COVER SHEET

MCGUIRE EXAM 2000-301
50-369, 370/2000-301
MAY 8 - 12, MAY 19,
MAY 22 - 25, 2000

-- ADMINISTRATIVE DOCUMENTS --
ALL IN ONE ADAMS DOCUMENT

[✓] ES-201-1 - Exam Preparation Checklist

[✓] ES-201-2 - Exam Outline Quality Checklist

[✓] ES-201-3 - Exam Security Agreements

[✓] ES-301-3 - Operating Test Quality Checklist

[✓] ES-301-4 - Simulator Scenario Quality Checklist

[✓] ES-301-5 - Transient & Event Checklist

[✓] ES-301-6 - Competencies Checklist

[✓] ES-401-7 - Written Exam Quality Checklist

[✓] ES-401-9 - Written Exam Review Worksheet

[✓] ES-403-1 - Written Exam Grading Quality Checklist

[✓] ES-501-1 - Post Exam Check Sheet

✓ 401-4 SRO Exam Outline

✓ 401-4 RO Exam Outline

Facility: McGUIRE Date of Exam: 5/19/00 Exam Level: (RO) SRO

Item Description					Initial a	Initial b*	Initial c*
1.	Questions and answers technically accurate and applicable to facility				BCH	JA	MS
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available				BCH	JA	MS
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401				BCH	JA	MS
4.	No more than 25 questions are duplicated from [practice exams, quizzes, and] the last two NRC licensing exams; enter the actual number of duplicated questions at right	NRC: 15	Other: 85		BCH	JA	MS
5.	[No (~~Less than 5 percent~~) question duplication from the license screening/audit exam (if independently written)]				BCH	JA	MS
6.	Bank use meets limits (no more than 50 percent from the bank, at least 10 percent new, and the rest modified); enter the actual question distribution at right	Bank: 8	Modified: 23	New: 54	BCH	JA	MS
7.	Between 50 and 60 percent of the questions on the exam (including 10 new questions) are written at the comprehension/analysis level; enter the actual question distribution at right	Memory: 48	C/A: 52		BCH	JA	MS
8.	References/handouts provided do not give away answers				BCH	JA	MS
9.	Question distribution meets previously approved examination outline; deviations are justified				BCH	JA	MS
10.	Question psychometric quality and format meet ES, Appendix B, guidelines				BCH	JA	MS
11.	The exam contains 100, one-point, multiple choice items; the total is correct and agrees with value on cover sheet				BCH	JA	MS

	Printed Name / Signature	Date
a. Author	BRIAN C. HAAGENSEN / BC Haagensen	3/20/00
b. Facility Reviewer(*)	Thomas A. Hufow / Thomas A. Hufow	3/21/00
c. NRC Chief Examiner(*)	MARIA SYKES / Maria Sykes DC Payne / DC Payne	4/20/00
d. NRC Regional Supervisor(*)	H.O. CHRISTENSEN / H.O. Christensen	5/5/00

Note: * The facility reviewer's signature is not applicable for NRC-developed examinations; two independent NRC reviews are required.
See special instructions (Section E.2.c) for Items 1, 4, 5, and 6.
[ ] The items in brackets do not apply to NRC-prepared examinations.

Facility: McGUIRE Date of Exam: 5/19/00 Exam Level: RO/SRO

Item Description					Initial a	Initial b*	Initial c*
1.	Questions and answers technically accurate and applicable to facility				BCB	JA	MS
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available				BCB	JA	MS
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401				BCB	JA	MS
4.	No more than 25 questions are duplicated from [practice exams, quizzes, and] the last two NRC licensing exams; enter the actual number of duplicated questions at right	NRC: 21	Other: 79		BCB	JA	MS
5.	[No (~~Less than 5 percent~~ 4) question duplication from the license screening/audit exam (if independently written)]				BCB	JA	MS
6.	Bank use meets limits (no more than 50 percent from the bank, at least 10 percent new, and the rest modified); enter the actual question distribution at right	Bank: 7	Modified: 19	New: 53	BCB	JA	MS
7.	Between 50 and 60 percent of the questions on the exam (including 10 new questions) are written at the comprehension/analysis level; enter the actual question distribution at right	Memory: 42	C/A: 58		BCB	JA	MS
8.	References/handouts provided do not give away answers				BCB	JA	MS
9.	Question distribution meets previously approved examination outline; deviations are justified				BCB	JA	MS
10.	Question psychometric quality and format meet ES, Appendix B, guidelines				BCB	JA	MS
11.	The exam contains 100, one-point, multiple choice items; the total is correct and agrees with value on cover sheet				BCB	JA	MS

	Printed Name / Signature	Date
a. Author	BRIAN C. HAAGENSEN / B C Haagensen	3/20/00
b. Facility Reviewer(*)	Thomas A. Ashe / Thomas A Ashe	3/21/00
c. NRC Chief Examiner(*)	MARVIN SYKES / Marvin Sykes, D. Payne / D Payne	4/20/00
d. NRC Regional Supervisor(*)	HO CHRISTENSEN / HO Christensen	5/5/00

Note: * The facility reviewer's signature is not applicable for NRC-developed examinations; two independent NRC reviews are required.
See special instructions (Section E.2.c) for Items 1, 4, 5, and 6.
[ ] The items in brackets do not apply to NRC-prepared examinations.

Facility: McGuire Nuclear Station Dates of Examination: 5/8-12/00 & 5/22-27/00

Examinations Developed by: (Facility) / NRC (circle one)

Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-120	3. Facility contact briefed on security & other requirements (C.2.c)	
-120	4. Corporate notification letter sent (C.2.d)	
[-90]	[5. Reference material due (C.1.e; C.3.c)]	N/A
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	
-30	9. Preliminary license applications due (C.1.l; C.2.g; ES-202)	
-14	10. Final license applications due and assignment sheet prepared (C.1.l; C.2.g; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	N/A
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	

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

[ ] Applies only to examinations prepared by the NRC.

Facility: McGUIRE 1&2 Date of Examination: 5/8-26/00

Item	Task Description	Initials a	b*	c
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	CA	JD	NL
	b. Assess whether the outline was systematically prepared and whether all knowledge and ability categories are appropriately sampled.	CA	JD	NL
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	CA	JD	NL
	d. Assess whether the repetition from previous examination outlines is excessive.	CA	JD	NL
2. SIM	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	CA	JD	NL
	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; ensure 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 scenarios will not be repeated over successive days.	CA	JD	NL
	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.	CA	JD	NL
3. W/T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	CA	JD	NL
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	CA	JD	NL
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	CA	JD	NL
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	CA	JD	NL
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	CA	JD	NL
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	CA	JD	NL
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	CA	JD	NL
	d. Check for duplication and overlap among exam sections.	CA	JD	NL
	e. Check the entire exam for balance of coverage.	CA	JD	NL
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	CA	JD	NL

	Printed Name / Signature	Date
a. Author	CHARLES SAWYER / Charles Sawyer	2-28-00
b. Facility Reviewer(*)	Thomas A. Arlow / Thomas A. Arlow	2-28-00
c. Chief Examiner	MARVIN SYKES / Marvin D. Sykes & Charles Payne / Charles Payne	3/2/00
d. NRC Supervisor	George T. Hopper / George T. Hopper	3/23/00

(*) Not applicable for NRC-developed examinations.

Duke Energy

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July 20, 2000

Mr. Charles Payne
U. S. Nuclear Regulatory Commission
Operator Licensing and Human Performance Branch
Atlanta Federal Center
61 Forsyth Street, SW Suite 23T85
Atlanta, GA 30303-3415

Subject: Security Agreement

Enclosed is the signed security agreement from the previous HLP exams.

Charles Sawyer

CWS:cd

Enclosure

AUG 3 2000

AUG 3 2000

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 5/8 - 5/22/00 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.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 5/8 to 5/22/00 From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	CHARLES SAWYER	INSTRUCTOR/EXAM LEAD		11-4-99		5-25-00	
2.	BRIAN HAAGENSON	CONSULTANT PSHA		11-4-99		5-29-00	
3.	Paul Swetland	CONSULTANT PSHA		11/4/99		6/30/00	
4.	Rob Billings	Instructor		1-5-00		6-14-00	
5.	STEVEN HELMS	INSTRUCTOR		1-5-00		5/25/00	
6.	DENNIS TAYLOR	SIMULATOR ENGINEER/SUPPORT		1-5-00		5/25/00	
7.	Ray A. Wilson	IT III		1-5-00		5/25/00	
8.	W. R. BAKER	IT PROF. II		1-6-00		5/25/2000	
9.	Tom Anlow	Facility Rep		1/18/00		5/31/00	
10.	Terry S. Tessnear	Sr Tech Spec / Sim Sppt		1/18/00		5/30/00	
11.	CHUCK ELAM	IT PROF		1/18/00		5/25/00	
12.	Suthash Kumar	IT 3		1/12/00		5/25/00	
13.	EDDIE L. ROBERTS	SUPERVISOR, OPS TRNG.		3/6/00		5/25/00	
14.	Philip A. Thompson	SHIFT SUPERVISOR EP/AP Praxis		3/6/00		5-25-00	
15.	ROBIN J. BELL	LICENSED REACTOR OPERATOR		3-6-00		6-2-00	
16.	Charles E. Newman	Licensed Reactor Operator		3-13-00		5-26-00	
NOTES: 17.	PATRICK R. JACKSON	SRO / STA - SWPM		3-13-00		7/17/00	

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of _____ as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC.Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

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

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	ROBERT M POPE	SUPERVISOR OPS TRNG	Robert M Pope	5-16-00	Robert M Pope	5-25-00
2.	DAVID W. BUNCH	OPS TEST SUPV.	David W. Bunch	4-27-00	David W. Bunch	6-6-00
3.	CONNIE R. DUFFELL	ADMN SPEC	Connie R. Duffell	5-2-00	Connie R. Duffell	5-25-00
4.	Scotty L. Bradshaw	Supt of ops	Scotty L. Bradshaw	5-8-00	Scotty L. Bradshaw	6-14-00
5	Alan Orton	Manager-operations Training	Alan Orton	5-8-00	Alan Orton	5-2500
6.	Kevin Poovey	OWPM	Kevin W Poovey	5-10-00	Kevin W Poovey	5-31 00
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

NOTES:

Facility: McGuire 1&2 Date of Examination: 5/8-26/00 Operating Test Number: 1

	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).	CA	D	D
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	CA	D	D
c.	The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).	CA	D	D
d.	Overlap with the written examination and between operating test categories is within acceptable limits.	CA	D	D
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	CA	D	D
	2. WALK-THROUGH (CATEGORY A & B) CRITERIA	--	--	--
a.	Each JPM includes the following, as applicable: · initial conditions · initiating cues · references and tools, including associated procedures · validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee · specific performance criteria that include: - detailed expected actions with exact criteria and nomenclature - system response and other examiner cues - statements describing important observations to be made by the applicant - criteria for successful completion of the task - identification of critical steps and their associated performance standards - restrictions on the sequence of steps, if applicable	CA	D	MS
b.	The prescripted questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.	N/A	N/A	MS
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.	CA	D	MS
d.	At least 20 percent of the JPMs on each test are new or significantly modified.	CA	D	MS
	3. SIMULATOR (CATEGORY C) CRITERIA	--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	CA	D	D

	Printed Name / Signature	Date
a. Author	CHARLES SAWYER / Charles Sawyer	3-14-00
b. Facility Reviewer(*)	Thomas D. Ashley / Thomas D. Ashley	3/14/00
c. NRC Chief Examiner (*)	MARLIN SIKES / Marlin Sikes DC Payne / DC Payne	4/21/00
d. NRC Supervisor (*)	H.O CHRISTENSEN / H.O Christensen	5/5/00

(*) The facility signature is not applicable for NRC-developed tests; two independent NRC reviews are required.

Facility: McGuire Date of Exam: 5-8-00 Scenario Numbers: 1/2/3 Operating Test No.:

QUALITATIVE ATTRIBUTES		Initials a	b	c
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2.	The scenarios consist mostly of related events.			
3.	Each event description consists of · the point in the scenario when it is to be initiated · the malfunction(s) that are entered to initiate the event · the symptoms/cues that will be visible to the crew · the expected operator actions (by shift position) · the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	N/A	N/A	N/A
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.4 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	7/5/6			
2.	Malfunctions after EOP entry (1-2)	2/3/1			
3.	Abnormal events (2-4)	3/3/3			
4.	Major transients (1-2)	2/1/1			
5.	EOPs entered/requiring substantive actions (1-2)	2/2/1			
6.	EOP contingencies requiring substantive actions (0-2)	0/0/1			
7.	Critical tasks (2-3)	2/2/2			

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1 **RO**	2 **BOP**	3	4
RO1	Reactivity	1	1	5		
	Normal	1	1	5		
	Instrument	2	3	3		
	Component	2	5	1		
	Major	1	6	6		
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1 **BOP**	2 **RO**	3	4
RO2	Reactivity	1	1	5		
	Normal	1	1	5		
	Instrument	2	2	4		
	Component	2	4	2		
	Major	1	6	6		
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2 **RO**	3 **BOP**	4
RO3	Reactivity	1		5	1	
	Normal	1		5	1	
	Instrument	2		4	3	
	Component	2		2	5	
	Major	1		6	6	
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2 **BOP**	3 **RO**	4
RO4	Reactivity	1		5	1	
	Normal	1		5	1	
	Instrument	2		3	2	
	Component	2		1	4	
	Major	1		6	6	
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2 **RO**	3 **BOP**	4
RO5	Reactivity	1		5	1	
	Normal	1		5	1	
	Instrument	2		4	3	
	Component	2		2	5	
	Major	1		6	6	
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U1	Reactivity	0				
	Normal	1	1	5		
	Instrument	1	2,3	3,4		
	Component	1	4,5	1,2		
	Major	1	6	6		

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U2	Reactivity	0				
	Normal	1		5	1	
	Instrument	1		3,4	2,3	
	Component	1		1,2	4,5	
	Major	1		6	6	

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: |

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U3	Reactivity	0				
	Normal	1		5		
	Instrument	1		3,4		
	Component	1		1,2		
	Major	1		6		

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U5	Reactivity	0			0	
	Normal	1			1	
	Instrument	1			2	
	Component	1			5	
	Major	1			6	

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: |

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U4	Reactivity	0				
	Normal	1			1	
	Instrument	1			2,3	
	Component	1			4,5	
	Major	1			6	

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1		5		
	Normal	0		0		
	Instrument	1		4		
	Component	1		2		
	Major	1		6		
SRO-I1						
As SRO	Reactivity	0	0			
	Normal	1	1			
	Instrument	1	2,3			
	Component	1	4,6			
	Major	1	6			
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

SCENARIO SET NO.: 1

Applicant Type	Evolution Type	Number Reqr'd	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1	1			
	Normal	0	0			
	Instrument	1	3			
	Component	1	5			
	Major	1	6			
SRO-I2						
As SRO	Reactivity	0		0		
	Normal	1		5		
	Instrument	1		3,4		
	Component	1		1,2		
	Major	1		6		
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

Instructions: (1) Enter the operating test number and ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or controlled abnormal conditions but must be significant per Appendix D.

Author:
Chief Examiner:

Competencies	Applicant #1 RO/SRO-I/**SRO-U1**				Applicant #2 **RO1**/SRO-I/SRO-U				Applicant #3 **RO2**/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
Crew 1	1 **SRO**	2 **SRO**	3	4	1 **RO**	2 **BOP**	3	4	1 **BOP**	2 **RO**	3	4
Understand and Interpret Annunciators and Alarms	1,2 3,4 5,6	1,2 3,4 5,6			3,5 6	1,3			1,2, 4,6	2,4 5,6		
Diagnose Events and Conditions	1,2 3,4 5,6	1,2 3,4 5,6			3,5 6	1,3, 5,6			1,2, 4,6	2,4 5,6		
Understand Plant and System Response	1,2 3,4 5,6	1,2 3,4 5,6			3,5 6	1,3, 5,6			1,2, 4,6	2,4 5,6		
Comply With and Use Procedures (1)	1,2 3,4 5,6	1,2 3,4 5,6			3,5 6	1,3, 5,6			1,2, 4,6	2,4 5,6		
Operate Control Boards (2)					3,5 6	1,3, 5,6			1,2, 4,6	2,4 5,6		
Communicate and Interact With the Crew	1,2 3,4 5,6	1,2 3,4 5,6			1,2 3,4 5,6	1,2, 3,4, 5,6			1,2, 3,4, 5,6	1,2 3,4 5,6		
Supervisory Ability (3)	1,2 3,4 5,6	1,2 3,4 5,6										
Comply With and Use Tech. Specs. (3)	2,3 4	3,5										

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

INSTRUCTIONS:
Circle the applicant's license type and enter the numbers that test the competency for each scenario set.

Author: Charles Lawyer
Chief Examiner: Wayne

Competencies	Applicant #1 RO/SRO-I/**SRO-U2**				Applicant #2 **RO3**/SRO-I/SRO-U				Applicant #3 **RO4**/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
Crew 2	1	2 **SRO**	3 **SRO**	4	1	2 **RO**	3 **BOP**	4	1	2 **BOP**	3 **RO**	4
Understand and Interpret Annunciators and Alarms		1,2 3,4 5,6	2,3 4,5 6			2,4 6	1,3,6			3,5 6	2,4, 5,6	
Diagnose Events and Conditions		1,2 3,4 5,6	2,3 4,5 6			2,4 6	1,3,6			3,5 6	2,4, 5,6	
Understand Plant and System Response		1,2 3,4 5,6	1,2 3,4 5,6			2,4 6	1,3,5 6			3,5,6	2,4, 5,6	
Comply With and Use Procedures (1)		1,2 3,4 5,6	1,2 3,4 5,6			2,4, 5,6	1,3,5 6			3,5,6	2,4, 5,6	
Operate Control Boards (2)						2,4, 5,6	1,3,5 6			3,5,6	2,4, 5,6	
Communicate and Interact With the Crew		1,2 3,4 5,6	1,2 3,4 5,6			1,2, 3,4, 5,6	1,2,3 4,5,6			1,2,3 ,4,5, 6	1,2, 3,4, 5,6	
Supervisory Ability (3)		1,2 3,4 5,6	1,2 3,4 5,6									
Comply With and Use Tech. Specs. (3)		2,3 5,6	3,5									

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

INSTRUCTIONS:
Circle the applicant's license type and enter the numbers that test the competency for each scenario set.

Author:
Chief Examiner:

Competencies	Applicant #1 **RO5**/SRO-I/SRO-U				Applicant #2 RO/SRO-I/**SRO-U3**				Applicant #3 RO/SRO-I/**SRO-U4**			
	SCENARIO				SCENARIO				SCENARIO			
Crew 3	1	2 **RO**	3 **BOP**	4	1	2 **SRO**	3 **RO**	4	1	2 **BOP**	3 **SRO**	4
Understand and Interpret Annunciators and Alarms		2,4 6	1,3,6			1,2,3 4,5,6	1,4, 6			3,5 6	2,3,4 ,5,6	
Diagnose Events and Conditions		2,4 6	1,3,6			1,2,3 4,5,6	1,4, 6			3,5 6	2,3,4 ,5,6	
Understand Plant and System Response		2,4 6	1,3,5 6			1,2,3 4,5,6	1,4, 6			3,5,6	1,2,3 4,5,6	
Comply With and Use Procedures (1)		2,4, 5,6	1,3,5 6			1,2,3 4,5,6	1,4, 6			3,5,6	1,2,3 4,5,6	
Operate Control Boards (2)		2,4, 5,6	1,3,5 6				1,4, 6			3,5,6		
Communicate and Interact With the Crew		1,2, 3,4, 5,6	1,2,3 4,5,6			1,2,3 4,5,6	1,2, 3,4, 5,6			1,2,3 4,5,6	1,2,3 4,5,6	
Supervisory Ability (3)						1,2,3 4,5,6					1,2,3 4,5,6	
Comply With and Use Tech. Specs. (3)						2,3,5					3,5	

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

INSTRUCTIONS:
Circle the applicant's license type and enter the numbers that test the competency for each scenario set.

Author:
Chief Examiner:

Competencies	Applicant #1 RO/**SRO-I1**/SRO-U				Applicant #2 RO/**SRO-I2**/SRO-I				Applicant #3 RO/SRO-I/**SRO-U5**			
	SCENARIO				SCENARIO				SCENARIO			
Crew 4	1 **SRO**	2 **RO**	3 **BOP**	4	1 **RO**	2 **SRO**	3 **BOP**	4	1 **BOP**	2 **BOP**	3 **SRO**	4
Understand and Interpret Annunciators and Alarms	1,2 3,4 5,6	2,4 5,6	3,5 6		3,5 6	1,2, 3,4, 6	3,5 6		2,4, 6	1,3 5,6	2,5 6	
Diagnose Events and Conditions	1,3 4,5 6	2,4 5,6	3,5 6		3,5 6	1,2, 3,4, 6	3,5 6		2,4, 6	1,3 5,6	2,5 6	
Understand Plant and System Response	1,2 3,4 5,6	2,4 5,6	3,5 6		3,5 6	1,2, 3,4, 5,6	3,5 6		2,4, 6	1,3 5,6	1,2 5,6	
Comply With and Use Procedures (1)	1,2 3,4 5,6	2,4 5,6	1,3 6,6		3,5 6	1,2, 3,4, 5,6	3,5 6		2,4, 6	1,3 5,6	1,2 5,6	
Operate Control Boards (2)		2,4 5,6	1,3 5,6		3,5 6		3,5 6		2,4, 6	1,3 5,6		
Communicate and Interact With the Crew	1,2 3,4 5,6	1,2 3,4 5,6	1,2 3,4 5,6		1,2 3,4 5,6	1,2, 3,4, 5,6	1,2 3,4 5,6		1,2, 3,4, 5,6	1,2 3,4 5,6	1,2 5,6	
Supervisory Ability (3)	1,2 3,4 5,6					1,2, 3,4, 5,6					1,2 5,6	
Comply With and Use Tech. Specs. (3)	1,3 4					3,5					5	

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

INSTRUCTIONS:
Circle the applicant's license type and enter the numbers that test the competency for each scenario set.

Author: Charles Lawyer
Chief Examiner: Wayne

[redacted]

Facility: McGuire		Date of Exam: 5/19/00						Exam Level: SRO															
		K/A Category Points											Point		Number	Source of Question							
Tier	Group	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Total	Target	Complete	NRC	Bank	Mod	New	Mem	Comp	Anal	
1	1	3	5	5	[redacted]			5	2	[redacted]		4	24	24	24	7	0	3	14	10	12	2	
Emergency &	2	1	2	3				3	4			3	16	16	16	1	2	7	6	5	8	3	
Abnormal	3	1	0	0				0	1			1	3	3	3	1	0	0	2	1	1	1	
Plant	Tier																						
Evolutions	Totals	5	7	8				8	7			8	43	43	43	9	2	10	22	16	21	6	
2	1	2	1	0	2	1	2	3	2	2	2	2	19	19	19	4	2	3	10	8	9	2	
	2	2	2	2	3	1	1	2	2	0	1	1	17	17	17	1	1	2	13	9	7	1	
Plant	3	0	0	1	0	1	0	0	2	0	0	0	4	4	4	0	0	0	4	1	3	0	
Systems	Tier																						
	Totals	4	3	3	5	3	3	5	6	2	3	3	40	40	40	5	3	5	27	18	19	3	
3	Generic Knowledge and				Cat 1		Cat 2		Cat 3		Cat 4												
	Abilities				4		5		4		4		17	17	17	4	1	7	5	7	7	3	
														Totals	100	18	6	22	54	41	47	12	
															Higher Level Congitive Questions					59.0%			

SRO Exam Vital Statistics

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
000001 Continuous Rod Withdrawal / 1				1.05			Ability to operate and/or monitor ...reactor trip switches	4.3/4.2	306	AP-14	SEQ 4	NRC	1				memory - Catawba 1997	1	0	0
000005 Inoperable/Stuck Control Rod / 1						4.46	Ability to interpret control room indications to verify the status and operation of system and how operator actions and directives affect plant system conditions	3.5/3.6	711	EDA	SEQ 6,10	new				1	comprehension	0	1	0
000011 Large Break LOCA /W	1.01						Knowledge of the operational implications of the following concepts ...natural circulation and cooling including reflux boiling	4.1/4.4	601	TA-AM	SEQ 3	new				1	memory	1	0	0
W/E02 SI Termination / III					2.2		Ability to determine and interpret the following...adherence to appropriate procedures and operation within limitations in the facilities license and amendments	3.5/4.0	602	EP-E1	SEQ 6	new				1	comprehension	0	1	0
000015/17 RCP Malfunction / IV					2.09		Ability to determine and interpret...when to secure RCPs on high stator temperatures	3.4/3.5	242	NCP	SEQ15	MOD			1		comprehension - Catawba 1997	0	1	0
W/E09 Natural Circ. /IV	1.1						Knowledge of the operational implications of the following concepts as they apply to the...components, capacity and function of emergency systems	3.0/3.4	686	EP-E0	SEQ 6	new				1	memory	1	0	0
000024 Emergency Boration /1	1.02						Knowledge of the operational implications of the following concepts ...relationship between boron addition and reactor power	3.6/3.9	591	NV	SEQ 5	new				1	comprehension	0	1	0
000026 Loss of Component Cooling Water / VIII						4.24	Knowledge of loss of cooling water procedures	3.3/3.7	592	ND	SEQ 9	new				1	comprehension	0	1	0
000029 Anticipated Transient w/o Scram / 1		2.06					Knowledge of the interrelationships between...breakers, relays and disconnects	2.9*/3.1*	241	IC-RTB	SEQ 1	NRC	1				memory - Catawba 1997	1	0	0
000040 Steam Line Rupture - Excessive Heat Transfer / IV				1.05			Ability to operate and/or monitor ...manual and automatic RPS trip initiation	4.5/4.5	593	PS-IPE	none	new				1	comprehension	0	1	0
000051 Loss of Condenser Vacuum / IV			3.01				Knowledge of the reasons for the following responses ...loss of steam dump capability upon loss of condenser vacuum	2.8*/3.1*	594	STM-IDE	SEQ 5	new				1	comprehension	0	1	0
000057 Loss of Vital Ac Elec. Inst. Bus. / VI				1.06			Ability to operate and/or monitor ...manual control of components for which automatic control is lost	3.5/3.5	82	EL-EPL	SEQ 14, 15	NRC	1				memory	1	0	0
000059 Accidental Liquid Radwaste Rel. / IX		2.01					Knowledge of the interrelationships between...radioactive liquid monitors	2.7/2.8	809	WE-RLR	SEQ 4	new				1	memory	1	0	0
000067 Plant Fire On-site / IX			3.04				Knowledge of the reasons for the following responses ...actions contained in EOP for plant fire onsite	3.3/4.1	595	none	none	new				1	memory	1	0	0
000068 Control Room Evac. / VIII			3.07				Knowledge of the reasons for the following responses ...maintenance of SG levels using AFW control valves	4.0/4.3	501	CF-CA	SEQ 4	MOD			1		analysis - Catawba 1998	0	0	1
000069 (W/E14) Loss of CTMT Integrity / V		2.03					Knowledge of the interrelationships between...personnel access hatch and emergency access hatch	2.6*/2.9	597	CNT-CNT	SEQ 8	new				1	comprehension	0	1	0
000074 (W/E06&E07) Inad. Core Cooling / IV				1.02			Ability to operate and/or monitor ...RCS cooldown rate	3.9/4.2	598	EP-INTRO	SEQ 10	new				1	analysis	0	0	1
000076 High Reactor Coolant Activity / IX						4.11	Knowledge of abnormal condition procedures	3.4/3.6	307	CH-PC	SEQ 12	MOD			1		comprehension	0	1	0
K/A Category Totals:	3	5	5	5	2	4	Group Point Total:	24 / 24	24				7	0	3	14	24	10	12	2

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Bank Question	Source Information: Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
000007 Reactor Trip - Stabilization - Recovery / I				1.08			Ability to operate and/or monitor ...AFW system	4.4/4.3	504	EP-E0	SEQ 10	MOD			1		SRO Only - analysis - MOD Catawba 1999	0	0	1
000008 Pressurizer Vapor Space Accident / III	1.01						Knowledge of the operational implications of the following concepts ...thermodynamics and flow characteristics of open or leaking valves	3.2/3.7	311	THF-EB	LPRO 8	MOD			1		comprehension - McGuire Retake 1999	0	1	0
000009 Small Break LOCA / III				1.13			Ability to operate and/or monitor ...ESFAS	4.4/4.4	430	ECC-NS	SEQ 6	MOD			1		comprehension - MOD McGuire 1999	0	1	0
W/E03 LOCA Cooldown - Depress. / IV																				
000022 Loss of Reactor Coolant Makeup / II					2.04		Ability to determine and interpret...how long PZR level can be maintained within limits	2.9/3.6	603	PS-ILE	none	new				1	analysis	0	0	1
000027 Pressurizer Pressure Control System Malfunction / III					2.10		Ability to determine and interpret...PZR heater energized/de-energized condition	3.3/3.6	298	PS-IPE	SEQ12	MOD			1		analysis	0	0	1
000033 Loss of Intermediate Range NI / VII				1.02			Ability to operate and/or monitor ...level trip bypass	3.0*/3.1*	604	IC-ENB	SEQ 10	new				1	compehension	0	1	0
000037 Steam Generator Tube Leak / III						1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation	3.7/4.4	605	WE-EMF	SEQ 2	MOD			1		comprehension - modified from Catawba 1997 Ques 320	0	1	0
000038 Steam Generator Tube Rupture / III			3.03				Knowledge of the reasons for the following responses ... Automatic actions associated with high radioactivity in S/G sample lines	3.6*/4.0*	606	WE-EMF	SEQ 3	new				1	memory	1	0	0
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / IV					2.2		Ability to determine and interpret the following...adherance to appropriate procedures and operation within limitations in the facilities license and amendments	3.7/4.3	471	EP-FO	SEQ 3	MOD			1		memory Mod McGuire 1999	1	0	0
000058 Loss of DC Power / VI						2.2	Knowledge of limiting conditions for operation and safety limits	3.4/4/1	608	EL-EPJ	SEQ 6	BANK		1			memory	1	0	0
000060 Accidental Gaseous Radwaste Rel. / IX					2.02		Ability to determine and interpret...the possible location of a radioactive gas leak with the assistance of PEO, health physics and chemistry personnel	3.1/4.0	611	CH-PC	SEQ 2, 5, 6, 9	new				1	comprehension	0	1	0
000061 ARM System Alarms / VII																				
W/E16 High Containment Radiation / IX		2.20					Knowledge of the interrelationships between...facility's heat removal systems, including primary coolant, emergency coolant, decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	2.6/3.0	612	TA-AM	SEQ 16, 17	new				1	memory	1	0	0
000065 Loss of Instrument Air / VIII																				
K/A Category Totals:	1	2	3	3	4	3	Group Point Total:	16	16				1	2	7	6		5	8	3

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Bank Question	Lesson Plan	Objective	Source	Source Information: NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
000028 Pressurizer Level Malfunction / II					2.04		Ability to determine and interpret...ammeters and running indicators for CVCS charging pumps	2.6/3.1	613	PS-NV	SEQ 6	new				1	comprehension	0	1	0
000036 Fuel Handling Accident / VIII						2.30	Knowledge of RO duties in the control room during fuel handling accident such as alarms from fuel handling area, communication with fuel storage facility, system operated from the control in support of fueling operations and supporting instrumentation	3.5/3.3	447	HF-FC	SEQ 1	NRC	1				memory - McGuire 1999	1	0	0
W/E 13 Steam Generator Over-pressure / IV																				
W/E 15 Containment Flooding / V																				
K/A Category Totals:	1	0	0	0	1	1	Group Point Total:	3	3	3				1	0	0	2	3	1	1	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)	Imp.	Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
001 Control Rod Drive								2.09				Ability to predict the impacts of the following malfunction or operation ...and based on those predictions, use procedures to correct, control or mitigate the consequences of...station blackout	3.6*/4.0	622	IC-RTB	SEQ 11	new				1	comprehension	0	1	0
003 Reactor Coolant Pump							1.10					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the...RCP standpipe levels	2.5/2.7	623	PS-NCP	SEQ 12	new				1	memory	1	0	0
004 Chemical Volume Control							1.09					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the...RCS pressure and temperature	3.8/3.8	625	CH-PC	SEQ 7	new				1	comprehension	0	1	0
013 Engineered Safety Features Actuation		2.01										Knowledge of bus power supplies to...ESFAS/safeguards equipment control	3.6*/3.8	627	ECC-ISE	none	new				1	memory	1	0	0
014 Rod Position Indication											4.5	Ability to interpret control room indicators to verify the status and operation of the system, and understand how operator actions and directives affect plant and system conditions	3.5/3.8	637	IC-EDA	SEQ 8, 9	new				1	comprehension	0	1	0
015 Nuclear Instrumentation						6.03						Knowledge of the effect that a loss or malfunction will have on ...component interconnections	2.6/3.0	152.00	IC-ENB	SEQ 12	NRC	1.00				analysis	0	0	1
017 In-core Temperature Monitor					5.02							Knowledge of the following operational implications...saturation and subcooling of water	3.7/4.0	404.00	IC-ICM	SEQ 9	MOD			1		memory - McGuire 1999	1	0	0
022 Containment Cooling									3.01			Ability to monitor automatic operation of the...initation of safeguards mode of operation	4.1/4.3	626.00	CNT-RV	none	new				1	comprehension	0	1	0
025 Ice Condenser						6.01						Knowledge of the effect that a loss or malfunction will have on ...upper and lower doors	3.4*/3.6*	630	CNT-NF	SEQ 20	BANK		1			comprehension	0	1	0
026 Containment Spray										4.05		Ability to manually operate and/or monitor in the control room...containment spray reset switches	3.5/3.5	640	ECC-NS	SEQ 6	new				1	comprehension	0	1	0
056 Condensate	1.03											Knowledge of physical connections and/or cause and effect relationships...MFW	2.6*/2.6	531	CF-CM	SEQ 11	NRC	1				memory - Catawba 1999	1	0	0
058 Main Feedwater								2.11				Ability to predict the impacts of the following malfunction or operation...and based on those predictions, use procedures to correct, control or mitigate the consequences of...failure of feedwater control system	3.0*/3.3*	536	CF-ISE	SEQ 11	MOD			1		comprehension - MOD NRC Catawba 1999	0	1	0
061 Auxiliary/Emergency Feedwater				4.07								Knowledge of design feature(s) and/or interlock(s) which provide for...turbine trip including overspeed	3.1*/3.3*	634	CF-CA	none	new				1	memory	1	0	0
063 DC Electrical	1.02											Knowledge of physical connections and/or cause and effect relationships...AC electrical system	2.7/3.2	648	EL-EPL	SEQ 4, 8	BANK		1			memory - BANK ELEPL013	1	0	0
068 Liquid Rad Waste									3.02			Ability to monitor automatic operation of the...automatic isolation	3.6/3.6	407.00	WE-RLR	SEQ 4, 5	MOD			1		comprehension	0	1	0
072 Area Radiation Monitoring							1.01					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the...radiation levels	3.4/3.6	672	WE-EMF	SEQ 6	new				1	memory	1	0	0
072 Area Radiation Monitoring										4.02		Ability to manually operate and/or monitor in the control room...major components	2.5*/2.5	635	WE-EMF	none	new				1	memory	1	0	0
013 Engineered Safety Features Actuation				4.12								Knowledge of design feature(s) and/or interlock(s) which provide for...safety injection block	3.7/3.9	412	ECC-ISE	SEQ 11	NRC	1				comprehension	0	1	0
K/A Category Totals:	2	1	0	2	1	2	3	2	2	2	2	Group Point Total:	19	19	18			4	2	3	10		8	9	2

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)	Imp.		Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
002 Reactor Coolant							1.09					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…RCS T-ave	3.7/3.8		629	PS-NC	SEQ 21, 23	new				1	comprehension	0	1	0
006 Emergency Core Cooling				4.12								Knowledge of design feature(s) and/or interlock(s) which provide for…HPI flow throttling	4.1*/4.3*		631	PS-NV	SEQ 5	new				1	memory	1	0	0
010 Pressurizer Pressure Control		2.01										Knowledge of bus power supplies to…PZR heaters	3.0/3.4		632	PS-IPE	SEQ 3	new				1	memory	1	0	0
011 Pressurizer Level Control								2.06				Ability to predict the impacts of the following malfunction or operation…and based on those predictions, use procedures to correct, control or mitigate the consequences of…inadvertent pressurizer spray actuation	3.7/3.9		633	PS-IPE	SEQ 5	new				1	comprehension	0	1	0
012 Reactor Protection						6.03						Knowledge of the effect that a loss or malfunction …will have on …trip logic circuits	3.1/3.5		638	IC-IPE	SEQ 3	new				1	comprehension	0	1	0
016 Non-nuclear Instrumentation	1.12											Knowledge of physical connections and/or cause and effect relationships…S/G	3.5*/3.5*		639	CF-IFE	SEQ 11	BANK		1			comprehension	0	1	0
027 Containment Iodine Removal		2.01										Knowledge of bus power supplies to…fans	3.1*/3.4*		621	CNT-VX	none	new				1	comprehension	0	1	0
028 Hydrogen Recombiner and Purge Control																										
029 Containment Purge																										
033 Spent Fuel Pool Cooling							1.01					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…spent fuel pool water level	2.7/3.3		642	FH-KF	SEQ 11, 12	new				1	memory	1	0	0
035 Steam Generator										4.06		Ability to manually operate and/or monitor in the control room…S/G isolation on steam leak or tube rupture/leak	4.5/4.6		643	EP-E3	SEQ 4	new				1	memory	1	0	0
039 Main and Reheat Steam			3.05									Knowledge of the effect that a loss or malfunction …will have on …RCS	3.6/3.7		644	MT-MSR	SEQ 10	new				1	memory	1	0	0
055 Condenser Air Removal																										
062 AC Electrical Distribution			3.01									Knowledge of the effect that a loss or malfunction …will have on …major system loads	3.5/3.9		243	PS-NCP	SEQ 8	MOD			1		comprehension	0	1	0
064 Emergency Diesel Generator				4.05								Knowledge of design feature(s) and/or interlock(s) which provide for…incomplete-start relay	2.8/3.2		651	DG-DG	SEQ 4	new				1	memory	1	0	0
075 Circulating Water																										
079 Station Air				4.01								Knowledge of design feature(s) and/or interlock(s) which provide for…cross-connect with IAS	2.9/3.2		451	SS-VI	SEQ 7	NRC	1				comprehension - McGuire 1999	0	1	0
086 Fire Protection					5.04							Knowledge of the following operational implications…hazards to personnel as a result of fire type or methods of suppression	2.9/3.5*		60	SS-RFY	SEQ 11	MOD			1		memory - MOD McGuire 1998	1	0	0
103 Containment	1.05											Knowledge of physical connections and/or cause and effect relationships…personnel access hatch and emergency access hatch	2.8*/3.0*		620	IC-IAE	SEQ 2	new				1	memory	1	0	0
K/A Category Totals:	2	2	2	3	1	1	2	2	0	1	1	Group Point Total:	17	17	17				1	1	2	13		9	7	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)	Imp.		Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
008 Component Cooling Water			3.03									Knowledge of the effect that a loss or malfunction ...will have on ...RCP	4.1/4.2		616	PS-NCP	SEQ 4	new				1	memory	1	0	0
041 Steam Dump/Turbine Bypass Control																										
045 Main Turbine Generator																										
076 Service Water								2.01				Ability to predict the impacts of the following malfunction or operation...and based on those predictions, use procedures to correct, control or mitigate the consequences of...loss of SWS	3.5*/3.7*		624	PSS-RN	SEQ 6	new				1	comprehension	0	1	0
078 Instrument Air																										
K/A Category Totals:	0	0	1	0	1	0	0	2	0	0	0	Group Point Total:	4	4	4				0	0	0	4		1	3	0

Facility: McGuire		Date of Exam: 5/19/00	Exam Level:														
Category	K/A #	Topic	Imp.	Question	Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
Conduct of Operations	2.1.21	Ability to obtain and verify controlled procedure copy	3.1/3.2	655	ADM-OP	SEQ 8	MOD			1		memory - McGuire 1997	1	0	0
	Total		4												
Equipment Control	2.2.2	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels	4.0/3.5	465	GEN-EHC	none	MOD			1		comprehension - McGuire 1999	0	1	0
	Total		5												
Radiation Control	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements	2.6/3.0	125	RAD-RP	SEQ 71	NRC	1				comprehension - McGuire 1997	0	1	0
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized	2.5/3.1	353	RAD-RP	SEQ 59, 60	MOD			1		analysis - Catawba 1999	0	0	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9/3.3	661	RAD-RP	EQ 19, 22, 2	new				1	analysis	0	0	1
	Total		4												
Emergency Procedures and Plan	2.4.8	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with symptom-based EOPs	3.0/3.7	338	EP-INTRO	SEQ 12	NRC	1				memory - Catawba 1999	1	0	0
	2.4.39	Knowledge of the RO's responsibilities in emergency plan implementation	3.3/3.1	111	EP-EMP	SEQ 12	BANK		1			RO Only - comprehension - McGuire 1996	0	1	0
	2.4.47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material	3.4/3.7	120	TH-FF	SEQ 6	MOD			1		analysis - MOD McGuire 1997	0	0	1
	Total		4												
		Tier 3 Point Total	17	17				4	1	7	5		7	7	3

[redacted]

Facility: McGuire		Date of Exam: 5/19/00						Exam Level: RO					
		K/A Category Points											Point
Tier	Group	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Total
1	1	2	2	4				3	2			3	16
Emergency &	2	2	3	2				4	4			2	17
Abnormal	3	1	0	0				0	1			1	3
Plant	Tier												
Evolutions	Totals	5	5	6				7	7			6	36
	1	1	1	2	3	2	2	3	3	3	2	1	23
2	2	2	1	3	3	1	1	2	3	1	2	1	20
Plant	3	1	1	1	0	1	0	0	2	0	1	1	8
Systems	Tier												
	Totals	4	3	6	6	4	3	5	8	4	5	3	51
3	Generic Knowledge and				Cat 1		Cat 2		Cat 3		Cat 4		
	Abilities				3		4		3		3		13

Note:

* Attempt to distribute topics among all K/A categories; select at least one topic from every K/A category within each tier.
* Actual point totals must match those specified in the table.
* Select topics from many systems; avoid selecting more than two or three K/A topics from a system unless they relate to plant-specific priorities.
* Systems /evolutions within each group are identified on the associated outline.
* The shaded areas are not applicable to the category/tier.

** Denotes plant specific, high priority K/As

Limits	Total	NRC	+ BANK	High Cog
RO	20	13	7	53.0%
SRO	24	18	6	59.0%

Target	Number	Source of Question						
	[redacted]							
16	16	1	0	4	11	5	8	3
17	17	2	1	5	9	8	7	2
3	3	1	0	0	2	1	1	1
36	36	4	1	9	22	14	16	6
23	23	5	2	5	11	12	7	4
20	20	1	3	3	13	12	8	0
8	8	0	0	1	7	3	5	0
51	51	6	5	9	31	27	20	4
13	13	3	1	7	2	6	4	3
Totals:	100	13	7	25	55	47	40	13

Higher Level Congitive Questions 53.0%

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.		Question	Lesson Plan	Objective	Source	NRC	Bank	Modified	New	Remarks	Memory	Comprehension	Analysis
000005 Inoperable/Stuck Control Rod / I						4.48	Ability to interpret control room indications to verify the status and operation of system and how operator actions and directives affect plant system conditions	3.5/3.8		711	EDA	SEQ 6,10	new				1	comprehension		1	
000015/17 RCP Malfunction / IV					2.09		Ability to determine and interpret...when to secure RCPs on high stator temperatures	3.4/3.5		242	NCP	SEQ15	MOD			1		comprehension - Catawba 1997		1	
W/E08 Natural Circ. /IV	1.1						Knowledge of the operational implications of the following concepts as they apply to the...components, capacity and function of emergency systems	3.0/3.4		666	EP-E0	SEQ 6	new				1	memory	1		
000024 Emergency Boration / I	1.02						Knowledge of the operational implications of the following concepts ...relationship between boron addition and reactor power	3.6/3.9		591	NV	SEQ 5	new				1	comprehension		1	
000026 Loss of Component Cooling Water / VIII						4.24	Knowledge of loss of cooling water procedures	3.3/3.7		592	ND	SEQ 9	new				1	comprehension		1	
000027 Pressurizer Pressure Control System Malfunction / III					2.10		Ability to determine and interpret...PZR heater energized/de-energized condition	3.3/3.6		298	PS-IPE	SEQ12	MOD			1		analysis			1
000040 Steam Line Rupture - Excessive Heat Transfer / IV				1.05			Ability to operate and/or monitor ...manual and automatic RPS trip initiation	4.5/4.5		593	PS-IPE	none	new				1	comprehension		1	
000051 Loss of Condenser Vacuum / IV			3.01				Knowledge of the reasons for the following responses ...loss of steam dump capability upon loss of condenser vacuum	2.8*/3.1*		594	STM-IDE	SEQ 5	new				1	comprehension		1	
000057 Loss of Vital Ac Elec. Inst. Bus. / VI				1.06			Ability to operate and/or monitor ...manual control of components for which automatic control is lost	3.5/3.5		82	EL-EPL	SEQ 14, 15	NRC	1				memory	1		
000062 Loss of Nuclear Service Water / IV																					
000067 Plant Fire On-site / IX			3.04				Knowledge of the reasons for the following responses ...actions contained in EOP for plant fire onsite	3.3/4.1		596	none	none	new				1	memory	1		
000068 Control Room Evac. / VIII			3.07				Knowledge of the reasons for the following responses ...maintenance of SG levels using AFW control valves	4.0/4.3		501	CF-CA	SEQ 4	MOD			1		analysis - Catawba 1999			1
000069 (W/E14) Loss of CTMT Integrity / V		2.03					Knowledge of the interrelationships between ...personnel access hatch and emergency access hatch	2.5*/2.9		597	CNT-CNT	SEQ 8	new				1	comprehension		1	
000074 (W/E06&E07) Inad. Core Cooling / IV				1.02			Ability to operate and/or monitor ...RCS cooldown rate	3.9/4.2		598	EP-INTRO	SEQ 10	new				1	analysis			1
000076 High Reactor Coolant Activity / IX						4.11	Knowledge of abnormal condition procedures	3.4/3.6		307	CH-PC	SEQ 12	MOD			1		comprehension		1	
K/A Category Totals:	2	2	4	3	2	3	Group Point Total:	16	16	16				1	0	4	11	16	5	8	3

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.		Bank Question	Lesson Plan	Objective	Source	Source Information NRC	Bank	Modified	New	Remarks	Memory	Comp	Analysis
000001 Continuous Rod Withdrawal / 1				1.05			Ability to operate and/or monitor ...reactor trip switches	4.3/4.2		306	AP-14	SEQ 4	NRC	1				memory - Catawba 1997	1		
000007 Reactor Trip - Stabilization - Recovery / 1				1.06			Ability to operate and/or monitor ...AFW system	4.4/4.3		504	EP-E0	SEQ 10	MOD			1		SRO Only - analysis - MOD Catawba 1999			1
000008 Pressurizer Vapor Space Accident / 3	1.01						Knowledge of the operational implications of the following concepts ...thermodynamics and flow characteristics of open or leaking valves	3.2/3.7		311	THF-EB	LPRO 8	MOD			1		comprehension - McGuire Retake 1999		1	
000009 Small Break LOCA / 3				1.13			Ability to operate and/or monitor ...ESFAS	4.4/4.4		430	ECC-NS	SEQ 6	MOD			1		comprehension - MOD McGuire 1999		1	
000011 Large Break LOCA /3	1.01						Knowledge of the operational implications of the following concepts ...natural circulation and cooling including reflux boiling	4.1/4.4		601	TA-AM	SEQ 3	new				1	memory	1		
WE04 LOCA Outside Containment / 3																					
WE03 LOCA Cooldown - Depress. / 4																					
WE11 Loss of Emergency Coolant Recirc / 4																					
WE02 SI Termination / 3					2.2		Ability to determine and interpret the following...adherence to appropriate procedures and operation within limitations in the facilities license and amendments	3.5/4.0		602	EP-E1	SEQ 6	new				1	comprehension		1	
000022 Loss of Reactor Coolant Makeup / 2					2.04		Ability to determine and interpret...how long PZR level can be maintained within limits	2.9/3.6		603	PS-ILE	none	new				1	analysis			1
000025 Loss of RHR System / 4																					
000029 Anticipated Transient w/o Scram / 1		2.06					Knowledge of the interrelationships between...breakers, relays and disconnects	2.9*/3.1*		241	IC-RTB	SEQ 1	NRC	1				memory - Catawba 1997	1		
000032 Loss of Source Range NI / 7																					
000033 Loss of Intermediate Range NI / 7				1.02			Ability to operate and/or monitor ...level trip bypass	3.0*/3.1*		604	IC-ENB	SEQ 10	new				1	comprehension		1	
000037 Steam Generator Tube Leak / 3						1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation	3.7/4.4		605	WE-EMF	SEQ 2	MOD			1		comprehension - modified from Catawba 1997 Ques 320		1	
000038 Steam Generator Tube Rupture / 3			3.03				Knowledge of the reasons for the following responses ... Automatic actions associated with high radioactivity in S/G sample lines	3.6*/4.0*		606	WE-EMF	SEQ 3	new				1	memory	1		
000054 Loss of Main Feedwater / 4																					
WE05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4					2.2		Ability to determine and interpret the following...adherence to appropriate procedures and operation within limitations in the facilities license and amendments	3.7/4.3		471	EP-F0	SEQ 3	MOD			1		memory Mod McGuire 1999	1		
000058 Loss of DC Power / 6						2.22	Knowledge of limiting conditions for operation and safety limits	3.4/4/1		608	EL-EPJ	SEQ 6	BANK		1			memory	1		
000059 Accidental Liquid Radwaste Rel. / 9		2.01					Knowledge of the interrelationships between...radioactive liquid monitors	2.7/2.8		609	WE-RLR	SEQ 4	new				1	memory	1		
000060 Accidental Gaseous Radwaste Rel. / 9					2.02		Ability to determine and interpret...the possible location of a radioactive gas leak with the assistance of PEO, health physics and chemistry personnel	3.1/4.0		611	CH-PC	SEQ 2, 5, 6,	new				1	comprehension		1	
000061 ARM System Alarms / 7																					
WE16 High Containment Radiation / 9		2.2					Knowledge of the interrelationships between...facility's heat removal systems, including primary coolant, emergency coolant, decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	2.6/3.0		612	TA-AM	SEQ 16, 17	new				1	memory	1		
K/A Category Totals:	2	3	2	4	4	2	Group Point Total:	17	17	17				2	1	5	9	17	8	7	2

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.		Question	Lesson Plan	Objective	Source	NRC	Bank	Modified	New	Remarks	Memory	Comp	Analysis
000028 Pressurizer Level Malfunction / II					2.04		Ability to determine and interpret...ammeters and running indicators for CVCS charging pumps	2.6/3.1		613	PS-NV	SEQ 6	new				1	comprehension		1	
000036 Fuel Handling Accident / VIII						2.30	Knowledge of RO duties in the control room during fuel handling accident such as alarms from fuel handling area, communication with fuel storage facility, system operated from the control in support of fueling operations and supporting instrumentation	3.5/3.3		447	HF-FC	SEQ 1	NRC	1				memory - McGuire 1999	1		
000065 Loss of Instrument Air / VIII																					
WE 13 Steam Generator Over-pressure / IV																					
WE 15 Containment Flooding / V																					
K/A Category Totals:	1	0	0	0	1	1	Group Point Total:	3	3	3				1	0	0	2	3	1	1	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)	Imp.	Question	Lesson Plan	Objective	Source	NRC	Bank	Modified	New	Remarks	Memory	Comp	Analysis
001 Control Rod Drive								2.09				Ability to predict the impacts of the following malfunction or operation…and based on those predictions, use procedures to correct, control or mitigate the consequences of …station blackout	3.8*/4.0	622	IC-RTB	SEQ 11	new				1	comprehension		1	
003 Reactor Coolant Pump							1.10					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…RCP standpipe levels	2.5/2.7	623	PS-NCP	SEQ 12	new				1	memory	1		
004 Chemical Volume Control							1.09					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…RCS pressure and temperature	3.6/3.8	625	CH-PC	SEQ 7	new				1	comprehension		1	
013 Engineered Safety Features Actuation		2.01										Knowledge of bus power supplies to…ESFAS/safeguards equipment control	3.6*/3.8	627	ECC-ISE	none	new				1	memory	1		
015 Nuclear Instrumentation						6.03						Knowledge of the effect that a loss or malfunction will have on …component interconnections	2.6/3.0	152	IC-ENB	SEQ 12	NRC	1				analysis			1
017 In-core Temperature Monitor					5.02							Knowledge of the following operational implications…saturation and subcooling of water	3.7/4.0	404	IC-ICM	SEQ 9	MOD			1		memory - McGuire 1999	1		
022 Containment Cooling									3.01			Ability to monitor automatic operation of the…initiation of safeguards mode of operation	4.1/4.3	628	CNT-RV	none	new				1	comprehension		1	
025 Ice Condenser						6.01						Knowledge of the effect that a loss or malfunction will have on …upper and lower doors	3.4*/3.6*	630	CNT-NF	SEQ 20	BANK		1			comprehension		1	
056 Condensate	1.03											Knowledge of physical connections and/or cause and effect relationships…MFW	2.6*/2.6	531	CF-CM	SEQ 11	NRC	1				memory - Catawba 1999	1		
058 Main Feedwater								2.11				Ability to predict the impacts of the following malfunction or operation…and based on those predictions, use procedures to correct, control or mitigate the consequences of …failure of feedwater control system	3.0*/3.3*	538	CF-ISE	SEQ 11	MOD			1		comprehension - MOD NRC Catawba 1999		1	
061 Auxiliary/Emergency Feedwater				4.07								Knowledge of design feature(s) and/or interlock(s) which provide for…turbine trip including overspeed	3.1*/3.3*	634	CF-CA	none	new				1	memory	1		
068 Liquid Rad Waste									3.02			Ability to monitor automatic operation of the…automatic isolation	3.6/3.6	407	WE-RLR	SEQ 4, 5	MOD			1		comprehension		1	
072 Area Radiation Monitoring							1.01					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…radiation levels	3.4/3.6	672	WE-EMF	SEQ 6	new				1	memory	1		
072 Area Radiation Monitoring									4.02			Ability to manually operate and/or monitor in the control room…major components	2.5*/2.5	635	WE-EMF	none	new				1	memory	1		
013 Engineered Safety Features Actuation				4.12								Knowledge of design feature(s) and/or interlock(s) which provide for…safety injection block	3.7/3.9	412	ECC-ISE	SEQ 11	NRC	1				comprehension		1	
K/A Category Totals:	1	1	2	3	2	2	3	3	3	2	1	Group Point Total:	23	23	23				5	2	5	11	23	12	7	4

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)	Imp.	Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
002 Reactor Coolant							1.09					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…RCS T-ave	3.7/3.8	629	PS-NC	SEQ 21, 23	new				1	comprehension		1	
006 Emergency Core Cooling				4.12								Knowledge of design feature(s) and/or interlock(s) which provide for…HPI flow throttling	4.1*/4.3*	631	PS-NV	SEQ 5	new				1	memory	1		
010 Pressurizer Pressure Control		2.01										Knowledge of bus power supplies to…PZR heaters	3.0/3.4	632	PS-IPE	SEQ 3	new				1	memory	1		
011 Pressurizer Level Control								2.06				Ability to predict the impacts of the following malfunction or operation…and based on those predictions, use procedures to correct, control or mitigate the consequences of…inadvertant pressurizer spray actuation	3.7/3.9	633	PS-IPE	SEQ 5	new				1	comprehension		1	
012 Reactor Protection						6.03						Knowledge of the effect that a loss or malfunction …will have on …trip logic circuits	3.1/3.5	638	IC-IPE	SEQ 3	new				1	comprehension		1	
014 Rod Position Indication											4.48	Ability to interpret control room indicators to verify the status and operation of the system, and understand how operator actions and directives affect plant and system conditions	3.5/3.8	637	IC-EDA	SEQ 8, 9	new				1	comprehension		1	
016 Non-nuclear Instrumentation	1.12											Knowledge of physical connections and/or cause and effect relationships…S/G	3.5*/3.5*	639	CF-IFE	SEQ 11	BANK		1			comprehension		1	
026 Containment Spray										4.05		Ability to manually operate and/or monitor in the control room…containment spray reset switches	3.5/3.5	640	ECC-NS	SEQ 8	new				1	comprehension		1	
033 Spent Fuel Pool Cooling							1.01					Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the…spent fuel pool water level	2.7/3.3	642	FH-KF	SEQ 11, 12	new				1	memory	1		
035 Steam Generator										4.06		Ability to manually operate and/or monitor in the control room…S/G isolation on steam leak or tube rupture/leak	4.5/4.6	643	EP-E3	SEQ 4	new				1	memory	1		
039 Main and Reheat Steam			3.05									Knowledge of the effect that a loss or malfunction …will have on …RCS	3.6/3.7	644	MT-MSR	SEQ 10	new				1	memory	1		
062 AC Electrical Distribution			3.01									Knowledge of the effect that a loss or malfunction …will have on …major system loads	3.5/3.9	243	PS-NCP	SEQ 6	MOD			1		comprehension		1	
063 DC Electrical	1.02											Knowledge of physical connections and/or cause and effect relationships…AC electrical system	2.7/3.2	648	EL-EPL	SEQ 4, 8	BANK		1			memory - BANK ELEPL013	1		
064 Emergency Diesel Generator				4.05								Knowledge of design feature(s) and/or interlock(s) which provide for…incomplete-start relay	2.8/3.2	651	DG-DG	SEQ 4	new				1	memory	1		
075 Circulating Water								2.02				Ability to predict the impacts of the following malfunction or operation…and based on those predictions, use procedures to correct, control or mitigate the consequences of…loss of circulating water pumps	2.5/2.7	654	MT-RC	SEQ 6	BANK		1			memory - BANK MTRC011	1		
079 Station Air				4.01								Knowledge of design feature(s) and/or interlock(s) which provide for…cross-connect with IAS	2.9/3.2	451	SS-VI	SEQ 7	NRC	1				comprehension - McGuire 1999		1	
086 Fire Protection					5.04							Knowledge of the following operational implications…hazards to personnel as a result of fire type or methods of suppression	2.9/3.5*	60	SS-RFY	SEQ 11	MOD			1		memory - MOD McGuire 1996	1		
K/A Category Totals:	2	1	3	3	1	1	2	3	1	2	1	Group Point Total: 20	20	20				1	3	3	13		12	8	0

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)	Imp.	Question	Lesson Plan	Objective	Source	NRC	Bank	Modified	New	Remarks	Memory	Comp	Analysis
008 Component Cooling Water			3.03									Knowledge of the effect that a loss or malfunction ...will have on ...RCP	4.1/4.2	816	PS-NCP	SEQ 4	new				1	memory	1		
027 Containment Iodine Removal		2.01										Knowledge of bus power supplies to ...fans	3.1*/3.4*	821	CNT-VX	none	new				1	comprehension		1	
028 Hydrogen Recombiner and Purge Control																									
045 Main Turbine Generator																									
076 Service Water								2.01				Ability to predict the impacts of the following malfunction or operation...and based on those predictions, use procedures to correct, control or mitigate the consequences of ...loss of SWS	3.5*/3.7*	624	PSS-RN	SEQ 6	new				1	comprehension		1	
078 Instrument Air																									
103 Containment	1.05											Knowledge of physical connections and/or cause and effect relationships ...personnel access hatch and emergency access hatch	2.8*/3.0*	620	IC-IAE	SEQ 2	new				1	memory	1		
K/A Category Totals:	1	1	1	0	1	0	0	2	0	1	1	Group Point Total:	8	8				0	0	1	7		3	5	0

Facility: McGuire		Date of Exam: 5/19/00	Exam Level: RO														
Category	K/A #	Topic	Imp.	Points	Question	Lesson Plan	Objective	Source	NRC	Bank	Mod	New	Remarks	Memory	Comp	Analysis
Conduct of Operations	2.1.21	Ability to obtain and verify controlled procedure copy	3.1/3.2		655	ADM-OP	SEQ 8	MOD			1		memory - McGuire 1997	1		
			3													
Equipment Control	2.2.2	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels	4.0/3.5		465	GEN-EHC	none	MOD			1		comprehension - McGuire 1999		1	
			4													
Radiation Control	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements	2.6/3.0		125	RAD-RP	SEQ 71	NRC	1				comprehension - McGuire 1997		1	
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized	2.5/3.1		353	RAD-RP	SEQ 59, 60	MOD			1		analysis - Catawba 1999			1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9/3.3		661	RAD-RP	EQ 19, 22, 2	new				1	analysis			1
			3													
Emergency Procedures and Plan	2.4.8	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with symptom-based EOPs	3.0/3.7		338	EP-INTRO	SEQ 12	NRC	1				memory - Catawba 1999	1		
	2.4.47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material	3.4/3.7		120	TH-FF	SEQ 6	MOD			1		analysis - MOD McGuire 1997			1
			3													
		Tier 3 Point Total	13	13	13				3	1	7	2		6	4	3

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. U/E/S	6. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward		

Instructions

[Refer to Appendix B for additional information regarding each of the following concepts.]

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.

2. Enter the level of difficulty (LOD) of each question using a 1 - 5 (easy - difficult) rating scale (questions in the 2 - 4 range are acceptable).

3. Check the appropriate box if a psychometric flaw is identified:
   - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
   - The answer choices are a collection of unrelated true/false statements.
   - More than one distractor is not credible.
   - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).

4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?

6. For any "U" ratings, at a minimum, explain how the Appendix B psychometric attributes are not being met.

97	H	3				✔		ok				S	**U1, '97 exam.** How is distractor "C" plausible given that ND-15B and NI-136B are "B" Train components while ND-30A is an "A" Train component? **McG Response:** Changed distractor "C" to link with train "A". *FINAL STATUS: OK.*
207	H	3						ok				S	**U1, '97 exam.** NOTE: Why define Mode 5 in the stem? (...prior to exceeding 200°F in Mode 5.) What other parts of T.S. will be provided to avoid making question direct lookup? **McG Response:** Changed stem to delete the words "in mode 5." Agreed to include related T.S. to reference package. *FINAL STATUS: OK.*
216	F	2						ok				S	**Both, '97 exam.** Distractor analysis says both "B" and "D" are correct. Which? **McG Response:** "B" is the correct answer. Corrected distractor analysis for "D". *FINAL STATUS: OK.*
217	F	3						ok				S	**U1, modified.** *FINAL STATUS: OK.*
372	F	2	✔					ok				E	**U2, '99 exam.** Minor editorial in stem to get verb tense consistent. Change 2nd sentence to read "... and reached step 15 where they were directed..." **McG Response:** Changed words as requested. *FINAL STATUS: OK.*
390	H	4						ok				S	**U1, '99 exam.** *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. U/E/S	6. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward		
430	H	3					✔	✔				U	**U1, modified.** Distractor "B" is a true statement. (Yes, the pumps start and valves open sometime after 0.8 psig.) Change word "after" to "when". Also make same change to correct answer "A" for consistency. This is not an SRO-only level of knowledge (on '99 exam it was an RO-only question). REPLACE. **McG Response:** Agreed this was not an SRO-only question. Replaced it with Q# 51 (see below) and made this one a "both" question. Made above changes to Q# 430. *FINAL STATUS: This question is OK for use on both exams.*
479	H	4	✔					✔				E	**U1, '99 exam.** Explain again why this is SRO only. (I know it was only on the '99 SRO exam, but it does not appear to be an "SRO-only" question. LP says it is an RO knowledge area too.) Stem says "... what is the earliest time (if any) that..". The "if any" part doesn't make sense because there is no option to pick where flow is normal. Suggest we delete it. Also, the distractor analysis for "C" appears to be in error. Shouldn't it be EMF-50 vice 36? **McG Response:** They explained rationale for making this an SRO-only question. I concurred. For the second comment, they showed that if an applicant was confused whether to use MOSRR or MRIRR, then the stem wording is plausible. I concurred. For the last comment, they corrected the error. *FINAL STATUS: OK.*
504	H	4	✔				✔	✔				U	**U1, modified '99 Catawba.** Generally, question is good. However, it appears that may have two correct answers due to minor lack of stem focus. Correct answer "C" is 'anytime after 0203'. Answer "D" is a time after 0203, so is also correct. Change stem to read "WOOTF...describes the earliest time the operators ..." Explain why this is a SRO-only question. **McG Response:** Agreed this was not an SRO-only question. Replaced it with Q# 191 (see below) and made this one a "both" question. Made the stem changes above to Q# 504. *FINAL STATUS: This question is OK for use on both exams.*
507	H	3						ok				S	**U2, '99 Catawba.** *FINAL STATUS: OK.*
512	F	3						ok				S	**U2, '99 Catawba.** *FINAL STATUS: OK.*
595	F	3						ok				S	**Both, '99 retake.** *FINAL STATUS: OK.*
599	F	3						ok				S	**U1, new.** Justify correct answer. **McG Response:** They explained the correct answer. *FINAL STATUS: OK.*
610	H	3						✔				S	**U2, new.** Explain why this is a SRO-only question. **McG Response:** Provided rationale for SRO-only designation. *FINAL STATUS: OK.*
617	H	4					✔	ok				U	**U2, new.** I'm concerned that "B" is also correct. Sure it may not provide long term relief, but why is wrong? **McG Response:** Changed initial PRT pressure to 9 psig. Modified distractor "B" to make incorrect. *FINAL STATUS: OK.*
618	H	4						ok				S	**U1, new.** Says that Curve Book curve 1.10D is provided, but only table given in distractor analysis. Is curve missing or is only a table given? Also analysis of curve 1.10C uses a NC pressure of 1150 psi. Shouldn't 1210 psi be used? Tough Q. **McG Response:** All data pages of the Curve Book are called "curves", even when they are tables. Agreed that analysis of curve 1.10C had wrong pressure marked. Corrected error. This had no impact on correct answer. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
653	F	3						ok				S	**U1, new.** *FINAL STATUS: OK.*
657	F	3						ok				S	**U2, new.** *FINAL STATUS: OK.*
659	F	2						ok				S	**U2, new.** *FINAL STATUS: OK.*
660	F	3						ok				E	**U2, new.** Mixed verb tenses in stem. Change 1st sentence to read "Unit 2 is operating at 100% power." Disagree with LOK. **McG Response:** Corrected stem. Discussed LOK. *FINAL STATUS: OK.*
662	F	2						✔				U	**Both, new.** SAMG knowledge is outside OL boundaries. Are on wrong side of line. OK to ask a plant situation in EOPs that results in need to transition to SAMG only. REPLACE QUESTION. **McG Response:** Disagreed that this level of knowledge was outside bounds of operator licensing. Agreed to replace with Q# 713 (see below.) *FINAL STATUS: Replaced without using this question at all.*
663	H	2						ok				E	**Both, bank.** What is normal (TS) position of NS-32A - closed? Is this commonly known by operators? What is ECCS required position? Is valve inop if it is in ECCS position during testing? Fix valve title in stem. **McG Response:** Agreed to change the stem. Verified correct answer with Ops Mgmt Rep and System Engineer. Changed wording of distractors to be consistent with what is being asked for in stem. *FINAL STATUS: OK.*
664	H	3						ok				E	**U1, new.** Stem is confusing. First say Rx power is 4% and then later is 5%. Which is it? 311°F is a NCP trip setpoint. Do not use, give NCP actual temps that are > 311°. **McG Response:** Changed stem to say testing at 2% power (vs 4%) and reworded the transient to avoid violating procedures. Changed temperature of NC pumps to 327°F. *FINAL STATUS: OK.*
665	H	3					✔	✔				U	**U1, new.** Explain why this is a SRO-only question. RO's need to understand what happens when they push buttons on their panels. Distractor "D" not very plausible. What could cause light come besides pushing the "SS RESET" button? **McG Response:** Agreed this was not an SRO-only question. Agreed to replace with Q# 713 (see below.) *FINAL STATUS: Replaced without using this question at all.*
676	H	4	✔	✔				ok				E	**U1, new.** Fix second bullet. Says operators initiated "***automatic***" makeup. If makeup is in auto, then operators don't initiate anything. Check valve numbering ("B" is NVSS and "C" is NSS). Is it right? Fix verb tenses throughout. Fix distractors (teaching). **McG Response:** Changed wording to "auto make-up initiated..." Corrected valve labeling discrepancy. *FINAL STATUS: OK.*
51	H	3						ok				S	**U1, bank.** This question replaces Q# 430 above. *FINAL STATUS: OK.*
191	H	4						ok				S	**U1, modified '97.** This question replaces Q# 504 above. *FINAL STATUS: OK.*
710	H	3						ok				S	**U1, new.** This question replaces Q# 665 above. *FINAL STATUS: OK.*
713	H	3						ok				S	**U1, new.** This question replaces Q# 662 above. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
1/51	H	3										S	Changed to SRO ONLY as of 4/25/00. C. Payne *FINAL STATUS: OK.*
2/60	F	3										S	*FINAL STATUS: OK.*
3/82	F	2										S	*FINAL STATUS: OK.*
4/111	F	2										S	*FINAL STATUS: OK.*
5/120	H	3										S	*FINAL STATUS: OK.*
6/125	H	3										S	*FINAL STATUS: OK.*
7/150	H	3										S	*FINAL STATUS: OK.*
8/152	H	4	X				X					E	Stem needs revision to illicit the correct answer. "Should" in the stem leaves room for error. Recommend changing the question stem to read "What is the earliest time that the operator is allowed...". Discussed with licensee on 4/25/00. Licensee agreed to revise stem to read "What is the earliest time that operators may block the source range nuclear instruments?" *FINAL STATUS: OK.*
9/191	H	3										S	Changed to SRO Only. B. Haagensen 4/25/00 *FINAL STATUS: OK.*
10/241	H	3										S	*FINAL STATUS: OK.*
11/242	H	4										S	*FINAL STATUS: OK.*
12/243	H	3										S	*FINAL STATUS: OK.*
13/264	H	2										S	*FINAL STATUS: OK.*
14/298	H	4				X						E	To enhance the credibility and technical validity of distractor 'B', modify to read "... 80 to 100 psig below normal". Discussed with licensee on 4/25/00. Licensee agreed with the recommended enhancement to this question. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. U/E/S	6. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward		
15/307	H	3	X				X					E	Multiple correct distractors. Recommend that question stem be modified to include statement that no fuel damage or failure has occurred. If not revised, it appears that distractor 'B' is a potentially correct answer. Discussed with licensee on 4/25/00. Licensee agreed and revised stem to include information on fuel integrity. *FINAL STATUS: OK.*
16/308	F	2	X									E	Editorial change to correct stem to read "Which one... is required?" Discussed with licensee on 4/25/00. Licensee agreed and corrected stem. *FINAL STATUS: OK.*
17/311	H	4				X						E	Distractor 'B' not credible. Distractor 'B' should be modified to incorporate values directly from Steam Tables. Temperature range should be adjusted to 227 -231. Discussed with licensee on 4/25/00. Licensee agreed with the enhancement and modified question to incorporate values directly from Steam Tables. *FINAL STATUS: OK.*
18/330	F	2					X					E	Multiple correct distractors. Modify distractor "D"to make it less credible. Discussed with licensee on 4/25/00. Modified by Haagensen 4/25/00. *FINAL STATUS: OK.*
19/338	F	2										S	*FINAL STATUS: OK.*
20/353	H	3										S	*FINAL STATUS: OK.*
21/401	H	3	X									U	Question does not agree with K/A. Question written for dropped rod in lieu of stuck rod. Question needs to be significantly modified or replaced. Discussed with licensee on 4/25/00. Licensee agreed and question was replaced. New question provided by B. Haagensen (Contractor).
22/404	F	2										S	*FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
23/407	H	4				X						E	Distractors A and B are not credible. Discussed with licensee on 4/25/00. Licensee agreed that all distractors could be enhance to improve the LOD and LOK . LOD and LOK increased. Question All distractors were subsequently modified and deemed acceptable. *FINAL STATUS: OK.*
24/412	H	3										S	*FINAL STATUS: OK.*
25/415	H	3										S	*FINAL STATUS: OK.*
26/447	H	3										S	*FINAL STATUS: OK.*
27/451	H	3	X	X								E	Stem contains cues which provide information on the normal position of the instrument air to station air cross-connect valve, (VI-820). This information reduces the level of difficulty and is not necessary to correctly answer this question. Recommended that VI-820 position be deleted from stem. Should be modified to read "VI system is in the normal lineup. Discussed with licensee on 4/25/00. Licensee agreed to remove the information on the actual position of valve VI-820 from stem of question. *FINAL STATUS: OK.*
28/465	H	2				X						E	Reorder distractors to make distractors "C" and "D" similar to "A" and "B". Verify "B" is correct. Discussed with licensee on 4/25/00. Question modified and additional actions were added to distractors. Question LOD/LOK not affected. *FINAL STATUS: OK.*
29/469	H	4										S	To enhance stem focus, define MRIRR. Discussed with licensee on 4/25/00. Recommended change made. *FINAL STATUS: OK.*
30/471	F	2	X									E	Editorial revisions recommended to modify question stem to read "Which...should the...select?" Distractor analysis for "D" is incorrect. Discussed with licensee on 4/25/00. Licensee agreed and editorial changes were made with no measurable impact on question content or validity. *FINAL STATUS: OK.*
31/477	H	3										S	*FINAL STATUS: OK.*
32/501	H	3										S	*FINAL STATUS: OK.*
33/531	F	2										S	*FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
34/538	H	3	X									E	Question stem lacks necessary information. Recommend modifying stem to include statement that Channel I is the controlling channel. Discussed with licensee on 4/25/00. Licensee agreed with this revision. *FINAL STATUS: OK.*
35/591	H	3				X						E	More than one distractor not credible. Recommend modifying distractor 'A' to read "Power remains at 5%. Control rods step out." Discussed with licensee on 4/25/00. Licensee modified distractor 'A' to improve distractor credibility. *FINAL STATUS: OK.*
36/592	H	3					X					E	Multiple correct distractors. Distractor 'D' is partially correct based on AP-21 foldout page 1, Item 3. Discussed with licensee on 4/25/00. Licensee provided clarification regarding training techniques which resulted in an improved understanding of the distractor. The distractorand question left "As Is". *FINAL STATUS: OK.*
37/593	H	3	X				X					E	Unnecessary cues in question stem. Question stem states that "Pressurizer pressure is maintaineduntil trip signal received at 0205". Oprators are aware that Unit should be manually tripped prior to automatic actuation if possible. Therefore distractor "C' 0205 is not a credible distractor. Discussed with licensee on 4/25/00. Licensee agreed to modify question stem to delete information that an automatic trip signal was received at 0205. *FINAL STATUS: OK.*
38/594	H	3				X						U	***Review distractors for possible modification. A and D to be reviewed by facility.*** Discussed with licensee on 4/25/00. Licensee agreed that distractors C and D were not credible and also agreed that the correct answer provided unnecessary cues. Distractors B, C, and D were modified. *FINAL STATUS: OK.*
39/596	F	2				X						E	Editiorial changes necessary including changing effect to affect and Clarifying distractor "C". The distractor reads as Rx is tripped at ASP. Discussed with licensee on 4/25/00. Licensee agreed with the changes and revised the question stem to correct the editorial changes. *FINAL STATUS: OK.*
40/597	H	3	X									E	Editorial cjhange to modify question stem to read" Which combination of alarms..." Discussed with licensee on 4/25/00. Licensee agreed. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
41/598	H	4										S	*FINAL STATUS: OK.*
42/600	H	3					X					E	Multiple correct answers. Distractor 'D' is a possible correct answer. When is distractor 'D' an incorrect answer. (RO/SRO discretion). Question stem should also include the correct values for IR indication for the operating conditions. Discussed with licensee on 4/25/00. Licensee disagreed that distractor 'D' was a potentially correct answer. In this situation, tripping the reactor is an incorrect response. IR amps equivalent was correct for actual values. *FINAL STATUS: OK.*
43/601	F	2										S	*FINAL STATUS: OK.*
44/602	H	4										S	*FINAL STATUS: OK.*
45/603	H	4										S	*FINAL STATUS: OK.*
46/604	H	3										S	*FINAL STATUS: OK.*
47/605	H	4										S	*FINAL STATUS: OK.*
48/606	F	2										S	*FINAL STATUS: OK.*
49/607	F	2										S	*FINAL STATUS: OK.*
50/608	F	2										S	*FINAL STATUS: OK.*
51/609	F	2										S	This question is very similar to bank question #607. Discussed with licensee on 4/25/00. Meets K/A. Examiner agreed. Question left "As Is". *FINAL STATUS: OK.*
52/611	H	3										S	*FINAL STATUS: OK.*
53/612	F	2					X					E	Although instrument response for the other meters (EMF 51, 52, 9) may not be as sensitive,t here may be some indication of core uncovery. Discussed with licensee on 4/25/00. Licensee clarified training materials and expectations and stated that the question was valid with only one correct distractor. Examiner agreed. Question left "As Is". *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
54/613	H	3	X			X						U	1. Technical errors in question stem. Recommend modifying stem or distractors to make Unit # consistent. 2. Stem focus. Revise it motor current statement to read pump motor current decreases. Discussed with licensee on 4/25/00. Question stem modified to correct the identified deficiencies. *FINAL STATUS: OK.*
55/615	F	2										S	*FINAL STATUS: OK.*
56/616	F	2					X					E	Correct answer was not properly identified. Distractor 'A' is not the correct answer. Discussed with licensee on 4/25/00. Information revised to indicate that Distractor 'B' is the correct answer *FINAL STATUS: OK.*.
57/619	H	4				X						E	Multiple correct answers. Confirm that use of Steam Tables is an unacceptable method for determining core conditions. Discussed with licensee on 4/25/00. Licensee verified that the use of Steam Tables was unacceptable and only one correct answer was listed. The examiner agreed. Question left "As Is". *FINAL STATUS: OK.*
58/620	F	2										S	*FINAL STATUS: OK.*
59/621	H	3										S	*FINAL STATUS: OK.*
60/622	H	3										S	*FINAL STATUS: OK.*
61/623	F	2										S	*FINAL STATUS: OK.*
62/624	H	3										S	*FINAL STATUS: OK.*
63/625	H	3										S	*FINAL STATUS: OK.*
64/626	H	3										S	*FINAL STATUS: OK.*
65/627	F	2										S	*FINAL STATUS: OK.*
66/628	H	3										S	*FINAL STATUS: OK.*
67/629	H	3	X									E	Editorial correction to delete "With" at the start of the stem. Discussed with licensee on 4/25/00. Licensee agreed and corrections made. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
68/630	H	3										S	Check UFSAR. Ccontainment pressure trend for LOCA and MSLB to confirm that Distractor A is a correct answer. Peak pressures may be a magnitude higher but may occur at the same time as the event when all doors function properly. Discussed with licensee on 4/25/00. Licensee has stated that data from Catawba supports the assertion that Distractor 'A' is correct. Question remains "As Is". *FINAL STATUS: OK.*
69/631	F	2										S	*FINAL STATUS: OK.*
70/632	F	2										S	*FINAL STATUS: OK.*
71/633	H	3										S	*FINAL STATUS: OK.*
72/634	F	2										S	*FINAL STATUS: OK.*
73/635	F	2										S	*FINAL STATUS: OK.*
74/637	H	3										S	*FINAL STATUS: OK.*
75/638	H	3										S	*FINAL STATUS: OK.*
76/639	H	3										S	*FINAL STATUS: OK.*
77/640	H	3										S	*FINAL STATUS: OK.*
78/641	F	2										S	*FINAL STATUS: OK.*
79/642	F	1										U	Question is of low discriminatory value. Discussed with licensee on 4/25/00. Licensee agreed and replaced this question. Examiner reviewed and accepted. *FINAL STATUS: OK.*
80/643	H	3										S	*FINAL STATUS: OK.*
81/644	F	2										S	*FINAL STATUS: OK.*
82/645	F	2										S	*FINAL STATUS: OK.*
83/646	H	3										S	*FINAL STATUS: OK.*
84/647	H	4										S	*FINAL STATUS: OK.*
85/648	F	2				X						E	Distractors need modification to correct psychometric flaws. Edit distractors to make all on "Float charge". Discussed with licensee on 4/25/00. Licensee agreed. *FINAL STATUS: OK.*
86/651	F	2										S	*FINAL STATUS: OK.*
87/652	F	2										S	*FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
88/654	F	2				X						E	Edit stem to read "... all RC pumps trip?". Remove "all" from distractor 'A' to make distractors credible. Discussed with licensee on 4/25/00. Licensee agreed. Distractors replaced. *FINAL STATUS: OK.*
89/655	F	1										S	Low discriminatory value. Recommend changing question stem to reduce the # of days to less than 14 and thereby making "A" the correct answer. Discussed with licensee on 4/25/00. Licensee agreed with the proposed modification. *FINAL STATUS: OK.*
90/656	H	3										S	*FINAL STATUS: OK.*
91/658	F	2				X	X					E	Multiple correct answers. Distractors 'A' and 'C' may be correct answers. Discussed with licensee on 4/25/00. Distractor 'A' was a correct answer prior to recently implemented procedure changes. The licensee stated that there is only one correct answer. This question left "As Is". *FINAL STATUS: OK.*
92/661	H	3	X									E	Question stem needs to be moified to read "What is the maximum allowable working time that worker A may perform without exceeding the alert flag exposure limit for external exposure" to avoid having more than one correct answer. Discussed with licensee on 4/25/00. Licensee agreed and recommended changes were made. *FINAL STATUS: OK.*
93/666	F	2										S	*FINAL STATUS: OK.*
94/668	H	3										S	*FINAL STATUS: OK.*
95/669	H	3										S	*FINAL STATUS: OK.*
96/670	F	2										S	*FINAL STATUS: OK.*
97/671	F	2										S	*FINAL STATUS: OK.*
98/672	H	2										S	*FINAL STATUS: OK.*
99/677	F	2										S	
100/678	F	2				X						E	Two non-plausible distractors. Recommend modifying distractor 'A' read "RTD Loop B failed high". Discussed with licensee on 4/25/00. Correction made. B Haagensen. *FINAL STATUS: OK.*

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. U/E/S	6. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward		

Instructions

[Refer to Appendix B for additional information regarding each of the following concepts.]

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.

2. Enter the level of difficulty (LOD) of each question using a 1 - 5 (easy - difficult) rating scale (questions in the 2 - 4 range are acceptable).

3. Check the appropriate box if a psychometric flaw is identified:
   - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
   - The answer choices are a collection of unrelated true/false statements.
   - More than one distractor is not credible.
   - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).

4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?

6. For any "U" ratings, at a minimum, explain how the Appendix B psychometric attributes are not being met.

Facility: McGuire	Date of Exam: 5/19/00	Exam Level: **RO/SRO**

Item Description	Initials a	Initials b	Initials c
1. Answer key changes and question deletions justified and documented	BLH	N/A	
2. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	BLH	N/A	
3. Grading for all borderline cases (80% +/- 2%) reviewed in detail	BLH	N/A	
4. All other failing examinations checked to ensure that grades are justified	N/A	N/A	N/A
5. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	BLH	N/A	

	Printed Name / Signature	Date
a. Grader	Bobby L Holbrook / B.L. HOLBROOK	6/7/00
b. Facility Reviewer(*)	N/A	
c. NRC Chief Examiner (*)	D.C. PAYNE	6/8/00
d. NRC Supervisor (*)	H. CHRISTENSEN	6/8/00

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

Facility: McGuire		Date of Examination: 5/8-12 & 5/22-25/2000
	Task Description	Date Complete
1.	Facility written exam comments or graded exams received and verified complete	5/25/00
2.	Facility written exam comments reviewed and incorporated and NRC grading completed, if necessary	6/8/00
3.	Operating tests graded by NRC examiners	6/20/00
4.	NRC Chief examiner review of written exam and operating test grading completed	6/23/00
5.	Responsible supervisor review completed	6/23/00
6.	Management (licensing official) review completed	6/23/00
7.	License and denial letters mailed	6/26/00
8.	Facility notified of results	6/23/00
9.	Examination report issued (refer to NRC MC 0610)	6/23/00
10.	Reference material returned after final resolution of any appeals	N/A