment Control	2.6	3.8	<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 the process for managing troubleshooting activities.
G2.2.25	Equipment Control	3.2	4.2	<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 the bases in Technical Specifications for limiting conditions for operations and safety limits.
G2.3.12	Radiation Control	3.2	3.7	<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 checked="" type="checkbox"/>	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.13	Radiation Control	3.4	3.8	<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 radiological safety procedures pertaining to licensed operator duties
G2.3.4	Radiation Control	3.2	3.7	<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 checked="" type="checkbox"/>	Knowledge of radiation exposure limits under normal and emergency conditions
G2.4.20	Emergency Procedures/Plans	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 checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
G2.4.23	Emergency Procedures/Plans	3.4	4.4	<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 checked="" type="checkbox"/>	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.
G2.4.29	Emergency Procedures/Plans	3.1	4.4	<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 checked="" type="checkbox"/>	Knowledge of the emergency plan.



KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008AG2.2.22	Pressurizer Vapor Space Accident / 3	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 checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.
029EA2.04	ATWS / 1	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"/>	CVCS centrifugal charging pump operating indication
054AA2.01	Loss of Main Feedwater / 4	4.3	4.4	<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"/>	Occurrence of reactor and/or turbine trip
055EG2.2.12	Station Blackout / 6	3.7	4.1	<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 surveillance procedures.
058AA2.02	Loss of DC Power / 6	3.3	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"/>	125V dc bus voltage, low/critical low, alarm
077AG2.4.31	Generator Voltage and Electric Grid Disturbances / 6	4.2	4.1	<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 annunciators alarms, indications or response procedures

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
024AA2.04	Emergency Boration / 1	3.4	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"/>	Availability of BWST
051AG2.1.7	Loss of Condenser Vacuum / 4	4.4	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 checked="" type="checkbox"/>	Ability to evaluate plant performance and make operational judgments based on op characteristics, reactor behaviour, etc.
WE02EA2.1	SI Termination / 3	3.3	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"/>	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.
we06EG2.1.27	Degraded Core Cooling / 4	3.9	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 checked="" type="checkbox"/>	Knowledge of system purpose and or function.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
004A2.02	Chemical and Volume Control	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"/>	Loss of PZR level (failure mode)
006G2.2.22	Emergency Core Cooling	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 checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.
059A2.12	Main Feedwater	3.1	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"/>	Failure of feedwater regulating valves
064G2.2.44	Emergency Diesel Generator	4.2	4.4	<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 checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
073A2.01	Process Radiation Monitoring	2.5	2.9	<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"/>	Erratic or failed power supply

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001A2.17	Control Rod Drive	3.3	3.8	<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"/>	Rod-misalignment alarm
028G2.1.1	Hydrogen Recombiner and Purge Control	3.8	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"/>	Knowledge of conduct of operations requirements
071G2.2.25	Waste Gas Disposal	3.2	4.2	<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 the bases in Technical Specifications for limiting conditions for operations and safety limits.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.20	Conduct of operations	4.6	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 execute procedure steps.
G2.1.37	Conduct of operations	4.3	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"/>	Knowledge of procedures, guidelines or limitations associated with reactivity management
G2.2.21	Equipment Control	2.9	4.1	<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 pre- and post-maintenance operability requirements.
G2.2.23	Equipment Control	3.1	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 track Technical Specification limiting conditions for operations.
G2.3.14	Radiation Control	3.4	3.8	<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 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 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 approve release permits
G2.4.6	Emergency Procedures/Plans	3.7	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 checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.

ES-401 Record of Rejected K/As Form ES-401-4		
Tier / Group	Randomly Selected K/A	Reason for Rejection
<i>TxGx</i> <i>SRO/RO</i>	<i>ORIGINAL KA</i>	<i>Reason for replacement</i> <i>Examiner (NRC) randomly selected new KA# as the replacement K/A.</i>
T1G1 RO	026AG2.4.30	Facility was unable to generate an acceptable discriminatory level question because the RO position is not required to make reports to internal or outside agencies.  Examiner (NRC) randomly selected 026AG2.4.50 as the replacement.
T1G1 RO	065AG2.4.3	Facility was unable to generate an acceptable discriminatory level question because there is no connection between Loss of Air and Post accident instrumentation.  Examiner (NRC) randomly selected 065AG2.4.11 as the replacement.
T1G2 RO	WE08EG2.4.34	Facility was unable to generate an acceptable discriminatory level question because there are no RO tasks performed outside the main control room during a PTS event.  Examiner (NRC) randomly selected WE08G2.4.6 as the replacement.
T2G1 RO	025K6.01	Facility was unable to generate an acceptable discriminatory level question because there are no ice condensers on site.  Examiner (NRC) randomly selected 006K6.18 as the replacement.
T2G1 RO	061A3.05	Facility was unable to generate an acceptable discriminatory level question because there is no tie between the AFW and sump level changes for this facility.  Examiner (NRC) randomly selected 061A3.01 as the replacement.
T2G1 RO	076K2.04	Facility was unable to generate an acceptable discriminatory level question because there is no Reactor building closed cooling water system for this facility.  Examiner (NRC) randomly selected 076K2.08 as the replacement.
T2G1 RO	103K4.01	Facility was unable to generate an acceptable discriminatory level question because there is no containment Vacuum breaker protection for this facility.  Examiner (NRC) randomly selected 103K4.06 as the replacement.

ES-401 Record of Rejected K/As Form ES-401-4		
Tier / Group	Randomly Selected K/A	Reason for Rejection
T1G1 SRO	077AG2.4.9	Facility was unable to generate an acceptable discriminatory level question because there is no tie between the Grid voltage and the Generic KA selected.  Examiner (NRC) randomly selected <a href="#">077AG2.4.31</a> as the replacement.
T1G2 SRO	024AA2.06	Facility was unable to generate an acceptable discriminatory level question at the SRO level for this K/A.  Examiner (NRC) randomly selected <a href="#">024AA2.04</a> as the replacement.
T2G2 SRO	028A2.02	Facility was unable to generate an acceptable discriminatory level question at the SRO level for this K/A.  Examiner (NRC) randomly selected <a href="#">028G2.1.1</a> as the replacement.
T2G2 SRO	071G2.4.9	Facility was unable to generate an acceptable discriminatory level question because there is no tie between the Waste Gas Disposal and the Generic KA selected.  Examiner (NRC) randomly selected <a href="#">071G2.2.25</a> as the replacement.
T3 SRO	G2.1.18	Facility was unable to generate an acceptable discriminatory level question at the SRO level for this K/A.  Examiner (NRC) randomly selected <a href="#">G2.1.20</a> as the replacement.
T3 SRO	G2.1.38	Facility was unable to generate an acceptable discriminatory level question at the SRO level for this K/A.  Examiner (NRC) randomly selected <a href="#">G2.1.37</a> as the replacement.

K/A listed in column 2 is the rejected K/A

## ES-401-6

## Written Examination Quality Checklist

Facility: FA2013-301		Date of Exam: June 17, 2013		Exam Level: RO x SRO x			
Item Description				Initial			
				a	b*	c*	
1.	Questions and answers are technically accurate and applicable to the facility.			PS	no	AK	
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			PS	no	AK	
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			PS	no	AK	
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).			PS	no	AK	
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input checked="" type="checkbox"/> the audit exam was systematically and randomly developed; or <input type="checkbox"/> the audit exam was completed before the license exam was started; or <input type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)			PS	no	AK	
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank	Modified	New	PS	no	AK
		27 / 7	21 / 4	27 / 14			
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory	C/A		PS	no	AK
		30 / 7	45 / 18				
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			PS	no	AK	
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			PS	no	AK	
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			PS	no	AK	
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.			PS	no	AK	
		Printed Name / Signature				Date	
a. Author	Billy Thornton / <i>Billy Thornton</i>				05/30/2013		
b. Facility Reviewer (*)	Gary Ohmstede / <i>Gary Ohmstede</i>				05/30/2013		
c. NRC Chief Examiner (#)	Phillip E. Giebert / <i>Phillip E. Giebert</i>				6/10/2013		
d. NRC Regional Supervisor	Michael T. Wilkerson / <i>Michael T. Wilkerson</i>				06/10/13		
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.							



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			
SRO														SRO and RO Exam Submittal was easy to understand and contained supporting information, including a brief discussion of the author's intent. This was a good submittal.
SRO														SRO-only portion of the exam was PRELIMINARILY determined to meet the quality guidelines contained in NUREG-1021 based on only 4/25 (16%) questions being unacceptable. [ES-401, Section E.3 and ES-501, Section E.3] The four questions were preliminarily determined to be unacceptable based on the following reasons: Cred Distractors: 1 SRO Only: 1 K/A: 1 Level of Difficulty: 1
SRO														SRO Question Breakdown: <ul style="list-style-type: none"><li>7 questions (28%) from the Bank</li><li>14 new questions (56%)</li><li>4 modified bank questions (16%)</li></ul>
RO														RO portion of the exam was PRELIMINARILY determined to (borderline) meet the quality guidelines contained in NUREG-1021 based on 15/75 (20%) questions being unacceptable. [ES-401, Section E.3 and ES-501 Section E.3] The 15 questions were preliminarily determined to be unacceptable based on the following reasons: Cred Distractors: 7 K/A: 5 Level of Difficulty: 3
RO														RO Question Breakdown: <ul style="list-style-type: none"><li>27 questions from the Bank (36%)</li><li>27 new questions (36%)</li><li>21 modified bank questions (28%)</li><li>30 lower cog questions (40%)</li><li>45 higher cog questions (60%)</li></ul>

# 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			
1P															001AA2.01 Continuous Rod Withdrawal - Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal : Reactor tripped breaker indicator  1/22/13 Meets K/A. OK  4/9/13 Added that PT-447 was the 'selected' impulse pressure channel. Removed "be continuously" from first Fill in the Blank and added "manually" to second Fill in the Blank. Removed "ing" from first Fill in the Blank distracters (insert vs. inserting).
2															003A3.05 Reactor Coolant Pump System (RCPS) - Ability to monitor automatic operation of the RCPS, including: RCP lube oil and bearing lift pumps  4/26/13 Meets K/A. The 2 <sup>nd</sup> question cues the answer to the 1 <sup>st</sup> question. How about changing the 2 <sup>nd</sup> bullet in the stem to "2 min. timer" instead of "oil lift pump pressure".  5/6/13 - After discussion with CE, changed the 2 <sup>nd</sup> fill in the bank to read "The RCP breaker closing operation is/is not interlocked with a 2 minute time delay". Changes correct answer to 'C'  5/13/13 Changes made as noted.
3															004K3.08 Chemical and Volume Control System (CVCS) - Knowledge of the effect that a loss or malfunction of the CVCS will have on the following: RCP seal injection.  4/26/13 Meets K/A. Sat
4															005A2.02 Residual Heat Removal System (RHRS) - Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Pressure transient protection during cold shutdown.  4/26/13 Meets K/A. 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			
5																<p>006K5.06 Emergency Core Cooling System (ECCS) - Knowledge of the operational implications of the following concepts as they apply to ECCS: Relationship between ECCS flow and RCS pressure.</p> <p>4/26/13 Meets K/A. Is it plausible, to have 8 psig in Containment with no injection into the Reactor? Site will test on simulator to validate numbers.</p> <p>5/6/13 -HHSI is injecting into the core at this time. After discussion with CE, there was a concern that Containment pressure in the stem was not operationally valid. Containment pressure was removed as it was not required to answer the question.</p>
6																<p>006K6.04 18 Emergency Core Cooling System (ECCS) - Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: Subcooling margin indicators.</p> <p>4/26/13 Meets K/A. Lower vs. unaffected? Terminology seems incorrect. Why would you not ask, "affected vs. unaffected" or "higher vs. lower".</p> <p>Agreed to change terminology.</p> <p>5/6/13 -- After discussion with CE, changed "lower" to "be affected" and changed "unaffected" to "NOT be affected"</p> <p>5/13/13 The K/A number is incorrect at the top of the question with the other LXR information.</p> <p>KA number corrected 006K6.18</p>
7																<p>007EA2.06 Reactor Trip - Ability to determine or interpret the following as they apply to a reactor trip: Occurrence of a reactor trip</p> <p>4/26/13 Meets K/A.</p>
8																<p>007K5.02 Pressurizer Relief Tank/Quench Tank System (PRTS) - Knowledge of the operational implications of the following concepts as the apply to PRTS: Method of forming a steam bubble in the PZR</p> <p>4/26/13 Meets K/A.</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			
9																008AK1.01 Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) - Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: Thermodynamics and flow characteristics of open or leaking valves 4/26/13 Meets K/A Is the PRT Pressure needed in the stem of the question? Otherwise you are telling them the safety relieves to the PRT. Why not have the sat. press. for the containment as one of the choices w/ cont. press. given. LOD = 1? 5/7/13 After review, I agree with the licensee. Remain as is. SAT
10																008K2.02 Component Cooling Water System (CCWS) - Knowledge of bus power supplies to the following: CCW pump, including emergency backup. 4/29/13 Meets K/A.
11																009EK2.03 Small Break LOCA - Knowledge of the interrelations between the small break LOCA and the following: S/Gs. 4/29/13 Meets K/A. A.2 not plausible, Reflux Boiling is not a consideration for a small break LOCA. No issue on review.
12P																010A2.01 Pressurizer Pressure Control System (PZR PCS) - Ability to (a) predict the impacts of the following malfunctions or operations in the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Heater failures. 1/22/13 Meets K/A. OK. 4/9/13 Distractor A states NO 'other' actions required. This implies that something else had to be done. Remove 'other' for distractor 'A' and the word 'and'. i.e. power available, no actions are required... Licensee agreed to the change. 5/6/13 - After discussion with CE, removed the words "other" and "and" from Distractor "A".

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
13																011EK2.02 Large Break LOCA - Knowledge of the interrelations between the Large Break LOCA and the following: Pumps 4/29/13 Meets K/A.
14																011K2.02 Pressurizer Level Control System (PZR LCS) - Knowledge of bus power supplies to the following: PZR heaters 4/29/13 Meets K/A. Verify no double jeopardy with question 12. Reviewed no jeopardy.
15P																012A4.06 Reactor Protection System (RPS) - Ability to manually operate and/or monitor in the control room: Reactor trip breakers 1/22/13 Meets K/A. OK 4/9/13 Added "reactor Trip" to the first Fill in the Blank.

16P									X	E	013G2.1.19 Engineered Safety Features Actuation System (ESFAS) - Ability to use plant computers to evaluate system or component status  1/22/13 Meets K/A. OK  4/9/13 Added "s" to the word "statement" in the sentence " which one of the following..." Changed line spacing to 1.5 in the stem for the data to improve readability. HV-3370A/B/C are NOT modeled on the IPC (Downstream MSIV's). Therefore, changed the second Fill in the Blank from MSIV's to HV-3369A/B/C, which are modeled, to ensure the applicant understands what they are evaluating.  Is the last bullet needed? Are we needlessly cueing the answer for the MSIV's being open?  5/7/13 – After discussion with CE, added a plant computer screen shot for the applicant to evaluate MSIV status instead of the last bullet of the stem and changed the MSIV's that require evaluation. Added steam header pressure channel reading from the plant computer to the stem.
17P										S	014K5.01 Rod Position Indication System (RPIS) - Knowledge of the operational implications of the following concepts as they apply to the RPIS: Reasons for differences between RPIS and step counter  1/22/13 Meets K/A. OK  4/9/13 Add 's' to statement in "Which one of the following statements...  5/6/13 – After discussion with CE, added "s" to the word statement in the question statement.
18										S	015AA2.02 Reactor Coolant Pump (RCP) Malfunctions - Ability to determine and interpret Abnormalities in RCP air vent flow paths and/or oil cooling system as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):  4/29/13 Meets K/A.



[illegible]



22																			S	022K4.03 Containment Cooling System (CCS) - Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Automatic containment isolation.  4/29/13 Meets K/A
23																			E	025AA1.01 Loss of Residual Heat Removal System (RHRS) - Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: RCS/RHRS cooldown rate.  4/29/13 Meets K/A  Not sure how plausible feed & bleed is. Its part of the procedure but no information is given in the stem to even address this path.  Reviewed w/licensee and agreed to accept as is based on distractor plausibility..
24																			E	026AG2.4.50 Loss of Component Cooling Water (CCW) - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.  4/29/13 2 <sup>nd</sup> half of K/A not met.  Reword to open either DW or RMW valve on continued low level.  Licensee accepted comment to fix.
																			S	5/6/13 – After discussion with CE, changed 2 <sup>nd</sup> fill in the bank to from The (2) is the NORMAL source of makeup water to the CCW Surge Tank to "Using the NORMAL source of makeup water, the operator will open (2) to make up to the CCW Surge Tank." Changed Answer from "Demin Water Storage Tank to MOV-3030A, MKUP TO CCW FROM DW STOR TK" and distractor from "Reactor Makeup Water Storage Tank to MOV-3031A, MKUP TO CCW FROM RMW"
25																			S	026K2.01 Containment Spray System (CSS) - Knowledge of bus power supplies to the following: Containment spray pumps.  4/29/13 Meets K/A

26											S	029A1.02 Containment Purge System (CPS) - Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the Containment Purge System controls including: Radiation levels  4/29/13 Meets K/A  Distractor analysis needs to be changed to say "control power" or "instrument &/or control power".  5/6/13 – After discussion with CE, updated feedback (A.1) to reflect that the question topic is less of control power.  033K4.05 Spent Fuel Pool Cooling System (SFPCS) - Knowledge of design feature(s) and/or interlock(s) which provide for the following: Adequate SDM (boron concentration)  1/22/13 Meets K/A. OK
27P											S	4/9/13 Changed "providing an input to the Reactor Makeup Water System that is less than the actual flowrate." TO "providing a flow input to the Reactor Makeup System that is less than the actual flowrate." for clarity.
28											S	035A2.01 Steam Generator System (S/GS) - Ability to (a) predict the impacts of Faulted or ruptured S/Gs on the S/GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations  4/29/13 Meets K/A  Does the RO need to know the procedure or just the last bullet, i.e. we are at Rx trip criteria due to high containment pressure? Reviewed w/ licensee. SAT

29																		E	036AG2.1.7 Fuel Handling Incidents - Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.  4/29/13 Meets K/A  A not plausible. Nothing else supports Lo Ivl condition in the stem of the question. Need to put actual SFP Ivl to reflect lo Ivl (153'10").  Agreed to put 153 4 inches.  5/6/13 – After discussion with CE, added "SFP level is 153' 3" and stable" at the 1000 time in the stem. This is 1 inch below the setpoint which would make it clear that the pool level was low.  5/13/13 Remove period from the end of the 2 <sup>nd</sup> bullet in the stem of the question.
30																		E	037AK1.01 Steam Generator (S/G) Tube Leak - Knowledge of the operational implications of the following concepts as they apply to Steam Generator Tube Leak: Use of steam tables  4/29/13 Meets K/A  B is not plausible with the reference given. The reference given states that SCM must be < 16 degrees to stop press reduction?  5/8/13 - After discussion with CE, changed values to make all subcooling values >16F. Then changed other values so that the question is not a DLU and the applicant will be required to evaluate the reference against RCS pressure, SG pressures and Pressurizer level to determine if depressurization can be stopped.
31																		S	038EK3.02 Steam Generator Tube Rupture (SGTR) - Knowledge of the reasons for the following responses as the apply to the SGTR: Prevention of secondary PORV cycling  4/29/13 Meets K/A  Last bullet in the stem is cueing. You only need to give information that relates to > 31%. Use 48% and rising. Also give info. To rule out adverse conditions for SCM and SG IVIs.  Chose 65% for C SG NR Lvl.  5/6/13 -- After discussion with CE, changed 1C SG level to 65% but did not include CTMT pressure as it was decided that it was NOT required.

32											E	039K1.09 Main and Reheat Steam System (MRSS) - Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: RMS  4/29/13 Meets K/A  For C & D 10% would be a more plausible number.  5/6/13 – After discussion with CE, changed 1% to 10% on C.2 and D.2.
33											S	045K1.19 Main Turbine Generator (MT/G) System - Knowledge of the physical connections and/or cause-effect relationships between the MT/G system and the following systems: ESFAS  4/29/13 Meets K/A
34											E	051AK3.01 Loss of Condenser Vacuum - Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: Loss of steam dump capability upon loss of condenser vacuum  4/29/13 Meets K/A  Does press read out in psia or vacuum?  Will change vacuum to pressure and use the actual PI indicator nomenclature.  S 5/6/13 – After discussion with CE, no time line is needed but changed vacuum to pressure since FNP uses psia. Also added Pressure Indicators.
35											S	054AA2.05 Loss of Main Feedwater (MFW) - Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): Status of MFW pumps, regulating and stop valves  4/29/13 Meets K/A
36											S	055A3.03 Condenser Air Removal System (CARS) - Ability to monitor automatic operation of the CARS, including: Automatic diversion of CARS exhaust  4/29/13 Meets K/A

37																		S	056AK3.02 Loss of Offsite Power - Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power  5/4/13 Meets K/A
38																		S	059A4.01 Main Feedwater (MFW) System - Ability to manually operate and monitor in the control room: MFW turbine trip indication  5/4/13 Meets K/A
39																		E	059AK2.01 Accidental Liquid Radwaste Release - Knowledge of the interrelations between the Accidental Liquid Radwaste Release and the following: Radioactive-liquid monitors  5/4/13 Meets K/A  Need to change B & C distractor nomenclature to match procedure: Discharge Valve & Dilution Discharge Valve. Valve title is not the same as used in Q43.  5/6/13 – After discussion with CE, updated valve nomenclature per the checklist.
40																		S	059G2.2.44 Main Feedwater System - Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.  5/4/13 Meets K/A
41																		S	061A3.01 Auxiliary / Emergency Feedwater (AFW) System - Ability to monitor automatic operation of the AFW, including: AFW startup and flows  5/5/13 Meets K/A

42		E	061K5.01 Auxiliary / Emergency Feedwater (AFW) System - Knowledge of the operational implications of the following concepts as they apply to the AFW: Relationship between AFW flow and RCS heat transfer 5/5/13 Meets K/A  B is not plausible. Why would you emergency borate FIRST with the conditions given? More plausible for C/D concern if temp. changed to 534 degrees? Agreed to make the change 5/6/13 – After discussion with CE, changed 543F to 534F in the stem.
43		E	062AA1.07 Loss of Nuclear Service Water - Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS): Flow rates to the components and systems that are serviced by the SWS; interactions among the components 5/5/13 Meets K/A  Cueing the problem in the stem question "low pond level". Change to response in pond level. Agree to the change. 5/6/13 – After discussion with CE, changed "response to the low pond level" to "response to the change in pond level" Corrected nomenclature for RCV-23B, RCV-18, MOV-538/539, PCV-562/563.
44		S	062K3.01 A.C. Electrical Distribution - Knowledge of the effect that a loss or malfunction of the ac distribution system will have on the following: Major system loads 5/5/13 Meets K/A
45		S	063A1.01 D.C. Electrical Distribution - Ability to predict and/or monitor changes in parameters associated with operating the DC electrical system controls including: Battery capacity as it is affected by discharge rate 5/5/13 Meets K/A



46																			S	064K3.02 Emergency Diesel Generators (ED/G) – Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following: ESFAS controlled or actuated systems. 5/5/13 Meets K/A
47																			S	064K6.07 Emergency Diesel Generators (ED/G) - Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Air receivers 5/5/13 Meets K/A
48																		E	065AG2.4.11 Loss of Instrument Air - Knowledge of abnormal condition procedures 5/5/13 Meets K/A Could control lvl. 5/6/13 – After discussion with CE, changed "A" from "Stop BOTH MDAFW pumps on the MCB" to "Place BOTH MDAFW pump MCB hand switches in the STOP position and release them"	
49																		S	068AK2.07 Control Room Evacuation - Knowledge of the interrelations between the Control Room Evacuation and the following: ED/G. Meets KA. SAT	
50	F	2						X									N	E	071K3.05 Waste Gas Disposal System (WGDS) - Knowledge of the effect that a loss or malfunction of the Waste Gas Disposal System will have on the following: ARM and PRM systems. 4/19 drl. Does meets K/A. Since when does a tank have any isolation on a safety relief valve? The second question really has no discriminatory value.	
51	H	3															M	S	Licensee stated that Turbine relief valves have an isolation valve. 073A2.02 Process Radiation Monitoring (PRM) System - Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure 4/19 drl. Meets K/A.	

52	F	3								X										N	E	
																						<p>073G2.2.42 Process Radiation Monitoring (PRM) System - Ability to Recognize system parameters that are entry-level conditions for Technical Specifications.</p> <p>4/19 drl. K/A is met.</p> <p>A. and B. can be considered a subset of C. as written. Suggest rewriting to make all equipment a list and have applicant choose which minimum equipment would cause LCO entry.</p> <p>1. R-12 2. R-11 3. CACCLMS</p> <p>A. 1 and 2 ONLY B. 2 and 3 ONLY C. 1 and 3 ONLY D. 1, 2 AND 3.</p> <p>5/6/13 – After discussion with CE, replaced question with a bank from FNP 05.</p>
53	F	2																		B	S	<p>076AA1.04 High Reactor Coolant Activity - Ability to operate and / or monitor the following as they apply to the High Reactor Coolant Activity: Failed fuel-monitoring equipment.</p> <p>4/19. drl K/A is met.</p>
54	F	3																		B	S	<p>076K2.08 Service Water System (SWS) - Knowledge of bus power supplies to the following: ESF-actuated MOVs.</p> <p>4/19 drl. K/A is met.</p>
55	H	3																		B	S	<p>076K4.03 Service Water System (SWS) - Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: Automatic opening features associated with SWS isolation valves to CCW heat exchangers.</p> <p>4/29 drl. K/A is met per discussion with Chief.</p>



56	F	3									B	S	077AK3.02 Generator Voltage and Electric Grid Disturbances - Knowledge of the reasons for the following responses as they apply to Generator Voltage and Electric Grid Disturbances: Actions contained in abnormal operating procedure for voltage and grid disturbances.  4/29 drl. K/A is met.
												E	5/7/13 1 <sup>st</sup> distractor not plausible. Doesn't meet physics criteria andis GFES related. Provide another question for the licensee.  Change question stem to give fluctuating voltages on one of the 4KV busses with any corresponding annunciator(s). Correct answer is now to trip the RX.
												S	5/10/13 – After discussion with CE, he agreed to review a new question we submitted from FNP 05 NRC Exam.  5/13/12 New question reviewed. SAT
57	F	2									B	E	078K1.01 Instrument Air System - Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Sensor air.  4/29 drl. K/A is met.
												S	Question is acceptable if these setpoints are expected to be known by the applicants.  5/7/13 OK by licensee.
58	H	3									M	E	079G2.4.34 Station Air System - Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.  4/29 drl. K/A is met.
												S	Remove the word "is" from part 1 of the stem.  Question is acceptable if the applicants are expected to know that the valve starts opening at 22 psig.  Licensee agrees with this  5/8/13 After discussion with the CE, removed the word "is" from the first fill in the blank.

59	H	2			X	X							M	U	103K4.06 Containment System - Knowledge of containment system design feature(s) and/or interlock(s) which provide for the following: Containment isolation system.  4/29 drl. K/A is met.  16.2 psig is not plausible since the first pressure is already given as 28 psig. If you want to test the knowledge of how many instruments to cause phase B, don't give a value in the stem. Just say it reached its setpoint and ask how many more need to reach setpoint (or just give correct setpoint).  Licensee agreed  5/8/13 After discussion with the CE, changed the stem to "PT-953, CTMT PRESS has reached the PHASE B setpoint."
60	F	2											N	E	G2.1.18 Ability to make accurate, clear, and concise logs, records, status boards, and reports.  4/29 drl. K/A is met.  Find a better method to express the compound fractions. Maybe leave a space after whole number.  5/7/13 Licensee agreed to use decimals instead of fraction.  5/8/13 After discussion with the CE, changed 1 3/16 and 3 1/16 to 1.5 and 1.25 respectively.
61	F	2				X							N	U	G2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.  4/29 drl. K/A is met.  12 hour max shift is not really plausible. Need to know the work history. If he worked 12 hours yesterday, then he cannot work 16 today. Better question would be to ask the maximum number of hours he can work today based on working 10 hours yesterday. The choices would be 14 or 16 hours. 14 is plausible because there used to be a 24 in 48 limit.  5/7/13 Added per NMPAD-016-003, Scheduling and calculating work hours.  5/8/13 After discussion with the CE, added the procedure NMP-AD-016-003, Scheduling and Calculating Work Hours.



65	F	2						X										N	U	2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.  4/29 drl. K/A is NOT met. This is not really applying radiological safety procedures.  IS NOT answers are not plausible. This is still an RCA, you need to log into something. If there were some type of alternative, this would be better.  5/7/13 Disagree with drl comments. The procedure in question contains radiological entry criteria for an area that could be perceived as not requiring any. Remove "outside the HP office" and the ( ) around (ACS) i.e. should read "normal Aux Bldg ACS terminal" to match the procedure step. These are not in the procedure statement. * Per the sign on the Dry Cask Storage Area access, frisking is required upon exit from that RCA. Someone could possibly argue that this is not IAW AP-42. Switch the 1 <sup>st</sup> and 2 <sup>nd</sup> question.  Upon exiting from the Dry Cask RCA you are required to perform a 2 minute frisk AND also use the ... Per AP-42, upon entry ...  5/10/13 – After moving the requirement to perform a frisk to the question statement and giving the choice of what portal monitor to use, both question statements refer to AP-42. Removed "outside the HP office" from the question also.
66	F	2																N	S	G2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions.
67	H	3																M	S	4/29 drl. K/A is met.  G2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes.
68	H	3																B	S	4/29 drl. K/A is met.  G2.4.23 Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.





74	H	3												N	E	W/E12EK1.1 Uncontrolled Depressurization of all Steam Generators - Knowledge of the operational implications of the following concepts as they apply to the (Uncontrolled Depressurization of all Steam Generators): Components:, capacity, and function of emergency systems.  4/30 dnl. K/A is met.  Distractor D is not plausible. Three answers are at 20 gpm and one is not. If applicant did not know the answer, he would discount D. because it is different than the other 3.  5/7/13 Change distractor A to zero.  5/8/13 After discussion with the CE, changed distracter A to 0 gpm to prevent excessive cooldown so there wasn't 3 choices with 20 gpm.
75	H	3												B	S	W/E15EA1.3 Containment Flooding - Ability to operate and / or monitor the following as they apply to the (Containment Flooding): Desired operating results during abnormal and emergency situations.  4/30 dnl. K/A is met.
76P	H	3												N		001A2.17 Control Rod Drive - Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Rod-misalignment alarm.  1/22/13 Meets K/A. Per the Rod Control LP: The insertion limits directly affect core power and fuel burnup distributions and assumptions of available ejected rod worth, SDM and initial reactivity insertion rate. If this reflects RO Knowledge, the incorrect answer can be deciphered w/o SRO knowledge and therefore the correct answer can be ascertained.  4/8/13 Meets K/A. Question modified: Added "due to the rod malfunction" to question 1 and added "ensure" to question 2. Distractors changed to remove "minimize the effects of a CR ejection accident" and added "total available rod worth is within safety analyses limits". SAT
77	H	3												N		004A2.02 Chemical and Volume Control - Loss of PZR level (failure mode).  4/10/13 Meets K/A. 1 <sup>st</sup> question: RO knowledge (above the line T.S. criteria). 2 <sup>nd</sup> question: is the RO responsible for knowing all immediate Rx Trip Criteria? If so, this is not SRO only  4/18/13 After discussion, CE determined that this is not RO knowledge.

78	H	3											B	S	006G2.2.22 Emergency Core Cooling - Knowledge of limiting conditions for operations and safety limits. 4/10/13 Meets K/A. SAT
79	F	2											M	E	008AG2.2.22 Pressurizer Vapor Space Accident - Knowledge of limiting conditions for operations and safety limits.  4/10/13 Meets K/A. Why is it necessary to state that the PORV can not be manually closed, you have already stated that it failed open? 4/18/13 Licensee will modify to add extra information so as to not cue that the valve will not manually close.  4/18/13 After discussion, removed "PCV-444B cannot be manually closed", to prevent cueing. Added actual handswitch indication to allow applicant to determine valve position.
80P	F	1?				X							N	S	024AA2.06 Emergency Boration - Ability to determine and interpret the following as they apply to the Emergency Boration: When boron dilution is taking place.  1/22/13 Meets K/A.  4/9/13 The licensee restated the first part of the stem and put in a timeline based on validator comments that the sequence of events was confusing. No change of content or intent. This is low LOD based on the 1 <sup>st</sup> half being GFES knowledge and therefore we get to a 50/50 question for the SRO only portion.  Second part does NOT require "Knowledge of tech spec bases that is required to analyze tech spec required actions and terminology". This is just basis regurgitation.  Additionally, the basis portions of the question point towards the dilution answer. That is the only answer that is not a non-sequitur and therefore would be the one that both answers deal with dilutions.  4/18/13 Requested K/A change on this question due to difficulty writing an acceptable SRO question for this K/A. 4/29/13 Changed K/A to 024AA2.04. Meets K/A. Is D plausible? With a failed valve and an OOS DG, why would someone choose D? Why is the ST data in the stem of the question? It does not appear to be relevant to the question and would also require a T.S. reference to answer? Why would you require them to know this from memory?  5/10/13 Additional information is included for plausibility of Distracter D. Evaluated and removed the ST data in the stem of the question. Agreed that it is not required for evaluation of TRM 13.1.3.

81	H	2						X			M	E	028G2.1.1 Hydrogen Recombiner and Purge Control System (HRPS) - Knowledge of conduct of operations requirements.  4/9/13 Meets K/A. Distractor 'D' does not seem plausible as written, "always" does not seem appropriate. Give an activity level in the stem to make 'D' more plausible? C Distractor wording implies this criterion comes from the ODCM not the SOP procedure. Change to state, "Is aligned per the referenced ODCM requirement". 4/18/13 Change to remove "always". Will leave the other distractor as is.
82	H	2									N	S	4/18/13 After discussion, CE determined distracter C acceptable since it is worded that way in the procedure. Modified distracter D to remove the word "always" to improve plausibility of the distracter.  029EA2.04 Anticipated Transient Without Scram (ATWS) - Ability to determine or interpret the following as they apply to a ATWS: CVCS centrifugal charging pump operating indication. 4/15/12 K/A in reference section shows EA2.01? Meets K/A. Verify that there is no above the line TS RO criteria for this that would make it RO knowledge, otherwise SAT. 4/18/13 After discussion, CE determined there was no TS RO criteria indicated in the question. Good as is.
83	H	3						X			N	E	051AG2.1.7 Loss of Condenser Vacuum - Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. 4/15/13 Meets K/A. You inform the applicant in the stem that vacuum is degrading. This is inappropriate cueing. Do you need to use PT446/447 in the stem to be in compliance with the AOP RNO step vs "Condenser Pressure"? Also step 2.1 of the AOP requires correlating the given vacuum to a scale to determine that the RNO is applicable. Seems like this is a high LOD w/o the procedure? 4/18/13 Reviewed with licensee, agreed to remove "vacuum degrading". Add the PI for condenser vacuum to the stem. After discussion, modified the stem of the question to remove "vacuum degrading" as this was determined to be cueing. Inserted the actual MCB indicators and the associated reading so that applicant could determine actual condenser pressure and trend.  5/13/13 Have not seen rewritten question with items noted above resolved. 6/10/13 Question reviewed. SAT



84P	F	3														M	E	054AA2.01 Loss of Main Feedwater (MFW) - Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW); Occurrence of reactor and/or turbine trip.  1/22/13 Meets K/A. B(2) Plausibility? How does a LOCA event occur on the feedline penetration?  4/9/13 Modified the second part of distracters B and D from a LOCA event to a Steam Generator Tube Rupture event – based on comments during the 10 question pre-submittal review. Also added the title of TS 3.7.3 in the stem of the question. It was not previously included.
85P	H	3														N	S	055EG2.2.12 Loss of Offsite and Onsite Power (Station Blackout): Knowledge of surveillance procedures.  1/22/13 This is after recovery from a blackout condition. There are no ST's for while in a blackout therefore this is as close to the K/A as possible.
86	H	3														B	S	058AA2.02 Loss of DC Power - Ability to determine and interpret the following as they apply to the Loss of DC Power: 125V dc bus voltage, low/critical low, alarm. 04/15/13 Meets K/A. SAT
87	H	3														M	S	059A2.12 Main Feedwater (MFW) System Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of feedwater regulating valves. 04/15/13 Meet K/A. SAT
88	F	3														N	S	064G2.2.44 Emergency Diesel Generator (ED/G) System - Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. 1/23/13 Meets K/A. OK.
89	F	2														N	S	071G2.2.25 Waste Gas Disposal System (WGDS) - Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. 04/15/13 Meet K/A. Does anyone not know that offsite rad releases are limited at the boundary not inside?

[illegible]

94	F	2															N	S	G2.2.21 Knowledge of pre- and post-maintenance operability requirements. 04/15/13 Meets K/A. SAT.
95	F	2															N	S	G2.2.23 Equipment Control - Ability to track Technical Specification limiting conditions for operations. 04/15/13 Meets K/A. SAT
96	H	2															N	S	G2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities 04/15/13 Meets K/A. SAT
97	F	2									X						B	U	G2.3.6 Ability to approve release permits.  04/15/13 Meets K/A. mL vs ml A and B are not plausible in that a release must be possible under conditions of a rad monitor failure and the activity is presented as within normal limits. 4/18/13 Licensee agreed to add more to the question to add another option for the 2 <sup>nd</sup> half of distractor A.  4/18/13 After discussion, CE determined that the one distracter related to tank activity was acceptable. The other distracter plausibility was increased by adding that the tank could not be released with R-18 INOPERABLE, but could be transferred to Unit 2 for release. 6/10/13 Changes made as requested. Sat
98	H	3															N	S	G2.4.6 Knowledge of EOP mitigation strategies.  04/15/13 Meets K/A. Make sure this does not overlap with a scenario. 4/18/13 Licensee verified it does not overlap.
99	H	3															B	S	WE02EA2.1 Ability to determine and interpret the following as they apply to the (SI Termination) - Facility conditions and selection of appropriate procedures during abnormal and emergency operations. 04/15/13 Meets K/A
100	H	2															N	S	WE06EG2.1.27 Degraded Core Cooling - Knowledge of system purpose and/or function. 04/15/13 Meets K/A

Facility: Farley Nuclear Plant		Date of Exam: 6/25/13		Exam Level: RO/SRO	
Item Description		Initials			
		a	b	c	
1.	Clean answer sheets copied before grading	<i>JK</i>	NA	<i>JK</i>	
2.	Answer key changes and question deletions justified and documented	<i>JK</i>	NA	<i>JK</i>	
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	<i>JK</i>	NA	<i>JK</i>	
4.	Grading for all borderline cases (80 $\pm$ 2% overall and 70 or 80, as applicable, $\pm$ 4% on the SRO-only) reviewed in detail	NA	NA	NA	
5.	All other failing examinations checked to ensure that grades are justified	<i>JK</i>	NA	<i>JK</i>	
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	<i>JK</i>	NA	<i>JK</i>	
Printed Name/Signature				Date	
a. Grader	Newton Lacy / <i>Newton Lacy</i>			<i>7/1/13</i>	
b. Facility Reviewer(*)	NA				
c. NRC Chief Examiner (*)	Phillip Capehart / <i>Phillip Capehart</i>			<i>7/8/13</i>	
d. NRC Supervisor (*)	Malcolm Widmann / <i>Malcolm Widmann</i>			<i>07/09/13</i>	
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					