

Facility: <u>BROWNS FERRY</u>		Date of Examination: <u>April 2017</u>
Developed by: Written: Facility <input checked="" type="checkbox"/> NRC <input type="checkbox"/> // Operating Facility <input checked="" type="checkbox"/> NRC <input type="checkbox"/>		
Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b) <u>10-19-16</u>	<u>BNL</u>
-150	2. NRC examiners and facility contact assigned (C.1.d; C.2.e) <u>10-19-16</u>	<u>BNL</u>
-150	3. Facility contact briefed on security and other requirements (C.2.c) <u>10-19-16</u>	<u>BNL</u>
-150	4. Corporate notification letter sent (C.2.d) <u>10-27-16</u>	<u>BNL</u>
[-120]	5. Reference material due (C.1.e; C.3.c; Attachment 3) <u>10-31-16</u>	<u>BNL</u>
{-90}	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, ES-401-1/2, ES-401N-1/2, ES-401-3, ES-401N-3, ES-401-4, and ES-401N-4, as applicable (C.1.e and f; C.3.d) <u>10-31-16</u>	<u>BNL</u>
{-85}	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e) <u>11-17-16</u>	<u>BNL</u>
{-60}	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, ES-401N-6, and any Form ES-201-2, ES-201-3, ES-301-1, or ES-301-2 updates), and reference materials due (C.1.e, f, g and h; C.3.d) <u>2-6-17</u>	<u>BNL</u>
-45	9. Written exam and operating test reviews completed. (C.3.f) <u>2-21-17</u>	<u>BNL</u>
-30	10. Preliminary license applications (NRC Form 398's) due (C.1.i; C.2.g; ES-202) <u>3-10-17</u>	<u>BNL</u>
-21	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f) <u>3-10-17</u>	<u>BNL</u>
-21	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g) <u>3-10-17</u>	<u>BNL</u>
-14	13. Final license applications due and Form ES-201-4 prepared (C.1.i; C.2.i; ES-202) <u>3-27-17</u>	<u>BNL</u>
-14	14. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h) <u>3-27-17</u>	<u>BNL</u>
-7	15. Facility licensee management queried regarding the licensee's views on the examination. (C.2.j) <u>3-10-17</u>	<u>BNL</u>
-7	16. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 5; ES-202, C.2.e; ES-204) <u>4-5-17</u>	<u>BNL</u>
-7	17. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k) <u>4-24-17</u>	<u>BNL</u>
-7	18. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i) <u>4-10-17</u>	<u>BNL</u>
<p>* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.</p> <p>[Applies only] {Does not apply} to examinations prepared by the NRC.</p>		

Facility: Browns Ferry Nuclear Station		Date of Examination: 4/10/2017		
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 or ES-401N.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
3. W A L K T H R O U G H	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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	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	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
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.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	d. Check for duplication and overlap among exam sections.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	e. Check the entire exam for balance of coverage.	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	<i>[initials]</i>	<i>[initials]</i>	<i>BN</i>
a. Author b. Facility Reviewer (*) c. NRC Chief Examiner (#) d. NRC Supervisor		Printed Name/Signature Michael Barton / <i>[Signature]</i> Keith Nichols / <i>[Signature]</i> BRUNO CABALLERO / <i>[Signature]</i> Eugene Gauthier / <i>[Signature]</i>		Date 3-29-17 3-29-17 4-4-17 4/5/17
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines.				

Facility: BFN		Date of Examination: 4-10-17		
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 or ES-401N.	NA	NA	N/A
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	NA	NA	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	NA	NA	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	NA	NA	
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.	NA	NA	
	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.	NA	NA	
	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.	NA	NA	N/A
3. W A L K T H R O U G H	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.		NA	NA
	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	NA	NA	N/A
	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.	NA	NA	N/A
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.		NA	NA
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.		NA	NA
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.		NA	NA
	d. Check for duplication and overlap among exam sections.		NA	NA
	e. Check the entire exam for balance of coverage.		NA	NA
	f. Assess whether the exam fits the appropriate job level (RO or SRO).		NA	NA
Printed Name/Signature a. Author <u>MICHAEL BARTON</u> b. Facility Reviewer (*) <u>Keith Nichols</u> c. NRC Chief Examiner (#) <u>BRUNO CABALLERO</u> d. NRC Supervisor <u>Eugene Guthrie</u>		Date 4-19-17 4-19-17 4-19-17 4/19/17		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines.				































N-1: This Form ES-201-2 documents new JPM "g" for one applicant.

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 04-10-17 through 04-24-17 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 04-10-17 through 04-24-17. 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.

PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
Scott Bohling	Exam Program Manager		04-06-16		4/26/17	①
MICHAEL SAWYER	Exam Developer		04-06-16		5/2/17	
Hal Higgins	Test Supv		4/14/16		5/2/17	
Van Miller	SIM SERV		4/14/16		10/27/16	
David McConell	LOR Exam Developer		4/7/16		4/26/17	
MICHAEL BARTON	EXAM PROGRAM MANAGER		5-5-16		4/25/17	
Keith Nichols	Facility Rep		5-31-16		4/26/17	
DANNE NEWTON	TIC SIMULATOR		6-14-16		4/26/17	
Christopher L. Bannister	JRC Simulator		6/14/2016		4/26/17	
DANIEL M. SMITH	SIM SVCS		6-14-16		4-26-17	
Patrick S. Arnold	SIM SVCS		6-14-16		5-3-17	
William J. Cox	SIM SVCS		6-14-16		4-26-17	
THOMAS S. AUBRIGHT	SIM SVCS		7/14/16			①
John Steppard	Ops Ins + (Loc Exam)		7/12/16		5/3/17	
Russell Joplin	corp prog mgr		8/15/16		5/3/17	





























NOTES ① See attached pages. Scanned and emailed for signature.

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PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (A)	DATE	SIGNATURE (2)	DATE	NOTE
1. Scott Bohling	Exam Program Manager		04-00-16		04/28/17	①
2. Michael Seville	Exam Developer		04-06-16		4/26/17	
3. Hal Higgins	Exam Serv		4/14/16		4/26/17	
4. Van Miller	Exam Serv		4/14/16		4/26/17	
5. Michael Barton	Exam PROCTOR MANAGER		5-5-16		4-26-17	
6. Keith Nichols	Facility Rep		5-31-16		4/26/17	
7. Doreen Newton	TIC SIMULATOR		6-14-16		4/26/17	
8. Christopher L. Bergman	TIC Simulator		6/14/2016		4/26/17	
9. Daniel M. S. Moore	Sim Svc		6-14-16		4-26-17	
10. Patrick S. Arnold	Sim Svc		6-14-16		4-26-17	
11. William J. Cox	Sim Svc		7/14/16		4-26-17	①
12. Thomas S. Albright	Sim Svc		7/14/16		4-26-17	
13. John Sheppard	Ops Inst + (Log Entry)		7/14/16		4-26-17	
14. Russell D. Joplin	corp prog mgr		8/15/16		4-26-17	

NOTES ① See Attached pages. Scanned and emailed for signature.






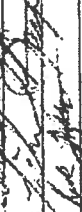

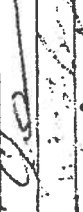

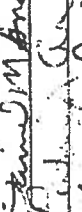






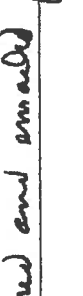





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Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or 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.

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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 04-10-17 through 04-24-17. 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.

PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Scott Bohling	Exam Program Manager		04-06-16		4/26/17	①
2. MICHAEL SHERIDAN	Exam Developer		04-06-16		5/2/17	
3. Phil Higgins	Exam Dev		4/16/16		4/26/17	
4. Ben Miller	Sim Dev		4/16/16		4/26/17	
5. [Name illegible]	[Job Title illegible]		5-31-16		4-26-17	
6. Michael [Name illegible]	Facility Rep		5-31-16		4/25/17	
7. Keith Nichols	TIC SIMULATOR		6-14-16		4/26/17	
8. DARRIN NEWTON	TIC SIMULATOR		6-14-16		4/26/17	
9. Christopher L. [Name illegible]	Sim Dev		6-14-16		4/26/17	
10. [Name illegible]	Sim Dev		6-14-16		4-26-17	
11. Patrick J. [Name illegible]	Sim Dev		6-14-16		5-3-17	
12. William J. Cox	Sim Dev		6-14-16		4-26-17	
13. Thomas S. Albright	Sim Dev		7/14/16		5/22/17	①
14. John Stegmann	Ops Inst (Lockdown)		7/14/16		5/13/17	
15. [Name illegible]	Corp Prog Mgr		8/15/16		5/3/17	

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PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE(1)	DATE	SIGNATURE (2)	DATE	NOTE
1. <u>Archie Miller</u>	<u>OPS PRG MANAGER</u>	<u>[Signature]</u>	<u>4/8/16</u>	<u>[Signature]</u>	<u>6/6/17</u>	
2. <u>ARLIE R. Champion</u>	<u>EPU</u>	<u>[Signature]</u>	<u>11/9/16</u>	<u>[Signature]</u>	<u>5/19/17</u>	
3. <u>JOSEPH G. Berman</u>	<u>SRD</u>	<u>[Signature]</u>	<u>11/21/16</u>	<u>[Signature]</u>	<u>5/17/17</u>	
4. <u>Jason Miller</u>	<u>RO</u>	<u>[Signature]</u>	<u>11/29/16</u>	<u>[Signature]</u>	<u>5/16/17</u>	
5. <u>Allen Beckner</u>	<u>RO</u>	<u>[Signature]</u>	<u>11/29/16</u>	<u>[Signature]</u>	<u>5/12/17</u>	
6. <u>Nathaniel Cooper</u>	<u>RO</u>	<u>[Signature]</u>	<u>12/6/16</u>	<u>[Signature]</u>	<u>4/26/17</u>	
7. <u>Daniel Hill</u>	<u>SRD</u>	<u>[Signature]</u>	<u>12/13/16</u>	<u>[Signature]</u>	<u>5/4/17</u>	
8. <u>Thomas Jackle</u>	<u>SRD</u>	<u>[Signature]</u>	<u>12/13/16</u>	<u>[Signature]</u>	<u>5/14/17</u>	
9. <u>Michael S. Brown</u>	<u>SRD</u>	<u>[Signature]</u>	<u>12/14/16</u>	<u>[Signature]</u>	<u>5/22/17</u>	
10. <u>Jeremy Miller</u>	<u>PR</u>	<u>[Signature]</u>	<u>12/15/16</u>	<u>[Signature]</u>	<u>6/12/17</u>	
11. <u>Ray Jenkins</u>	<u>RO</u>	<u>[Signature]</u>	<u>12-15-16</u>	<u>[Signature]</u>	<u>5-4-17</u>	
12. <u>Jayne Yoncs</u>	<u>RO</u>	<u>[Signature]</u>	<u>12/15/16</u>	<u>[Signature]</u>	<u>5/4/17</u>	
13. <u>Mike Beldrey</u>	<u>RO</u>	<u>[Signature]</u>	<u>12/20/16</u>	<u>[Signature]</u>	<u>04/26/17</u>	
14. <u>Brian Neal</u>	<u>INSTRUCTOR</u>	<u>[Signature]</u>	<u>12/20/16</u>	<u>[Signature]</u>	<u>09/26/17</u>	
15. <u>Donald Dinkley</u>	<u>EXAM SUPV / SIM SUPV</u>	<u>[Signature]</u>	<u>1/4/17</u>	<u>[Signature]</u>	<u>12/25/17</u>	

NOTES





























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PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Peter Eric Reynolds	Reactor Operator		1-10-17		5-3(-)-17	
2. Andrew D. Mitchell	SRO		1-11-17		5/11/17	
3. Jerry Wheeler Jr.	RO		1-11-17		5-4-17	
4. Nathan Lee McCopie	RO		1-11-17		5/4/17	
5. Neal Stukla	SRO		1/11/17		5/11/17	
6. Tracy D Taylor	RO		1/12/17		5/13/17	
7. Charles Caperton	IT		1/13/17		4/27/17	
8. Robert Delphans	SRO		1-14-17		5-4-17	
9. Damien Montoya	RO		1-14-17		5-15-17	
10. Allan Plushin	SRO		1-19-17		5/2/17	
11. Adam Newbourn	RO		1/19/17		5/3/17	
12. Frank P. Garner	ESP Training		2/18/17		4/26/17	
13. Van N Miller	SGG - Contractor		2/24/17		5/3/17	
14. Hicks Givens	ILT Contractor		4-18-17		4-26-17	
15.						































NOTES

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 04-10-17 through 04-24-17 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 04-10-17 through 04-24-17. 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.

PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Timothy Andrews	SRO		1/20/17		5/16/17	
2. Brian McNULT	SM		1/20/17		5/17/17	
3. K. Sharlene Singleten	RO		1/20/17		5/17/17	
4. Matt Hester	RO		1/20/17		5/17/17	
5. Jared Dawson	SRO		01/20/2017		5/14/17	
6. Chris L. Vaughn	OTM		03/24/17		5/02/17	
7. MARK JAMES	RO		03/13/17		5-22-17	
8. Lawrence Jones	RO		3/14/17		4/17/17 4-26-17	
9. Chris Winton	RO		3-16-17		5-4-17	
10. Ralph Hoffman	SRO		3-15-17		5/5/17	
11. Wesley Gentry	RO		03/16/2017		04/26/2017	
12. Wesley M Conkle	SRO		3/23/17		5-15-17	
13. Bill Barr	See		3/23/17		5/4/17	
14. L. P. D. B. B. B.	SRO		3-23-17		5-2-17	
15. M A McCaughy	SRO		3/23/17		5/24/17	





























NOTES

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 04-10-17 through 04-24-17 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 04-10-17 through 04-24-17. 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.

PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. ADIL KREISS	LOR EXAM		3/22/17		4/26/17	
2. BRIAN MAZE	SRO/STA		3/29/17		5/14/17	
3. DON ROBERTSON	SRO		3/29/17		5/19/17	
4. RONALD ROBINSON	SRO		3/20/17		5/15/17	
5. MATTHEW BELLINGER	OPS Training		4/6/17		4/26/17	
6. WILLIAM REES	OPS TRNG		4/10/17		4/26/17	
7. ROGER BOND	OPS TRNG		4/10-17		4-27-17	
8. ASHLEY S. FARR	OPS TRNG		4/10/17		5/11/17	
9. MICHAEL THARPE	OPS TRNG		4/10/17		4/26/17	
10. MECKY S. HAMMERT	OPS TRNG		4/10/17		4/26/17	
11. TAYLOR LOY	OPS TRNG		4/10/17		5/23/17	
12. W. TODD SNEYD	Ops Enhance Tech		4/10/17		①	
13. KEVIN EVANS	Class lead		4/11/17		4/26/17	
14. WOLFGANG ROYAL	FAC MAINT		4/10/17		4/29/17	
15. CHRIS DRUP	FAC MAINT		4/11/17		4/27/17	

NOTES ① See attached page. Scanned & emailed for signature.

SIGNED & EMAILED TO TODD SNED FOR SIGNATURE 4/26/17

(#12 below)

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 04-10-17 through 04-24-17 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

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PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE(1)	DATE	SIGNATURE (2)	DATE	NOTE
1. [Signature]	LOE Exam	[Signature]	3/22/17	[Signature]	4/26/17	
2. [Signature]	SPW/STA	[Signature]	3/29/17			
3. [Signature]	SLO	[Signature]	3/29/17			
4. [Signature]	SLO	[Signature]	3/29/17			
5. [Signature]	OPS Training	[Signature]	4/6/17		4/26/17	
6. [Signature]	OPS Training	[Signature]	4/10/17		4/26/17	
7. [Signature]	OPS TRG	[Signature]	4/10/17			
8. [Signature]	OPS TRNG	[Signature]	4/10/17			
9. [Signature]	OPS TRNG	[Signature]	4/10/17		4/26/17	
10. [Signature]	OPS TRNG	[Signature]	4/10/17		4/26/17	
11. [Signature]	OPS TRNG	[Signature]	4/10/17			
12. [Signature]	OPS TRNG	[Signature]	4/10/17		4/26/17	
13. [Signature]	class lead	[Signature]	4/11/17			
14. [Signature]	class lead	[Signature]	4/11/17			
15. [Signature]	class lead	[Signature]	4/11/17			



NOTES

1. Pre-Examination

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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 04-10-17 through 04-24-17. 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.

PRINT NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE(1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Joseph Higgins	Reader Operator		12/14/16		5/4/17	
2.						
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14.						
15.						

NOTES

Facility: Browns Ferry Nuclear Station		Date of Examination: 4/10/2017		Operating Test Number: 17-03	
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).		#1	BN		
b. There is no day-to-day repetition between this and other operating tests to be administered during this examination.		#1	BN		
c. The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)		#1	BN		
d. Overlap with the written examination and between different parts of the operating test is within acceptable limits.		#1	BN		
e. It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.		#1	BN		
2. Walk-Through Criteria			Initials		
	a	b*	c#		
a. Each JPM includes the following, as applicable: <ul style="list-style-type: none"> initial conditions initiating cues references and tools, including associated procedures reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee operationally important specific performance criteria that include: <ul style="list-style-type: none"> detailed expected actions with exact criteria and nomenclature system response and other examiner cues statements describing important observations to be made by the applicant criteria for successful completion of the task identification of critical steps and their associated performance standards restrictions on the sequence of steps, if applicable 		#1	BN		
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.		#1	BN		
3. Simulator Criteria			Initials		
	a	b*	c#		
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		#1	BN		
Printed Name / Signature			Date		
a. Author	Michael Barton /		3-29-17		
b. Facility Reviewer(*)	Keith Nichols /		3-29-17		
c. NRC Chief Examiner (#)	BRUNO CABALLERO /		4-4-17		
d. NRC Supervisor	Eugene Gutierrez /		4/5/17		
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

Facility: <u>BFN</u>		Date of Examination: <u>4-10-17</u>		Operating Test Number: <u>17-03</u>	
1. General Criteria			Initials		
			a	b*	c#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	<u>NA</u>	<u>1</u>	<u>BDL</u>	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	<u>NA</u>	<u>N/A</u>	<u>N/A</u>	
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	<u>NA</u>	<u>1</u>	<u>BDL</u>	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	<u>NA</u>	<u>1</u>	<u>BDL</u>	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	<u>NA</u>	<u>1</u>	<u>BDL</u>	
2. Walk-Through Criteria			--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> initial conditions initiating cues references and tools, including associated procedures reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee operationally important specific performance criteria that include: <ul style="list-style-type: none"> detailed expected actions with exact criteria and nomenclature system response and other examiner cues statements describing important observations to be made by the applicant criteria for successful completion of the task identification of critical steps and their associated performance standards restrictions on the sequence of steps, if applicable 	<u>NA</u>	<u>1</u>	<u>BDL</u>	
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.	<u>NA</u>	<u>1</u>	<u>BDL</u>	
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.			<u>NA</u>	<u>NA</u>	<u>N/A</u>
		Printed Name / Signature		Date	
a.	Author	<u>MICHAEL BARTON</u> <u>[Signature]</u>		<u>4-19-17</u>	
b.	Facility Reviewer(*)	<u>Keith Nichols</u> <u>[Signature]</u>		<u>4-19-17</u>	
c.	NRC Chief Examiner (#)	<u>BRUNO CABALEIRO</u> <u>[Signature]</u>		<u>4-19-17</u>	
d.	NRC Supervisor	<u>Eugene Guthrie</u> <u>[Signature]</u>		<u>4/19/17</u>	
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

N-1 : This Form ES-301-3 documents new JPM "g" for one applicant.

Facility: BFNS		Date of Exam: 4/10/17		Scenario Numbers: 2 / 3 / 5 / 6		Operating Test No.: 17-03	
QUALITATIVE ATTRIBUTES			Initials				
			a	b*	c#		
1. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
2. The scenarios consist mostly of related events.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
3. Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) or conditions that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
4. The events are valid with regard to physics and thermodynamics.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
5. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
6. 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.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
7. The simulator modeling is not altered.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
8. 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.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
9. 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.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
11. The scenario set provides the opportunity for each applicant to be evaluated in each of the applicable rating factors. (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
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).			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
13. The level of difficulty is appropriate to support licensing decisions for each crew position.			<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes 2 / 3 / 5 / 6	-	-	-		
1.	Malfunctions after EOP entry (1-2)	1 / 2 / 2 / 2	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
2.	Abnormal events (2-4)	2 / 2 / 3 / 2	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
3.	Major transients (1-2)	1 / 1 / 1 / 2	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
4.	EOPs entered/requiring substantive actions (1-2)	2 / 2 / 2 / 2	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
5.	EOP contingencies requiring substantive actions (0-2)	1 / 0 / 1 / 1	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
6.	EOP based Critical tasks (2-3)	2 / 2 / 2 / 2	<i>[Signature]</i>	<i>1/1</i>	<i>BNL</i>		
NOTE: <ul style="list-style-type: none"> * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. 							

Facility: Browns Ferry NPP		Date of Exam: April 10, 2017		Operating		Test No.: ILT 1703												
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 (*)			
		2			3			6			5							
		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	
SRO-I #1 Bennett	RX		2		2								5		3		1	
	NOR				1										1		1	
	I/C		3, 4, 5, 8		3, 4, 5, 6, 8, 9								4, 6		12		4	
	MAJ		7		7								7		3		2	
	TS				3, 5										2		2	
SRO-I #2 Millsap	RX				2								5		2		1	
	NOR				1										1		1	
	I/C				3, 4, 5, 6, 8, 9								4, 6		8		4	
	MAJ				7								7		2		2	
	TS				3, 5										2		2	
SRO-I #3 Rose	RX				2								5		2		1	
	NOR				1										1		1	
	I/C				3, 4, 5, 6, 8, 9								4, 6		8		4	
	MAJ				7								7		2		2	
	TS				3, 5										2		2	

Instructions

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

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

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

Facility: Browns Ferry NPP		Date of Exam: April 10, 2017		Operating		Test No.: ILT 1703											
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 (*)		
		2			3			6			5						
		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
SRO-I #4 Spears	RX		2			2								2		1	
	NOR											1		1		1	
	I/C		3, 4, 5, 8			4, 5						3, 4, 6, 8		10		4	
	MAJ		7			7						7		3		2	
	TS											2, 4		2		2	
SRO-I #5 Yarbrough	RX		2			2								2		1	
	NOR											1		2		1	
	I/C		3, 4, 5, 8			4, 5						3, 4, 6, 8		10		4	
	MAJ		7			7						7		3		2	
	TS											2, 4		2		2	
SRO-U #1 Alsop	RX													0			0
	NOR											1		1			1
	I/C								3, 4			3, 4, 6, 8		6			2
	MAJ								5			7		2			1
	TS											2, 4		2			2
SRO-U #2 Cobb	RX	2												1			0
	NOR	1					1							2			1
	I/C	3, 5, 9				3, 6, 8, 9								7			2
	MAJ	7				7								2			1
	TS	4, 6												2			2
SRO-U #3 Humphries	RX	2												1			0
	NOR	1					1							2			1
	I/C	3, 5, 9				3, 6, 8, 9								7			2
	MAJ	7				7								2			1
	TS	4, 6												2			2
SRO-U #4 Knight	RX	2												1			0
	NOR	1					1							2			1
	I/C	3, 5, 9				3, 6, 8, 9								7			2
	MAJ	7				7								2			1
	TS	4, 6												2			2

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

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

Facility: Browns Ferry NPP				Date of Exam: April 10, 2017				Operating				Test No.: ILT 1703					
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 (*)		
		2			3			6			5						
		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
SRO-U #5 Lambert	RX													0			0
	NOR							1						1	2		1
	I/C							4,6,7,8					3,9	6		2	
	MAJ							5,9					7	3		1	
	TS							2,3						2		2	
SRO-U #6 Maye	RX													0		0	
	NOR							1					1	2		1	
	I/C							4,6,7,8					3,9	6		2	
	MAJ							5,9					7	3		1	
	TS							2,3						2		2	
SRO-U #7 Stephenson	RX													0		0	
	NOR							1					1	2		1	
	I/C							4,6,7,8					3,9	6		2	
	MAJ							5,9					7	3		1	
	TS							2,3						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: BFN		Date of Examination: 4/10/2017		Operating Test No.: 17-03												
Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I 1 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I 2 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I 3 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I 4 <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	3/1	5/2	7/3	4	3/1	5/2	3	6/4	3/1	5/2	3	6/4	1	2	3	4
Interpret/Diagnose Events and Conditions	2,1,3, 4,9,7, 5,6	2,4,5, 7	2,3,8, 6		2,1,3, 4,9,7, 5,6	2,4, 5,7		3,1,5, 7,6	2,1,3, 4,9,7, 5,6	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Comply With and Use Procedures (1)	2,1,3, 4,9,7, 5,6	2,4,5, 7	2,3,8, 6		2,1,3, 4,9,7, 5,6	2,4, 5,7		3,1,5, 7,6	2,1,3, 4,9,7, 5,6	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Operate Control Boards (2)	N/A		2,3,8, 6		N/A	2,4, 5,7		3,1,5, 7,6	N/A	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Communicate and Interact	2,1,3, 4,9,7, 5,6	1-10	2,3,8, 6		2,1,3, 4,9,7, 5,6	1-10		3,1,5, 7,6	2,1,3, 4,9,7, 5,6	1-10		3,1, 5,7, 6	2,3, 4,5, 8,7	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Demonstrate Supervisory Ability (3)	2,1,7				2,1,7				2,1,7					1,2,6		
Comply With and Use Tech. Specs. (3)	5,6	4	4		5,6	4		4	5,6	4		4	5,6	3,5	4	
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. (This includes all rating factors for each competency.) (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)

Facility: BFN Date of Examination: 4/10/2017 Operating Test No.: 17-03																
Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U 4 <input checked="" type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U 5 <input checked="" type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U 6 <input checked="" type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U 7 <input checked="" type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	2,1,3, 4,9,7, 5,6	2,4,5, 7	2,3,8, 6		2,1, 3,4, 9,7, 5,6	2,4,5, 7		3,1,5, 7,6	2,1, 3,4, 9,7, 5,6	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7,	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Comply With and Use Procedures (1)	2,1,3, 4,9,7, 5,6	2,4,5, 7	2,3,8, 6		2,1, 3,4, 9,7, 5,6	2,4,5, 7		3,1,5, 7,6	2,1, 3,4, 9,7, 5,6	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7,	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Operate Control Boards (2)	N/A		2,3,8, 6		N/A	2,4,5, 7		3,1,5, 7,6	N/A	2,4, 5,7		3,1, 5,7, 6	2,3, 4,5, 8,7,	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Communicate and Interact	2,1,3, 4,9,7, 5,6	1-10	2,3,8, 6		2,1, 3,4, 9,7, 5,6	1-10		3,1,5, 7,6	2,1, 3,4, 9,7, 5,6	1-10		3,1, 5,7, 6	2,3, 4,5, 8,7,	2,1,3, 4,5,6, 8,9,7	2,3,8, 6	
Demonstrate Supervisory Ability (3)	2,1,7				2,1, 7				2,1, 7					1,2,6		
Comply With and Use Tech. Specs. (3)	5,6	4	4		5,6	4		4	5,6	4		4	5,6	3,5	4	
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

Form ES301-6

Page 2 of 3

Facility: BFN

Date of Examination: 4/10/2017

Operating Test No.: 17-03

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

Notes:

(1) Includes Technical Specification compliance for an RO.

(2) Optional for an SRO-U.

(3) Only applicable to SROs.

Form ES-301-6

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ES-201

Examination Outline Quality Checklist

Form ES-201-2

Facility: BROWNS FERRY		Date of Examination: APRIL 2017		
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 or ES-401N.	M	N/A	BKL
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	M	N/A	BKL
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	M	N/A	BKL
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	M	N/A	BKL
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.			
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W A L K T H R O U G H	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	N		A
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
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.	M	N/A	BKL
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	M	N/A	BKL
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	M	N/A	BKL
	d. Check for duplication and overlap among exam sections.	M	N/A	BKL
	e. Check the entire exam for balance of coverage.	M	N/A	BKL
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	M	N/A	BKL
a. Author: <u>MICHAEL MEEKS</u> b. Facility Reviewer (*): <u>N/A</u> c. NRC Chief Examiner (#): <u>BRUNO CABALLERO</u> d. NRC Supervisor: <u>Eugene Guthrie</u>		Date: <u>04/08/2016</u> <u>N/A</u> <u>4-15-16</u> <u>4/15/16</u>		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines.				

Facility BROWNS FERRY Date of Exam: APRIL 2017

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	4	N/A			4	3	N/A			3	20	4		3	7
	2	1	2	1				1	1				1	7	2		1	3
	Tier Totals	4	5	5				5	4				27	6		4	10	
2. Plant Systems	1	2	2	2	3	2	2	3	2	3	2	3	26	3		2	5	
	2	1	1	1	1	1	2	1	1	1	1	1	12	0	2	1	3	
	Tier Totals	3	3	3	4	3	4	4	3	4	3	4	38	5		3	8	
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					2		3		2		3			2	2	1	2	

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

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO/SRO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#	
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4					R		R-AA2.02			
295003 Partial or Complete Loss of AC / 6				R		S	R-AA1.01 S-G2.1.32			
295004 Partial or Total Loss of DC Pwr / 6				R			R-A1.01			
295005 Main Turbine Generator Trip / 3			R		S		R-K3.04 S-AA2.03			
295006 SCRAM / 1				R			R-AA1.06			
295016 Control Room Abandonment / 7			R				R-AK3.02			
295018 Partial or Total Loss of CCW / 8		R			S		R-AK2.02 S-AA2.02			
295019 Partial or Total Loss of Inst. Air / 8			R		S		R-AK3.03 S-AA2.02			
295021 Loss of Shutdown Cooling / 4	R						R-AK1.01			
295023 Refueling Acc / 8		R					R-AK2.02			
295024 High Drywell Pressure / 5				R			R-EA1.14			
295025 High Reactor Pressure / 3						R	R-G2.4.50			
295026 Suppression Pool High Water Temp. / 5					R		R-EA2.02			
295027 High Containment Temperature / 5										
295028 High Drywell Temperature / 5					R		R-EA2.02			
295030 Low Suppression Pool Wtr Lvl / 5						B	R-G2.4.1 S-G2.2.44			
295031 Reactor Low Water Level / 2	R					S	R-EK1.03 S-G2.4.31			
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1	R						R-EK1.02			
295038 High Off-site Release Rate / 9		R					R-EK2.08			
600000 Plant Fire On Site / 8						R	R-G2.4.35			
700000 Generator Voltage and Electric Grid Disturbances / 6			R		S		R-AK3.02 S-AA2.07			
K/A Category Totals:	RO	3	3	4	4	3	3	Group Point Total:	20/7	

SRO

4 3

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295001AA2.02	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.1	3.2	<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"/>	Neutron monitoring.....
295003AA1.01	Partial or Complete Loss of AC / 6	3.7	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A.C. electrical distribution system.....
295005AK3.04	Main Turbine Generator Trip / 3	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"/>	Main generator trip.....
295006AA1.06	SCRAM / 1	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CRD hydraulic system.....
295016AK3.02	Control Room Abandonment / 7	3.7	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"/>	Turbine trip.....
295018AK2.02	Partial or Total Loss of CCW / 8	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"/>	Plant operations.....
295019AK3.03	Partial or Total Loss of Inst. Air / 8	3.2	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"/>	Service air isolations: Plant-Specific.....
295021AK1.01	Loss of Shutdown Cooling / 4	3.6	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"/>	Decay heat.....
295023AK2.02	Refueling Acc Cooling Mode / 8	2.9	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"/>	Fuel pool cooling and cleanup system.....
295024EA1.14	High Drywell Pressure / 5	3.4	3.5	<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"/>	Drywell ventilation system.....
295025G2.4.50	High Reactor Pressure / 3	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.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295026EA2.02	Suppression Pool High Water Temp. / 5	3.8	3.9	<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"/>	Suppression pool level.....
295028EA2.02	High Drywell Temperature / 5	3.8	3.9	<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"/>	Reactor pressure.....
295030G2.4.1	Low Suppression Pool Wtr Lvl / 5	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
295037EK1.02	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.1	4.3	<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"/>	Reactor water level effects on reactor power.....
295038EK2.08	High Off-site Release Rate / 9	2.6	3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SPDS/ERIS/CRIDS/GDS: Plant-Specific.....
600000G2.4.35	Plant Fire On Site / 8	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
295004AA1.01	Partial or Total Loss of DC Pwr / 6	3.3	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"/>	D.C. electrical distribution systems.....
295031EK1.03	Reactor Low Water Level / 2	3.7	4.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water level effects on reactor power.....
700000AK3.02	Generator Voltage and Electric Grid Disturbances	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

KA NAME / SAFETY FUNCTION:

TOPIC:

RO SRO

295003G2.1.32	Partial or Complete Loss of AC / 6	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Ability to explain and apply all system limits and precautions.

~~295005AA2.09~~ Main Turbine Generator Trip / 3

Turbine valve position.....

3.1 3.1

Torus level

295024 EA2.03 High Dryell Pipe

295018AA2.02 Partial or Total Loss of CCW / 8

Cooling water temperature.....

3.1 3.2

295019AA2.02 Partial or Total Loss of Inst. Air / 8

Status of safety-related instrument air system loads (see AK2.1 - AK2.19).....

3.6 3.7

295030G2.2.44 Low Suppression Pool Wtr Lvl / 5

Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions

4.2 4.4

295031G2.4.31 Reactor Low Water Level / 2

Knowledge of annunciators alarms, indications or response procedures

4.2 4.1

70000AA2.07 Generator Voltage and Electric Grid Disturbances

Operational status of engineered safety features

3.6 4.0

3/2/17

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO) SRO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#	
295002 Loss of Main Condenser Vac / 3						S	S-G2.4.8			
295007 High Reactor Pressure / 3		R					R-AK2.03			
295008 High Reactor Water Level / 2						R	R-G2.1.32			
295009 Low Reactor Water Level / 2										
295010 High Drywell Pressure / 5										
295011 High Containment Temp / 5										
295012 High Drywell Temperature / 5										
295013 High Suppression Pool Temp. / 5		R					R-AK2.01			
295014 Inadvertent Reactivity Addition / 1										
295015 Incomplete SCRAM / 1				R			R-AA1.04			
295017 High Off-site Release Rate / 9										
295020 Inadvertent Cont. Isolation / 5 & 7										
295022 Loss of CRD Pumps / 1		R					R-AK1.02			
295029 High Suppression Pool Wtr Lvl / 5										
295032 High Secondary Containment Area Temperature / 5										
295033 High Secondary Containment Area Radiation Levels / 9					R	S	R-EA2.01 S-EA2.03			
295034 Secondary Containment Ventilation High Radiation / 9										
295035 Secondary Containment High Differential Pressure / 5			R				R-EK3.02			
295036 Secondary Containment High Sump/Area Water Level / 5						S	S-EA2.03			
500000 High CTMT Hydrogen Conc. / 5										
K/A Category Point Totals:	RD	1	2	1	1	1		Group Point Total:	7/3	

SRO

2 1

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295007AK2.03	High Reactor Pressure / 3	3.1	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RHR/LPCI: Plant-Specific.....
295008G2.1.32	High Reactor Water Level / 2	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to explain and apply all system limits and precautions.
295013AK2.01	High Suppression Pool Temp. / 5	3.6	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"/>	Suppression pool cooling.....
295015AA1.04	Incomplete SCRAM / 1	3.4	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"/>	Rod control and information system: Plant-Specific...
295022AK1.02	Loss of CRD Pumps / 1	3.6	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"/>	Reactivity control.....
295033EA2.01	High Secondary Containment Area Radiation Levels / 9	3.8	3.9	<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"/>	Area radiation levels.....
295035EK3.02	Secondary Containment High Differential Pressure / 5	3.3	3.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary containment ventilation response.....

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

RO SRO

Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

295002G2.4.8 Loss of Main Condenser Vac / 3
295010 High Drywell Pressure / 5

295033EA2.03 High Secondary Containment Area Radiation Levels / 9

Cause of high area radiation.....

295036EA2.03 Secondary Containment High Sump Area Water Level / 5

Cause of the high water level.....

295034 EA2.01 Sec Cont Vent Hi Rad: 1

Ventilation Rad Level

8-16-16

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO/SRO)												Form ES-401-1	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G*	K/A Topic(s)	IR	#	
203000 RHR/LPCI: Injection Mode								R				R-A2.02			
205000 Shutdown Cooling		R										R-K2.01			
206000 HPCI						R		S	R			R-A3.02 R-K6.07 S-A2.08			
207000 Isolation (Emergency) Condenser N/A															
209001 LPCS											R	R-G2.1.23			
209002 HPCS N/A															
211000 SLC			R								S	R-K3.03 S-G2.4.41			
212000 RPS			R								R	R-G2.4.46 R-K3.06			
215003 IRM				R						R	S	R-A4.02 R-K4.02 S-G2.4.47			
215004 Source Range Monitor		R										R-K2.01			
215005 APRM / LPRM										R		R-A4.04			
217000 RCIC				R				S				R-K4.03 S-A2.15			
218000 ADS											R	R-G2.4.33			
223002 PCIS/Nuclear Steam Supply Shutoff								R				R-A2.08			
239002 SRVs					R				R			R-A3.07 R-K5.04			
259002 Reactor Water Level Control							R					R-A1.03			
261000 SGTS		R										R-K1.03			
262001 AC Electrical Distribution										R		R-A3.01			
262002 UPS (AC/DC)							R					R-A1.02			
263000 DC Electrical Distribution				R			R					R-A1.01 R-K4.02			
264000 EDGs		R						S				R-K1.04 S-A2.02			
300000 Instrument Air					R							R-K5.01			
400000 Component Cooling Water						R						R-K6.05			
K/A Category Point Totals:	RO	2	2	2	3	2	2	3	2	3	2	3	Group Point Total:	26/5	

SRO

3

2

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
203000A2.02	RHR/LPCI: Injection Mode	3.5	3.5	<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"/>	Pump trips
205000K2.01	Shutdown Cooling	3.1	3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pump motors
206000A3.02	HPCI	3.8	3.8	<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"/>	System Flow: BWR-2,3,4
206000K6.02 K6.12	HPCI	3.4 3.4 4.2 4.3	<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"/>	<input type="checkbox"/>	EGCS keep fill system-BWR-2,3,4(P-Spec) Reactor Water Level
209001G2.1.23	LPCS	4.3	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 perform specific system and integrated plant procedures during all modes of plant operation.
211000K3.03	SLC	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"/>	Core plate differential pressure indication
212000G2.4.46	RPS	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.
212000K3.06	RPS	4.0	4.1	<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"/>	Scram air header solenoid operated valves
215003A4.02	IRM	2.9	2.8	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	CRT display indications: Plant-Specific
215003K4.02	IRM	4.0	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor SCRAM signals
215004K2.01	Source Range Monitor	2.6	2.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SRM channels/detectors

3-6-17

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
RO	SRO	3.2	3.2											LPRM back panel switches, meters and indicating lights
215005A4.04	APRM / LPRM											<input checked="" type="checkbox"/>		
217000K4.03	RCIC	2.9	3.0											Prevents pump over heating
218000G2.4.35	ADS	3.8	4.0										<input checked="" type="checkbox"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
223002A2.08	PCIS/Nuclear Steam Supply Shutoff	2.7	3.1								<input checked="" type="checkbox"/>			Surveillance testing
239002A3.07	SRVs	3.8	3.9									<input checked="" type="checkbox"/>		Reactor water level
239002K5.04	SRVs	3.3	3.5					<input checked="" type="checkbox"/>						Tail pipe temperature monitoring
259002A4.04	Reactor Water Level Control	3.8	3.8							<input checked="" type="checkbox"/>				Reactor power - RWL Controller Indications
261000K1.03	SGTS	2.9	3.1	<input checked="" type="checkbox"/>										Suppression pool
262001A3.01	AC Electrical Distribution	3.1	3.2									<input checked="" type="checkbox"/>		Breaker tripping
262002A1.02	UPS (AC/DC)	2.5	2.9							<input checked="" type="checkbox"/>				Motor generator outputs
263000A1.01	DC Electrical Distribution	2.5	2.8							<input checked="" type="checkbox"/>				Battery charging/discharging rate

3-6-17

A1.04

3.6 3.6

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
263000K4.02	DC Electrical Distribution	3.1	3.5	<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"/>	Breaker interlocks, permissives, bypasses and cross ties: Plant Specific
264000K1.04	EDGs	3.2	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"/>	Emergency generator cooling water system
300000K5.01	Instrument Air	2.5	2.5	<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"/>	Air compressors
400000K6.05	Component Cooling Water (Any type)	3.0	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pumps

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
206000A2.08	HPCI	RO	SRO	3.9	4.2	<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"/>	High suppression pool temperature: BWR-2,3,4

211000G2.4.4.1	SLC	2.9 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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the emergency action level thresholds and classifications. <i>Parameters and logic used to assess the status of safety functions.</i>
G2.4.2.1		4.0 4.6												

215003G2.4.4.7	IRM	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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
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217000A2.15	RCIC	3.8 3.8	<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"/>	<input type="checkbox"/>	Steam line break
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264000A2.02	EDGs	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unloading prior to securing emergency generator
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A2.07

3.5 3.7

Loop during full load testing

Dec 6, 2016

A2.07

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO) (SRO)											Form ES-401-1	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G*	K/A Topic(s)	IR	#
201001 CRD Hydraulic								S				S - A2.03		
201002 RMCS														
201003 Control Rod and Drive Mechanism														
201004 RSCS														
201005 RCIS														
201006 RWM					R							R - K5.07		
202001 Recirculation				R								R - K4.07		
202002 Recirculation Flow Control		R										R - K2.02		
204000 RWCU														
214000 RPIS									R		S	R - A3.03 S - G2.4.50		
215001 Traversing In-Core Probe														
215002 RBM														
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.				R								R - K3.02		
226001 RHR/LPCI: CTMT Spray Mode								R				R - A1.04		
230000 RHR/LPCI: Torus/Pool Spray Mode														
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam						R						R - K6.06		
239003 MSIV Leakage Control														
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.						R						R - K6.04		
256000 Reactor Condensate														
259001 Reactor Feedwater											R	R - G2.1.32		
268000 Radwaste								R				R - A2.01		
271000 Offgas														
272000 Radiation Monitoring								S				S - A2.04		
286000 Fire Protection											R	R - A4.02		
288000 Plant Ventilation												R - K1.04		
290001 Secondary CTMT	R													
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:	RD	1	1	1	1	1	2	1	1	1	1	Group Point Total:		12/3
	SRO						2				1			

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
201006K5.07	RWM	RO	SRO	2.8	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Latch groups: P-Spec(Not-BWR6)
202001K4.07	Recirculation	2.8	2.9	<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"/>	Motor generator set trips: Plant-Specific (VFD trips)
202002K2.02	Recirculation Flow Control	2.6	2.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydraulic power unit: Plant-Specific (VFD)
215001A3.03	Traversing In-core Probe	2.5	2.6	<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"/>	Valve operation: Not-BWR1
226001K3.02	RHR/LPCI: CTMT Spray Mode	3.5	3.5	<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/drywell/suppression chamber temperature
230000A1.04	RHR/LPCI: Torus/Pool Spray Mode	3.2	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"/>	System flow
239001K6.06	Main and Reheat Steam	3.8	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"/>	MSIV isolation signal
245000K6.04	Main Turbine Gen. / Aux.	2.6	2.7	<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"/>	Hydrogen cooling
268000G2.1.32	Radwaste	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to explain and apply all system limits and precautions.
271000A2.01	Offgas	3.1	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"/>	Low condenser vacuum
288000A4.02	Plant Ventilation	2.8	2.8	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	Area temperature

T2G2 BWR EXAMINATION OUTLINE

[illegible]

RO SRO

290001K1.04 Secondary CTMT

3.7 3.9

SBGT

NAME / SAFETY FUNCTION: KA

TOPIC:

RO SRO

201001A2.03 CRD Hydraulic

Power supply failures

[illegible]

21500162-4:50 Traversing In-core Probe

G2.2.40

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Ability to apply Tech Specs for a system

~~4.2-4.0-~~

3.4 4.7

272000A2.04 Radiation Monitoring

D.C. electrical failure

2.7	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Facility: <u>BROWNS FERRY</u>		Date of Exam: <u>APRIL 2017</u>				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1. <u>3</u>	<u>Shift or short term relief turnover</u>	<u>3.7</u>			
	2.1. <u>25</u>	<u>Ability interpret reference mat'ls, graphs, etc.</u>	<u>3.9</u>			
	2.1.					
	2.1. <u>17</u>	<u>Make accurate, clear, concise verbal rpts</u>			<u>3.5</u>	<u>4.0</u>
	2.1. <u>26</u>	<u>Industrial safety procedures</u>			<u>3.6</u>	
	2.1.					
	Subtotal					
2. Equipment Control	2.2. <u>4</u>	<u>(multi unit) Variations in CB layout, systems, ...</u>	<u>3.6</u>			
	2.2. <u>43</u>	<u>Process to track inoperable alarms</u>	<u>3.0</u>			
	2.2. <u>44</u>	<u>Interpret indications, .. to verify status...</u>	<u>4.2</u>			
	2.2.					
	2.2. <u>5</u>	<u>Process for design or operating changes</u>			<u>3.2</u>	
	2.2. <u>38</u>	<u>Conditions/Limitations in facility license</u>			<u>4.5</u>	
	Subtotal					
3. Radiation Control	2.3. <u>12</u>	<u>Rad Safety principles pertaining to L.O. duties</u>	<u>3.2</u>			
	2.3. <u>15</u>	<u>Rad monitoring Systems</u>	<u>2.9</u>			
	2.3.					
	2.3. <u>15</u>	<u>Rad monitoring Systems</u>			<u>3.1</u>	
	2.3.					
	2.3.					
	Subtotal					
4. Emergency Procedures / Plan	2.4. <u>27</u>	<u>Fire-in-the-plant procedures</u>	<u>3.4</u>			
	2.4. <u>37</u>	<u>Lines of authority during E-plan</u>	<u>3.0</u>			
	2.4. <u>39</u>	<u>RO responsibilities in E-plan</u>	<u>3.9</u>			
	2.4.					
	2.4. <u>2</u>	<u>Setpoints, Interlocks, Auto-Actions EOP entry</u>			<u>4.6</u>	
	2.4. <u>40</u>	<u>SRO responsibilities in E-plan</u>			<u>4.5</u>	
	Subtotal					
Tier 3 Point Total				<u>10</u>		<u>7</u>

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.25	Conduct of operations	3.9	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"/>	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.
G2.1.3	Conduct of operations	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of shift or short term relief turnover practices.
G2.2.4	Equipment Control	3.6	3.6	<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"/>	(multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.
G2.2.43	Equipment Control	3.0	3.3	<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 the process used to track inoperable alarms
G2.2.44	Equipment Control	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
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
G2.3.15	Radiation Control	2.9	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation monitoring systems (generic, plant-wide, aspect)
G2.4.27	Emergency Procedures/Plans	3.4	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"/>	Knowledge of "fire in the plant" procedures.
G2.4.37	Emergency Procedures/Plans	3.0	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 the lines of authority during implementation of an emergency plan.
G2.4.39	Emergency Procedures/Plans	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"/>	Knowledge of the RO's responsibilities in emergency plan implementation.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.17	Conduct of operations	3.9	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 make accurate, clear and concise verbal reports.
G2.1.26	Conduct of operations	3.4	3.6	<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 industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).
G2.2.38	Equipment Control	3.6	4.5	<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 conditions and limitations in the facility license.
G2.2.5	Equipment Control	2.2	3.2	<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 process for making design or operating changes to the facility
G2.3.15	Radiation Control	2.9	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation monitoring systems (generic, plant-wide aspect)
G2.4.16 G2.4.2	Emergency Procedures/Plans	4.5 3.5	4.6 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 system set points, interlocks and automatic actions associated with EOP entry conditions. EOP implementation hierarchy (generic, plant-wide is EOP3)
G2.4.40	Emergency Procedures/Plans	2.7	4.5	<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 SRO's responsibilities in emergency plan implementation.

Facility:	Date of Exam:	Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>
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Item Description	Initials		
	a	b	c
1. Clean answer sheets copied before grading	[Signature]	N/A	[Signature]
2. Answer key changes and question deletions justified and documented	[Signature]	[Signature]	N/A
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	[Signature]	[Signature]	[Signature]
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	[Signature]	[Signature]	N/A
5. All other failing examinations checked to ensure that grades are justified	[Signature]	[Signature]	N/A
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	[Signature]	N/A	[Signature]

Printed Name/Signature	Date
a. Grader <u>Jason D. Buxer</u>	<u>5-15-17</u>
b. Facility Reviewer(*) <u>N/A</u>	<u>N/A</u>
c. NRC Chief Examiner (*) <u>BRUNO CABALLERO / B. Caballero</u>	<u>5-16-17</u>
d. NRC Supervisor (*) <u>Eugene GUTHRIE</u>	<u>5/17/17</u>

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



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

February 6, 2017

10 CFR 40(b)(3)
10 CFR 55.5
10 CFR 55.49

Ms. Catherine Haney
Regional Administrator
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. Eugene F. Guthrie

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: Submittal of Initial Operator Licensing Examination

Reference: Letter from the Nuclear Regulatory Commission to the Tennessee Valley Authority, "Browns Ferry Nuclear Plant - Notification of Licensed Operator Initial Examination 05000259/2017301, 05000260/2017301, and 05000296/2017301," dated October 27, 2016

In accordance with the referenced letter and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," the Tennessee Valley Authority is providing the written test and supporting reference materials for the upcoming license examination.

The Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 Initial Operator Licensing Examination is scheduled for the week of April 10, 2017. In order to meet the examination schedule, the NRC requested that BFN furnish this examination material by February 6, 2017.

See the attached enclosure for the Reactor Operators and Senior Reactor Operators examinations.

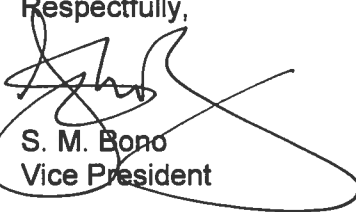
*Rec'd
2/6/17*

Ms. Catherine Haney
Page 2
February 6, 2017

In accordance with Title 10 of the Federal Code of Regulations (10 CFR) 55.49, and NUREG-1021, appropriate measures have been taken to ensure examination integrity and security. Accordingly, it is requested that this letter and the enclosed documents will be withheld from public disclosure until the examinations are completed.

There are no commitments contained in this submittal. Should you have any questions regarding this matter, please contact Mr. Michael Barton, at (256) 729-2783.

Respectfully,



S. M. Bono
Vice President

Enclosure: Written Examination and Supporting Reference Materials - Operator License
Examination Scheduled for the Week of April 24, 2017

Ms. Catherine Haney
Page 3
February 6, 2017

MWO:RWC

bcc: (w/o Enclosure)
M. A. Barton
A. S. Bergeron
G. A. Boerschig
D. L. Hughes
W. L. Parker
G. E. Pry
J. W. Shea
C. L. Vaughn
EDMS

**Withhold the Enclosure from Public Disclosure in Accordance with
NUREG-1021**

Enclosure

**Tennessee Valley Authority
Browns Ferry Nuclear Plant
Units 1, 2, and 3**

**Written Examination and Supporting Reference Materials - Operator
License Examination Scheduled for the Week of April 24, 2017**

This enclosure contains the following information:

1. A notebook containing the following:
 - ES-201-1, Examination Preparation Checklist
 - ES-201-2, Examination Outline Quality Checklist
 - ES-201-3, Examination Security Agreement
 - ES-301-1, Administrative Topic Outline
 - ES-301-2, Control Room/In-Plant Systems Outline
 - ES-301-3, Operating Test Quality Checklist
 - ES-301-4, Simulator Scenario Quality Checklist
 - ES-301-5, Transient and Event Checklist
 - ES-301-6, Competencies Checklist
 - ES-401-4, Record of Rejected K/As
 - ES-401-6, Written Examination Quality Checklist
 - ES-D1, Scenario Outline
 - ES-D2, Required Operator Actions
 - Written Examination with References
2. Compact disk containing the examination and references



~~Personally Identifiable Information - Withhold Under 10 CFR 2.390~~
Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

March 10, 2017

10 CFR 55.5

Ms. Catherine Haney
Regional Administrator
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. Eugene F. Guthrie

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Preliminary Senior Reactor Operator (SRO) Licensee Application Information**

Reference: Letter from the Nuclear Regulatory Commission to the Tennessee Valley Authority, "Browns Ferry Nuclear Plant – Notification of Licensed Operator Initial Examination 05000259/2017301, 05000260/2017301, 05000296/2017301," dated October 27, 2016

In accordance with the above referenced NRC letter dated October 27, 2016, the Tennessee Valley Authority (TVA) is providing preliminary Senior Reactor Operator (SRO) Licensee application information that is to be submitted 30 days prior to the SRO examination date of April 10, 2017.


The enclosure contains the preliminary (signed) personal qualification statement form (NRC Form 398) and certification of medical examination form (NRC Form 396), for the SRO candidates.

The enclosure to the letter is considered by the TVA to be of a personal nature and, as such, is to be withheld from public disclosure in accordance with 10 CFR 2.390(a)(6).

Ms. Catherine Haney
Page 2
March 10, 2017

There are no new regulatory commitments in this letter. Should you have any questions regarding this matter, please contact Mr. Christopher L. Vaughn, at (256) 729-3439.

Respectfully,



S. M. Bono
Vice President

Enclosure: Preliminary Senior Reactor Operator (SRO) Licensee Application
Information



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

March 23, 2017

10 CFR 55.5

Ms. Catherine Haney
Regional Administrator
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. Eugene F. Guthrie

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: Final Senior Reactor Operator (SRO) Licensee Application Information

Reference: Letter from the Nuclear Regulatory Commission to the Tennessee Valley Authority, "Browns Ferry Nuclear Plant – Notification of Licensed Operator Initial Examination 05000259/2017301, 05000260/2017301, 05000296/2017301," dated October 27, 2016

In accordance with the above referenced NRC letter dated October 27, 2016, the Tennessee Valley Authority (TVA) is providing finalized Senior Reactor Operator (SRO) Licensee application information that is to be submitted 14 days prior to the SRO examination date of April 10, 2017.

The enclosure contains the final (signed) personal qualification statement form (NRC Form 398) and certification of medical examination form (NRC Form 396), for the SRO candidates.

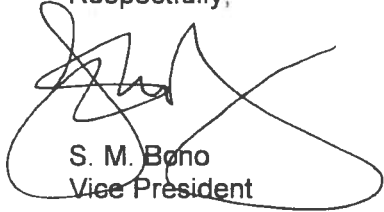
The enclosure to the letter is considered by the TVA to be of a personal nature and, as such, is to be withheld from public disclosure in accordance with 10 CFR 2.390(a)(6).

MAR 24 2017

Ms. Catherine Haney
Page 2
March 23, 2017

There are no new regulatory commitments in this letter. Should you have any questions regarding this matter, please contact Mr. Christopher L. Vaughn, at (256) 729-3439.

Respectfully,

A handwritten signature in black ink, appearing to be 'S. M. Bono', written over a circular stamp or seal.

S. M. Bono
Vice President

Enclosure: Final Senior Reactor Operator (SRO) Licensee Application Information



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

April 4, 2017

10 CFR 55.5

Ms. Catherine Haney
Regional Administrator
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. Eugene F. Guthrie

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: Updated Final Senior Reactor Operator (SRO) Licensee Application Information

- References:**
1. Letter from the Nuclear Regulatory Commission to the Tennessee Valley Authority, "Browns Ferry Nuclear Plant – Notification of Licensed Operator Initial Examination 05000259/2017301, 05000260/2017301, 05000296/2017301," dated October 27, 2016
 2. Letter from the Tennessee Valley Authority to the Nuclear Regulatory Commission, "Final Senior Reactor Operator (SRO) Licensee Application Information," dated March 23, 2017

In accordance with the above referenced NRC letter dated October 27, 2016 (Reference 1), the Tennessee Valley Authority (TVA) provided finalized Senior Reactor Operator (SRO) Licensee application information that was to be submitted 14 days prior to the SRO examination date of April 10, 2017 (Reference 2).

However, due to an administrative error, the personal qualification statement forms (NRC Form 398) were unsigned by the applicants.

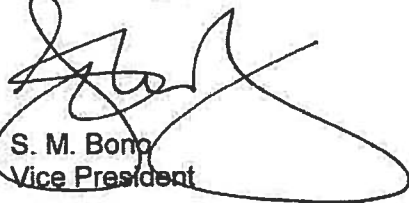
The enclosure contains the final (signed) personal qualification statement form (NRC Form 398) and certification of medical examination form (NRC Form 396), for the SRO candidates.

Ms. Catherine Haney
Page 2
April 4, 2017

The enclosure to the letter is considered by the TVA to be of a personal nature and, as such, is to be withheld from public disclosure in accordance with 10 CFR 2.390(a)(6).

There are no new regulatory commitments in this letter. Should you have any questions regarding this matter, please contact Mr. Christopher L. Vaughn, at (256) 729-3439.

Respectfully,



S. M. Bono
Vice President

Enclosure: Final Senior Reactor Operator (SRO) Licensee Application Information

Ms. Catherine Haney
Page 3
April 4, 2017

MWO:RWC

bcc: (w/o Enclosure)
A. S. Bergeron
R. A. Evans
D. L. Hughes
W. L. Parker
G. E. Pry
J. W. Shea
M. C. Tharpe
C. L. Vaughn
EDMS



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

May 1, 2017

10 CFR 55.5

Ms. Catherine Haney
Regional Administrator
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. Eugene F. Guthrie

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Senior Reactor Operator Initial License Written Examinations - Post Examination Response**

The Tennessee Valley Authority (TVA) administered the final NRC Written Examination for the Browns Ferry Nuclear Plant Senior Reactor Operator Initial License Training (ILT) on April 10, 2017. The supporting documentation specified by Section ES-501 of NUREG 1021, Revision 10, Operator Licensing Examination Standards for Power Reactors, for Initial Post-Examination Activities is enclosed. The enclosures' content listing is provided at the end of this letter.

The NRC Form ES-201-3, will be forwarded to the NRC as soon as it is completed. The enclosures to this letter are considered by TVA to be of a personal nature and, as such, are requested to be withheld from public disclosure in accordance with 10 CFR 2.390(a)(6).

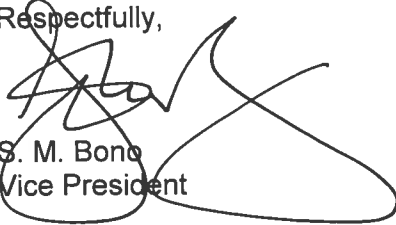
There are no commitments contained within this letter.

*Rec'd
5/3/17*

Ms. Catherine Haney
Page 2
May 1, 2017

Should you have any questions regarding this matter, please contact Mr. Michael Barton, at (256) 729-2783.

Respectfully,



S. M. Bono
Vice President

Enclosures:

- Enclosure 1 - Form ES-403-1, Written Examination Grading Quality Checklist
- Enclosure 2 - Graded Written Examinations (Each Applicant's Original Answer and Examination Cover Sheets) and a Clean Copy of Each Applicant's Answer Sheet
- Enclosure 3 - Questions Asked By and Answers Given to the Applicants During the Written Examination
- Enclosure 4 - Examination Seating Chart
- Enclosure 5 - Results of Written Examination Performance Analysis that was Performed
- Enclosure 6 - Master Examination Answer Key, Annotated to Indicate any Changes Made While Administering and Grading the Examinations
- Enclosure 7 - Facility Comments made in accordance with ES-501 Attachment 1
- Enclosure 8 - Correction to Nuclear Regulatory Commission Letter dated April 17, 2017 List of Applicants

rec'd
5/3/17

Ms. Catherine Haney
Page 3
May 1, 2017

MWO:MNK
Enclosures

bcc: (w/o Enclosure)
M. A. Barton
G. A. Boerschig
A. S. Bergeron
D. L. Hughes
J. W. Shea
C. L. Vaughn
EDMS