Written Examination Review Worksheet

NOTE : 1. BOLD & Italics reflect resolution of comments

2. Reviewed by S. Dennis and J. Caruso

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
1	F	3										Y	N	S	
2	H	3										Y	N	S	
3	H	3										Y	N	**E**	***Added to stem for clarity - plant is in normal electrical alignment***
4	F	3										Y	N	S	
5	H	3										Y	N	S	
6	F	2										Y	N	S	
7	F	2										Y	N	S	
8	F	3										Y	N	S	
9	H	2										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
10	H	2										Y	N	**E**	Modify stem condition last bullet to conform with reference "The temp switch... fails upscale **(above 350F)** due to a fault." Modify 3 distractors so that the correct answer doesn't stick out. For example, change "C" to read "A" and "B" SDC pumps will trip due to V-17-19 closing..." Start "A and B" distractors with "The SDC system will isolate due to ...." ***Stem modified to add 390F to last bullet. 'D' modified so correct answer didn't stand out***
11	H	1-2				X						Y	N	**U**	The distractors are not credible none of these will increase rad levels. Low discriminatory level LOD=1-2. ***Question Replaced - same K/A, Higher Order, LOD-2 - SAT***
12	F	2										Y	N	**E**	Discuss and confirm start logic for pumps and EDGs. "A" distractor may also be correct. ***Modified "A" distractor***
13	H	3										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
14	F	2										Y	N	S	
15	F	2										Y	N	S	
16	H	2										Y	N	S	Steve, follow-up on stem focus may need tightening. Are the applicants required to know these setpoints from memory for the low level alarm 143". ***Applicants expected to know these entry conditions. Bold and cap MAXIMIZE in stem also and revised second question to read better, " What is the basis for this requirement?"***
17	**F**	2										Y	N	**E**	With the EOP in hand direct look-up for the first part of the question. Do not allow use of EOP reference in answering this question. Are the ROs required to know from memory the EOP bases? ***No references allowed and it is a LO for ROs.***
18	H	3										Y	N	**E**	***edited distractor 'D' to ensure no EOP conflicts***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
19	H	3										Y	N	**E**	Typo? "C" explanation states iaw RAP 10F-1-k should this be RAP 10F-1-d?. From the procedure 331.1, step 6.1.1.1, it sounds like the operator has to take manual action to do this but the stem makes it sound like an auto action. ***Added word "required" to stem. Verified answer as correct for given reference***
20	H	3										Y	N	S	
21	H	3										Y	N	S	
22	H	3										Y	N	S	
23	H	3										Y	N	**E**	Rather than the word "viable" in the stem use, "...is NOT a an allowable strategy... given these plant conditions." ***Stem changed as noted above.***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
24	F	2										Y	N	S	Are ROs required to know the 95F and 105F from memory?? ***Yes***
25	H	3										Y	N	S	
26	F	2										Y	N	S	
27	F	2										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
28	H	3										Y	N	S	May be testing a concept to close to Q10. ***Verified that although close, the questions test different applications of the pump and valve logic. Additionally, verified that knowledge of the application in Q 10 does not affect the ability to answer this question correctly or incorrectly (also vice versa).***
29	F	3										Y	N	S	
30	H	3										Y	N	S	
31	F	2										Y	N	S	
32	F	2										Y	N	S	Fix reference sheet- ***formatting on answer and distractors. FIXED***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
33	H	3										Y	N	S	
34	F	2										Y	N	S	
35	F	2										Y	N	S	less than 500 cps inoperative iaw RAP H-7-a?? ***Reference verifed***
36	H	3										Y	N	S	***BWR-2s have a difference in APRM channel some get a block in one direction others a block in both directions makes higher order.***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
37	H	2										Y	N	S	verify references why not a half scram? Also verify K/A match not looks questionable. Note: if this were to happen at 100% power would get a half scram. ***References and K/A verified. Effect on RPS status must be known to obtain correct answer***
38	H	3										Y	N	S	
39	H	3										Y	N	S	
40	H	3										Y	N	S	
41	F	2										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
42	H	3										Y	N	S	
43	H	2										Y	N	S	
44	F	3										Y	N	S	
45	F	2										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
46	H	3										Y	N	**E**	verify references for answer. Also would it be advisable to state what initial reactor power level is in the stem? ***References verified. 25% power added to stem for clarity***
47	H	3										Y	N	S	Is this RO level knowledge - ***Yes, an RO learning objective was verified***
48	H	2										Y	N	S	
49	H	2										Y	N	S	
50	H	3										Y	N	**E**	consider revising "A&C" ,...NZ01C will auto start". ***Distractors revised for clarity***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
51	H	3										Y	N	S	
52	F	2										Y	N	S	Convince me that "B&D" distractors are plausible. ***Note: remote start switch used during initial starting of the compressors, therefore "B&D" do appear plausible.***
53	F	2										Y	N	S	Will the applicants know for sure from the stem conditions that the leak is a **major unisolable leak** per the ABN requiring a scram? ***Based on conditions with 3rd pump running and confirmed low level this is enough info to make that determination.*** **OK -Steve**
54	H	2										Y	N	S	
55	F	1										Y	N	S	"B&D" distractors do not appear to be credible. Convince us that they are. LOD=low. ***These are all procedurally driven steps given different circumstances so question is acceptable as written.***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
56	F	3										Y	N	S	
57	**F**	3										Y	N	**E**	Disagree comprehensive appears to be memory level only. ***Changed to memory level***
58	F	2										Y	N	**E**	"D" distractor not credible. ***Stem and distractor D changed - now credible***
59	**F**	3										Y	N	S	Disagree comprehensive level only direct memory - ***Changed to LOK - F***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
60	H	2										Y	N	S	
61	**F**	2										Y	N	S	memory level question - just one fact needed pump trips on low tank level. ***Changed to LOK - F***
62	F	2										Y	N	S	
63	F	1-2				X						Y	N	**U**	Distractors not credible. LOD=1 does not adequteley discriminate. ***Will replace.*** ***Replaced - same K/A - LOK-H - Question SAT***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
64	H	3										Y	N	S	
65	F	3										Y	N	S	
66	F	2										Y	N	S	
67	F	1-2										Y	N	**E**	Steve, look at complete TS maybe a direct look-up with TS in hand. Also need to remove reference to TS in stem or won't fit K/A, ability to recognize TS entry level - you are already telling them TS entry in stem. This would be a much better question, if given a situation of leaking from several locations where the applicant had to determine identified vs non-identified leakage and apply TS limits. ***Question edited to reflect above comments - now a LOK-H - SAT***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
68	F	1				X						Y	N	**U**	LOD=1 distractors not credible -just a setpoint question can easily eliminate 2 distractors. Too many set point questions and this is the 3rd air compressor question (see 50 & 51 also). ***Over sampling of instrument air will random sample new k/a and replace question.*** ***Question replaced -with formerly SRO-5 which was deemed to be an acceptable RO question- LOK-H - SAT***
69	H	3										Y	N	S	
70	F	2										Y	N	S	
71	F	3										Y	N	S	
72	F	2										Y	N	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
73	F	1										Y	N	**U**	LOD=1, GET level, non-license question does not adequately discriminate for making a licensing decision. A much better license level question could be written using this same K/A but normally at the SRO level. ***Question Replaced using same K/A - LOK-F - verified references- SAT***
74	F	2				X						N	N	**U**	Distractor "B" not credible. Also K/A does not appear to be a clear match. The basis for the design of the hardened vent system does not appear to be demonstrating knowledge of an EOP mitigation strategy. Steve follow-up ***Question Replaced using same K/A- LOK-H - verified references -SAT***
75	H	3										Y	N	S	
76 sro-1	F	2										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
77 sro-2	H	2										Y	Y	S	
78 sro-3	H	3										Y	Y	S	***Verified references***
79 sro-4	F	3										Y	N	S	Is SP-11 really required to operate/mitigate - not provided? If SP-11 required then looks like SRO level, if SP-11 not required then not SRO level. ***Verified SRO Level through reference check.***
80 sro-5	H	2						X				Y	N	**U**	Not SRO only - system ops questions. ***Question Replaced wrote new question on same system but new generic K/A more appropriate for examining SRO applicants - LOK-H, LOD-3, verified references -SAT***
81 sro-6	F	3										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
82 sro-7	H	3										Y	Y	S	
83 sro-8	F	3										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
84 sro-9	H	3										Y	Y	**E**	The question is not direct look-up. Although, the applicant can easily determine he is in the ATWS procedure, he is also clearly required to assess all 3 legs. With EOPs in hand in level/power leg and eventually get to the over ride statement and should conclude that level is above 30" and power is above 2% which would require terminate and prevent and lowering level below 30". However, "A" could be argued maybe that it is a partially correct answer - provide EOP basis that would support "A" is incorrect (i.e., that given the stem conditions if we were to stop terminating and preventing when power dropped below 2%, that we'd be wrong). Discussed with John Monro and he concurs. Steve, please follow-up. ***Conducted onsite extensive discussions on EOP usage and the appearance of competing EOP legs. Changed stem wording regarding the status of rods from "did not move into the core" to "remain at notch postion 48". This clarifies EOP direction as well as the stem statement that power is now at 6%. Question SAT after stem edit.***
85 sro-10	H	2										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
86 sro-11	H	3										Y	Y	S	
87 sro-12	F	2										Y	N	E	***Modified flow chart blocked out table 13 showing areas (equipment lost)and removed max safe numbers to avoid direct look-up.***
88 sro-13	H	3						X				Y	N	**U**	Doesn't fit 55.43(b)(2) not SRO level just a integrated system question. ***MAJOR Question rewritten to SRO level (same K/A) with procedural direction - verified references and changed to 55(B)(5). - SAT***
89 sro-14	H	2										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
90 sro-15	H	2										Y	Y	S	
91 sro-16	H	s	X									Y	Y	**U**	The applicant can easily determine he is in the ATWS procedure but he is also clearly required to assess all 3 legs. In fact, all 4 answers provided will eventually be done given the stem conditions. Provide EOP bases and/or other procedure guidance that would clearly establish initiating poison with these power oscillations is the **only correct** answer given these conditions. May need to tighten stem to ensure only one correct answer. Discussed with John Monro and he concurs. ***Question replaced using same K/A - references verified- LOK-H, LOD-3 -SAT***
92 sro-17	H	2										Y	N	**E**	***Stem and distractors enhanced to ensure that it is not a direct lookup***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
93 sro-18	H	3						X				Y	N	**U**	System ops question not SRO level does not fit 55.43(b)(1). ***Question replaced using same K/A - now requires procedural direction, LOK-H, LOD-3, SAT***
94 sro-19	H	3										Y	Y	**E**	Distractors "A&C" do not appear credible. ***All distractors changed. For consistency and credibility.***
95 sro-20	F	2						X				Y	N	**U**	Not an SRO level question, even NLOs should know this maybe okay as an RO question. LO covers both ROs and SROs. ***Question Replaced using same K/A - references verified*- LOK-H, LOD-3, SAT**
96 sro-21	H	2										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
97 sro-22	H	2										Y	Y	S	
98 sro-23	F	2						X				Y	N	**U**	Not SRO - GET level - see reference specified. ***Major rewrite incorporating evaluation and permission responsibility. LOD-2, LOK-F.***
99 sro-24	H	3										Y	Y	S	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
100 sro-25	H	1-2				X						Y	N	**U**	Direct look-up with EOPs in hand. Doesn't adequately discriminate basically the applicant has to determine he is in the Primary containment flow chart and it is very easy to determine based on the conditions in the stem ans the possible answer choices that we are in the pressure leg and with torus level at 468" all roads lead clearly to the correct answer the override statement says if water level reaches 461" then continue at "L" which specifies the correct answer. Although, the questions provides for some EOP assessment short of mis-reading the stem condition of 468" the distractors do not discriminate adequately. John Monro consulted and concurs. ***Question replaced with LOD-3, LOK-H, plant conditions & EAL determination - SAT***

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation

Instructions

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

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

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

3. Check the appropriate box if a psychometric flaw is identified:
   - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
   - The answer choices are a collection of unrelated true/false statements.
   - One or more ~~than one~~ distractors 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 n content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Check questions that are sampled for conformance with the approved K/A and those that are designated SRO-only (K/A and license level mismatches are unacceptable).

6. 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?

7. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Oyster Creek KA

OC Retake 2004 K/A	OC Initial Exam April 2004 K/A	OC Initial Exam Mar. 2002 K/A
2.1 2.1.12	2.1.12	201001A305
2.1 2.1.2	2.1.14	201002G421
2.1 2.1.23	2.1.2	201002K408
2.1 2.1.31	2.1.23	201003K405
2.1 2.1.33	2.1.33	201006G112
2.2 2.2.1	2.2.1	201006K301
2.2 2.2.13	2.2.11	202001A404
2.2 2.2.2	2.2.21	202001K307
2.3 2.3.1	2.2.26	202002K604
2.3 2.3.10	2.2.26	203000A407
2.3 2.3.4	2.3.2	203000K114
2.4 2.4.31	2.3.9	204000A214
201001A1.06	2.3.9	206000A106
201002A2.02	2.4.29	206000A307
202001A4.01	2.4.36	209001K110
202002K6.01	2.4.41	209001K202
205000K4.01	2.4.50	211000G410
207000K1.03	201001K6.02	211000K105
209001G2.1.31	201002K4.05	212000G123
209001K2.03	201006K4.06	212000K502
211000A2.04	202001K3.03	215001K105
211000K6.03	202002K3.02	215004A303
212000A2.06	204000K1.01	215004G206
212000A3.06	205000A2.09	215005K305
214000K5.01	205000K1.05	215005K505
215001K4.01	207000K1.01	216000A208
215003K6.06	207000K2.02	216000K201
215004A1.01	209001A2.05	217000A201
215004A2.02	209001K1.05	217000K405
215004K3.02	211000K2.02	219000A301
215005A1.03	211000K3.03	223001K613
215005A3.07	212000K3.05	223002K316
218000G2.1.28	215003A2.04	223002K401
218000K3.02	215003K4.01	226001A106
219000K2.02	215004K5.03	226001A305
223001A2.10	215005K6.01	230000K601
223002A4.01	218000A2.06	233000G107
223002K3.10	219000K5.02	234000G225
233000A3.02	223002A4.03	239002A102
239002K5.02	226001K5.06	239002A105
241000G2.4.21	239001A1.09	245000K502

K/A review indicated a possible 5 K/A matches with the April 2004 Exam & one K/A match with the March 2002 EXAM. However, a review for actual question duplication revealed no duplication identified.

John G Carr
12/3/04

Oyster Creek KA

245000K3.08	239002 2.4.6	256000A213
256000G2.1.28	239002K5.04	256000K406
259001G2.1.7	256000A3.06	259002G432
259001K1.08	259002A3.06	261000A407
259002A1.01	261000A1.04	261000K603
261000A4.03	262001 2.1.7	262001K201
261000K1.08	262001 2.2.25	262001K601
262001A2.01	262001A4.03	263000A101
262001K1.01	262002 2.1.30	263000K201
262002A2.01	263000A4.03	264000G111
263000A3.01	264000 2.4.48	268000A101
263000K4.02	264000K1.07	271000K102
264000K3.01	264000K6.01	272000K603
272000A1.01	271000A3.03	290002A202
295001AK3.02	272000A2.07	290002K303
295003AA1.03	286000A2.03	290003K501
295003AA2.04	290002 2.2.32	294001G103
295004AA1.03	295001 2.1.33	294001G114
295005AK1.01	295001AA2.01	294001G124
295006AA2.01	295002 2.4.31	294001G133
295006AA2.03	295003A1.03	294001G133
295006AK1.03	295004 2.1.33	294001G134
295007G21.23	295004AA2.02	294001G222
295008AA2.02	295005AK1.01	294001G222
295009AA1.02	295006AA2.02	294001G226
295010AK1.03	295006AK2.03	294001G227
295013AK2.01	295009AA2.03	294001G227
295015G2.4.6	295012 2.4.4	294001G230
295016AA2.02	295012AA2.02	294001G231
295018AK1.01	295013AK3.02	294001G301
295019G2.1.30	295014AA2.03	294001G302
295019G2.1.31	295016K2.02	294001G304
295021AA2.01	295017AK2.03	294001G309
295021G2.4.48	295018AK1.01	294001G310
295022AK3.01	295018AK2.02	294001G311
295023AA2.01	295019 2.2.27	294001G405
295024EA1.06	295019K3.02	294001G418
295024G2.4.50	295021 2.1.22	294001G428
295025EA1.07	295024EA2.02	294001G434
295025G2.1.28	295024EA2.04	295001A102
295026EA2.01	295025EK3.06	295002K104
295026G2.1.25	295026 2.4.21	295003A103
295028EA2.03	295026EK3.02	295003G409
295029EK3.01	295028 2.4.20	295004A201

Oyster Creek KA

295030EK2.08
295031EK3.05
295032EA2.01
295036G2.4.6
295037EK2.10
295038EK2.07
300000G2.1.23
300000K5.01
400000G2.4.4
600000AA1.09
G.2.2.22
G.2.2.29
G.2.4.16
G.2.4.38
G.2.4.6

295028EA1.02
295030EK2.08
295031EA1.03
295031EA2.02
295032EA1.03
295033EK3.01
295034EK1.01
295035EK3.01
295037EK1.02
295038EK1.01
300000K4.02
400000A4.01
400000K3.01
600000 2.4.27
6000000AK3.04

295004K303
295005A204
295006G128
295006K101
295007K205
295007K304
295008A101
295008K304
295009A201
295009G406
295010A102
295010A102
295012K101
295013K201
295014K204
295014K301
295015G304
295015K301
295016A102
295017A201
295018A203
295019A102
295019A201
295021G441
295022G448
295022K203
295023A102
295023G411
295024A110
295024G106
295025A206
295025K105
295026K102
295028K102
295030A204
295030K203
295031K213
295034G430
295036K201
295036K301
295038A203
295038K102
500000K303
600000G425

Oyster Creek KA

OC Retake 2004 K/A
2.1 2.1.12
2.1 2.1.2
2.1 2.1.23
2.1 2.1.31
2.1 2.1.33
2.2 2.2.1
2.2 2.2.13
2.2 2.2.2
2.3 2.3.1
2.3 2.3.10
2.3 2.3.4
2.4 2.4.31
201001A1.06
201002A2.02
202001A4.01
202002K6.01
205000K4.01
207000K1.03
209001G2.1.31
209001K2.03
211000A2.04
211000K6.03
212000A2.06
212000A3.06
214000K5.01
215001K4.01
215003K6.06
215004A1.01
215004A2.02
215004K3.02
215005A1.03
215005A3.07
218000G2.1.28
218000K3.02
219000K2.02
223001A2.10
223002A4.01
223002K3.10
233000A3.02
239002K5.02
241000G2.4.21

OC Initial Exam April 2004 K/A
2.1.12
2.1.14
2.1.2
2.1.23
2.1.33
2.2.1
2.2.11
2.2.21
2.2.26
2.2.26
2.3.2
2.3.9
2.3.9
2.4.29
2.4.36
2.4.41
2.4.50
201001K6.02
201002K4.05
201006K4.06
202001K3.03
202002K3.02
204000K1.01
205000A2.09
205000K1.05
207000K1.01
207000K2.02
209001A2.05
209001K1.05
211000K2.02
211000K3.03
212000K3.05
215003A2.04
215003K4.01
215004K5.03
215005K6.01
218000A2.06
219000K5.02
223002A4.03
226001K5.06
239001A1.09

OC Initial Exam Mar. 2002 K/A
201001A305
201002G421
201002K408
201003K405
201006G112
201006K301
202001A404
202001K307
202002K604
203000A407
203000K114
204000A214
206000A106
206000A307
209001K110
209001K202
211000G410
211000K105
212000G123
212000K502
215001K105
215004A303
215004G206
215005K305
215005K505
216000A208
216000K201
217000A201
217000K405
219000A301
223001K613
223002K316
223002K401
226001A106
226001A305
230000K601
233000G107
234000G225
239002A102
239002A105
245000K502

Oyster Creek KA

245000K3.08
256000G2.1.28
259001G2.1.7
259001K1.08
259002A1.01
261000A4.03
261000K1.08
262001A2.01
262001K1.01
262002A2.01
263000A3.01
263000K4.02
264000K3.01
272000A1.01
295001AK3.02
295003AA1.03
295003AA2.04
295004AA1.03
295005AK1.01
295006AA2.01
295006AA2.03
295006AK1.03
295007G21.23
295008AA2.02
295009AA1.02
295010AK1.03
295013AK2.01
295015G2.4.6
295016AA2.02
295018AK1.01
295019G2.1.30
295019G2.1.31
295021AA2.01
295021G2.4.48
295022AK3.01
295023AA2.01
295024EA1.06
295024G2.4.50
295025EA1.07
295025G2.1.28
295026EA2.01
295026G2.1.25
295028EA2.03
295029EK3.01

239002 2.4.6
239002K5.04
256000A3.06
259002A3.06
261000A1.04
262001 2.1.7
262001 2.2.25
262001A4.03
262002 2.1.30
263000A4.03
264000 2.4.48
264000K1.07
264000K6.01
271000A3.03
272000A2.07
286000A2.03
290002 2.2.32
295001 2.1.33
295001AA2.01
295002 2.4.31
295003A1.03
295004 2.1.33
295004AA2.02
295005AK1.01
295006AA2.02
295006AK2.03
295009AA2.03
295012 2.4.4
295012AA2.02
295013AK3.02
295014AA2.03
295016K2.02
295017AK2.03
295018AK1.01
295018AK2.02
295019 2.2.27
295019K3.02
295021 2.1.22
295024EA2.02
295024EA2.04
295025EK3.06
295026 2.4.21
295026EK3.02
295028 2.4.20

256000A213
256000K406
259002G432
261000A407
261000K603
262001K201
262001K601
263000A101
263000K201
264000G111
268000A101
271000K102
272000K603
290002A202
290002K303
290003K501
294001G103
294001G114
294001G124
294001G133
294001G133
294001G134
294001G222
294001G222
294001G226
294001G227
294001G227
294001G230
294001G231
294001G301
294001G302
294001G304
294001G309
294001G310
294001G311
294001G405
294001G418
294001G428
294001G434
295001A102
295002K104
295003A103
295003G409
295004A201

Oyster Creek KA

295030EK2.08
295031EK3.05
295032EA2.01
295036G2.4.6
295037EK2.10
295038EK2.07
300000G2.1.23
300000K5.01
400000G2.4.4
600000AA1.09
G.2.2.22
G.2.2.29
G.2.4.16
G.2.4.38
G.2.4.6

295028EA1.02
295030EK2.08
295031EA1.03
295031EA2.02
295032EA1.03
295033EK3.01
295034EK1.01
295035EK3.01
295037EK1.02
295038EK1.01
300000K4.02
400000A4.01
400000K3.01
600000 2.4.27
6000000AK3.04

295004K303
295005A204
295006G128
295006K101
295007K205
295007K304
295008A101
295008K304
295009A201
295009G406
295010A102
295010A102
295012K101
295013K201
295014K204
295014K301
295015G304
295015K301
295016A102
295017A201
295018A203
295019A102
295019A201
295021G441
295022G448
295022K203
295023A102
295023G411
295024A110
295024G106
295025A206
295025K105
295026K102
295028K102
295030A204
295030K203
295031K213
295034G430
295036K201
295036K301
295038A203
295038K102
500000K303
600000G425

Oct. 15, 2004
J. Caruso

OUTLINE COMMENTS - OC WRITTEN RETAKE

Comments provided to Jesse Hackenburg, Ops Training Supervisor

Please have the exam author provide an e-mail detailing the random sample method utilized in developing the outline. Also a K/A rejection form ES-401-4 was not included, please have him explain that there were no deletions, if this was the case. If there were deletions than please provide the form.

- RO Tier 2/Group 1, 215005 and RO Tier 2/Group 2, 245000 seem to be very similar ensure questions don't test the same area.
- SRO Tier 1/Group 2, 295032, area temp may not be SRO level topic - depends on the question.
- SRO Tier 1/Group 2, 295007, entry conditions for ABN or EOPs does not appear to be and SRO level topic.
- SRO Tier 2/Group 1, 211000, SLC inadequate system flow may not be SRO level topic - depends on the question. Note: For TS questions cautioned against simplistic LCO calls that could be direct look-up and don't examine at the SRO level, which requires the ability to interpret integrated TS calls.
- SRO Tier 2/Group 1, 212000, RPS high reactor power may not be SRO level topic - depends on the question.
- SRO Tier 2/Group 1, 215004, SRM inop. condition may not be SRO level topic - depends on the question.
- SRO Tier 2/Group 1, 211000, ADS knowledge of purpose and function of major components and controls may not be SRO level topic - depends on the question.
- SRO Tier 2/Group 2, 201002, Rod drift alarm may not be SRO level topic - depends on the question.
- Generic Outline Tier 3, 2.3.01, 10 CRF 20, rad control requirements may not be SRO level topic - depends on the question.
- Generic Outline Tier 3, 2.4.04, ability to recognize entry level EOP conditions.

NUREG 1021

'04 SEP 24 A11 :17

RECEIVED
REGION 1

September 23, 2004

2130-04-20218

Mr. Samuel J. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Oyster Creek Generating Station
Docket No. 50-219

Subject: Submittal of Initial Operator License Examination Outlines

In accordance with NUREG 1021, Revision 9, "Operating Licensing Examination Standards for Power Reactors", Oyster Creek Generating Station is submitting the initial operator license examination outlines, both RO and SRO, for review and approval. This is in support of the NRC initial license written examination retake scheduled for the week of December 6, 2004.

In accordance with NUREG 1021, Revision 9, Section ES-201, we request that these materials be withheld from public disclosure until after the examinations are complete.

If any further information or assistance is needed, please contact Mr. Greg Young at 609-971-4196.

Sincerely,

Herbert G. Tritt, II
Facility Representative/Operations Support Manager
Oyster Creek Generating Station

HGT/DIF

Enclosures: (Delivered only to John Caruso, Chief Examiner, NRC Region 1)
ES-201-2, Examination Outline Quality Checklist
ES-201-3, Examination Security Agreement
ES-401-1, BWR Examination Outline
ES-401-3, Generic Knowledge and Abilities Outline (Tier 3)

cc: R. J. Conte, Chief, Operational Safety Branch, USNRC Region I
R. J. Summers, USNRC Senior Resident Inspector, Oyster Creek
File No. 04015

From: <gpyoung@amergenenergy.com>
To: <JGC@nrc.gov>
Date: 10/15/04 4:26PM
Subject: random sample

John, per your conversation with Jesse Hackenberg today, I am forwarding to you the description of the process used to randomly select items for the written sample plan. I have attached the document explaining this process to the end of this e-mail.

Additionally, no ES-401-4 form was sent with the sample plan because no K/A items were rejected during the creation of the sample plan. Up to today, we have rejected 2 K/A items from the sample plan because we could not develop an adequate discriminatory test question. We will forward the ES-401-4 form when we have completed test item development and validation.

Greg

(See attached file: random selection process used for second written exam.doc)

Attach to ES-201-2

Random selection process used for second written exam

Oyster Creek 2004 NRC ILT class 02-1

Randomly selected the KA subject area for each of the RO/SRO Tier/Group settings based on the number of questions required for that Tier/Group until the required complement was filled. [poker chip method]

Then randomly selected the K/A/G category available for each of the subject areas selected above.

Then randomly selected the specific K/A from those available for each of the K/A/G categories selected above.

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1 RO [#20]	600000 AK1.02	This specific area eliminated because several fire-fighting concepts were tested in the previous written exam (April 2004). (1) – use 600000 AA1.09
1/1 RO [#14]	295026 G 2.1.27	Too close to area tested on previous written exam (April 2004) (1) – use 295026 G 2.1.25
1/1 RO [#3]	295004 AK3.03	Unable to create appropriate discriminatory test item. This concept does not apply to Oyster Creek because a partial or complete loss of DC will not cause a reactor scram. (1) – use 295004 AA1.03
1/1 RO [#6]	295006 AK3.02	Reasons for reactor power response on a scram too general and not operationally discriminatory. (1) – use 295006 AA2.01
1/2 RO [#27]	295036 EA1.02	Unable to create appropriate discriminatory test item. This K/A was eliminated because this area is over-sampled. (2) – use 295009 AA1.02
2/1 RO [#35]	215004 K4.06	This item was replaced because it was too close to an area already tested. (1) – use 215004 A1.01
2/2 RO [#54]	201003 A2.08	Eliminated due to over-sampling of this area. (2) – use 201001 A1.06
2/2 RO [#62]	245000 K3.07	The loss of the main turbine and it effect on RPS too close to an area already tested on this exam (1) – use 245000 K3.08
1/2 SRO [S09]	295007 G2.4.4	This item eliminated because entry conditions to EOPs and abnormal procedures have been over-sampled on this and the previous written exam (April 2004). (2) – use 295015 G2.4.6
3/4 SRO [S25]	G2.4.4	This item eliminated because entry conditions to EOPs and abnormal procedures have been over-sampled on this and the previous written exam (April 2004). (1) – use G2.4.16
After NRC comment resolution (12-03-2004)		
3/1 RO [68]	G2.1.31	During review with the NRC, it was determined that the K/A area and the system involved in the developed question were over-sampled. (1) – use G2.1.23
1/1 SRO [S05]	295021 AA2.01	During review with the NRC, it was determined that an SRO only level question could not be developed for the selected K/A. (1) – use 295021 G2.1.7
3/4 SRO [S25]	G2.4.16	This item eliminated because entry conditions to EOPs and abnormal procedures have been over-sampled on this and the previous written exam (April 2004). (1) – use G2.4.41

(1) – Randomly selected another K/A area from those remaining in this topic area; then randomly selected from item in that area.

(2) – Randomly selected another K/A from those remaining in the tier/group, then randomly selected from item in that area

Facility Name: Date of Exam:

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2		G*		Total
1. Emergency & Abnormal Plant Evolutions	1	4	3	4				3	3			3	20	4		3		7
	2	1	1	2	N/A			1	1	N/A		1	7	1		2		3
	Tier Totals	5	4	6				4	4			4	27	5		5		10
2. Plant Systems	1	3	1	4	3	2	2	2	2	3	2	2	26	3		2		5
	2	1	1	1	1	1	1	1	2	1	1	1	12	1		2		3
	Tier Totals	4	2	5	4	3	3	3	4	4	3	3	38	4		4		8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			3			2			2			2	2	1	2	

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

ES-401	BWR Examination Outline							Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)								
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			02				Reactor power response	3.7	1
295003 Partial or Complete Loss of AC / 6				03			Systems necessary to assure safe plant shutdown	4.4	1
295004 Partial or Total Loss of DC Pwr / 6			03				Reactor SCRAM: Plant-Specific	3.1	1
295005 Main Turbine Generator Trip / 3	01						Pressure effects on reactor power	4	1
295006 SCRAM / 1	03		02				Reactivity control; Reactor power response	3.7; 4.1	2
295016 Control Room Abandonment / 7					02		Reactor water level	4.2	1
295018 Partial or Total Loss of CCW / 8	01						Effects on component/system operations	3.5	1
295019 Partial or Total Loss of Inst. Air / 8						01,30	Ability to locate and operate components, including local controls.	3.9	1
295021 Loss of Shutdown Cooling / 4						04,48	Ability to interpret control room indications to verify the status and operation of system, and understand how operator action s and directives affect plant and system conditions.	3.5	1
295023 Refueling Acc / 8					01		Area radiation levels	3.6	1
295024 High Drywell Pressure / 5				06			Emergency generators	3.7	1
295025 High Reactor Pressure / 3				07			ARI/RPT/ATWS: Plant-Specific	4.1	1
295026 Suppression Pool High Water Temp. / 5						01,27	Knowledge of system purpose and/or function.	2.8	1
295027 High Containment Temperature / 5 SUPPRESSED									0
295028 High Drywell Temperature / 5					03		Reactor water level	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5		08					SRV discharge submergence	3.5	1
295031 Reactor Low Water Level / 2			05				Emergency depressurization	4.2	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1		10					Reactor pressure	3.8	1
295038 High Off-site Release Rate / 9		07					Control room ventilation	3.5	1
600000 Plant Fire On Site / 8	02						Fire Fighting	2.9	1
K/A Category Totals:	4	3	4	3	3	3	Group Point Total:		20

ES-401 BWR Examination Outline Form ES-401-1

Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									0
295007 High Reactor Pressure / 3						01, 23	Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
295008 High Reactor Water Level / 2					02		Steam flow/feedflow mismatch	3.4	1
295009 Low Reactor Water Level / 2									0
295010 High Drywell Pressure / 5	03						Temperature increases	3.2	1
295011 High Containment Temp / 5									0
295012 High Drywell Temperature / 5									0
295013 High Suppression Pool Temp. / 5		01					Suppression pool cooling	3.6	1
295014 Inadvertent Reactivity Addition / 1									0
295015 Incomplete SCRAM / 1									0
295017 High Off-site Release Rate / 9									0
295020 Inadvertent Cont. Isolation / 5 & 7									0
295022 Loss of CRD Pumps / 1			01				Reactor SCRAM	3.7	1
295029 High Suppression Pool Wtr Lvl / 5			01				Emergency depressurization	3.5	1
295032 High Secondary Containment Area Temperature / 5									0
295033 High Secondary Containment Area Radiation Levels / 9									0
295034 Secondary Containment Ventilation High Radiation / 9									0
295035 Secondary Containment High Differential Pressure / 5									0
295036 Secondary Containment High Sump/Area Water Level / 5				02			Affected systems so as to isolate damaged portions	3.5	1
500000 High CTMT Hydrogen Conc. / 5									0
K/A Category Totals:	1	1	2	1	1	1	Group Point Total:		7

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)												Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection SUPPRESSED														0
205000 Shutdown Cooling Mode				01								High temperature isolation: Plant-Specific	3.4	1
206000 HPCI SUPPRESSED														0
207000 Isolation (Emergency) Condenser	03											Reactor water level: BWR-2, 3	3.7	1
209001 LPCS		03										Initiation logic	2.9	1
209002 HPCS SUPPRESSED														0
211000 SLC						03						A.C. power	3.2	1
212000 RPS									06			Main turbine trip: Plant-Specific	4.2	1
215003 IRM						06						APRM	3.2	1
215004 Source Range Monitor			02	06								Reactor manual control: Plant-Specific; IRM/SRM interlock	3.4; 3.2	2
215005 APRM / LPRM							03		07			Control rod block status; RPS status	3.6; 3.8	2
217000 RCIC SUPPRESSED														0
218000 ADS			02									Ability to rapidly depressurize the reactor	4.5	1
223002 PCIS/Nuclear Steam Supply Shutoff			01							01		Reactor water level; Valve closures	3.7; 3.6	2
239002 SRVs					02							Safety function of SRV operation	3.7	1
259002 Reactor Water Level Control							01					Reactor water level	3.8	1
261000 SGTS	08									03		Process radiation monitoring system ; Fan	2.8; 3	2
262001 AC Electrical Distribution	01							01				Emergency generators (diesel/jet); Turbine/generator trip	3.8; 3.4	2
262002 UPS (AC/DC)								01				Under voltage	2.6	1
263000 DC Electrical Distribution				02					01			Breaker interlocks, permissives, bypasses and cross ties: Plant-Specific; Meters, dials, recorders, alarms, and indicating lights	3.1; 3.2	2
264000 EDGs			01									Emergency core cooling systems	4.2	1
300000 Instrument Air					01						01, 23	Air compressors; Ability to perform specific system and integrated plant procedures during different modes of plant operation.	2.5; 3.9	2
400000 Component Cooling Water											04, 04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4	1
K/A Category Totals:	3	1	4	3	2	2	2	2	3	2	2	Group Point Total:		26

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)												Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														0
201002 RMCS														0
201003 Control Rod and Drive Mechanism								08				Low HCU accumulator pressure/high level	3.8	1
201004 RSCS SUPPRESSED														0
201005 RCIS SUPPRESSED														0
201006 RWM														0
202001 Recirculation										01		Recirculation pumps	3.7	1
202002 Recirculation Flow Control						01						A.C. power	2.8	1
204000 RWCU														0
214000 RPIS					01							Reed switches	2.7	1
215001 Traversing In-core Probe				01								Primary containment isolation: Mark-I&II(Not-BWR1)	3.4	1
215002 RBM SUPPRESSED														0
216000 Nuclear Boiler Inst.														0
219000 RHR/LPCI: Torus/Pool Cooling Mode		02										Pumps	3.1	1
223001 Primary CTMT and Aux.								10				High drywell temperature	3.6	1
226001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode SUPPRESSED														0
233000 Fuel Pool Cooling/Cleanup									02			Pump trip(s)	2.6	1
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control SUPPRESSED														0
241000 Reactor/Turbine Pressure Regulator														0
245000 Main Turbine Gen. / Aux.			07									Reactor protection system	3.6	1
256000 Reactor Condensate											0128	Knowledge of the purpose and function of major system components and controls.	3.2	1
259001 Reactor Feedwater	08											Reactor water level control system	3.6	1
268000 Radwaste														0
271000 Offgas														0
272000 Radiation Monitoring							01					Lights, alarms, and indications associated with normal operations	3.2	1
286000 Fire Protection														0
288000 Plant Ventilation														0
290001 Secondary CTMT														0
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
K/A Category Totals:	1	1	1	1	1	1	1	2	1	1	1	Group Point Total:		12

ES-401	BWR Examination Outline								Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									0
295003 Partial or Complete Loss of AC / 6					04		System lineups	3.7	1
295004 Partial or Total Loss of DC Pwr / 6									0
295005 Main Turbine Generator Trip / 3									0
295006 SCRAM / 1					03		Reactor water level	4.2	1
295016 Control Room Abandonment / 7									0
295018 Partial or Total Loss of CCW / 8									0
295019 Partial or Total Loss of Inst. Air / 8						0131	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.	3.9	1
295021 Loss of Shutdown Cooling / 4					01		Reactor water heatup/cooldown rate	3.6	1
295023 Refueling Acc / 8									0
295024 High Drywell Pressure / 5						0450	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
295025 High Reactor Pressure / 3						0128	Knowledge of the purpose and function of major system components and controls.	3.3	1
295026 Suppression Pool High Water Temp. / 5					01		Suppression pool water temperature	4.2	1
295027 High Containment Temperature / 5 SUPPRESSED									0
295028 High Drywell Temperature / 5									0
295030 Low Suppression Pool Wtr Lvl / 5									0
295031 Reactor Low Water Level / 2									0
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1									0
295038 High Off-site Release Rate / 9									0
600000 Plant Fire On Site / 8									0
K/A Category Totals:	0	0	0	0	4	3	Group Point Total:		7

ES-401	BWR Examination Outline								Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									0
295007 High Reactor Pressure / 3						04.04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
295008 High Reactor Water Level / 2									0
295009 Low Reactor Water Level / 2									0
295010 High Drywell Pressure / 5									0
295011 High Containment Temp / 5 SUPPRESSED									0
295012 High Drywell Temperature / 5									0
295013 High Suppression Pool Temp. / 5									0
295014 Inadvertent Reactivity Addition / 1									0
295015 Incomplete SCRAM / 1									0
295017 High Off-site Release Rate / 9									0
295020 Inadvertent Cont. Isolation / 5 & 7									0
295022 Loss of CRD Pumps / 1									0
295029 High Suppression Pool Wtr Lvl / 5									0
295032 High Secondary Containment Area Temperature / 5					01		Area temperature	3.8	1
295033 High Secondary Containment Area Radiation Levels / 9									0
295034 Secondary Containment Ventilation High Radiation / 9									0
295035 Secondary Containment High Differential Pressure / 5									0
295036 Secondary Containment High Sump/Area Water Level / 5						04.06	Knowledge symptom based EOP mitigation strategies.	4	1
500000 High CTMT Hydrogen Conc. / 5									0
K/A Category Totals:	0	0	0	0	1	2	Group Point Total:		3

ES-401	BWR Examination Outline												Form ES-401-1	
Plant Systems - Tier 2/Group 1 (SRO)														
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection SUPPRESSED														0
205000 Shutdown Cooling Mode														0
206000 HPCI SUPPRESSED														0
207000 Isolation (Emergency) Condenser														0
209001 LPCS											01 31	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.	3.9	1
209002 HPCS SUPPRESSED														0
211000 SLC								04				Inadequate system flow	3.4	1
212000 RPS								06				High reactor power	4.2	1
215003 IRM														0
215004 Source Range Monitor								02				SRM inop condition	3.7	1
215005 APRM / LPRM														0
217000 RCIC SUPPRESSED														0
218000 ADS											01 28	Knowledge of the purpose and function of major system components and controls.	3.3	1
223002 PCIS/Nuclear Steam Supply Shutoff														0
239002 SRVs														0
259002 Reactor Water Level Control														0
261000 SGTS														0
262001 AC Electrical Distribution														0
262002 UPS (AC/DC)														0
263000 DC Electrical Distribution														0
264000 EDGs														0
300000 Instrument Air														0
400000 Component Cooling Water														0
K/A Category Totals:	0	0	0	0	0	0	0	3	0	0	2	Group Point Total:		5

ES-401	BWR Examination Outline												Form ES-401-1	
	Plant Systems - Tier 2/Group 2 (SRO)													
E/APE # / Name / Safety Function	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														0
201002 RMCS								02				Rod drift alarm	3.2	1
201003 Control Rod and Drive Mechanism														0
201004 RSCS SUPPRESSED														0
201005 RCIS SUPPRESSED														0
201006 RWM														0
202001 Recirculation														0
202002 Recirculation Flow Control														0
204000 RWCU														0
214000 RPIS														0
215001 Traversing In-core Probe														0
215002 RBM SUPPRESSED														0
216000 Nuclear Boiler Inst.														0
219000 RHR/LPCI: Torus/Pool Cooling Mode														0
223001 Primary CTMT and Aux.														0
226001 RHR/LPCI: CTMT Spray Mode														0
230000 RHR/LPCI: Torus/Pool Spray Mode SUPPRESSED														0
233000 Fuel Pool Cooling/Cleanup														0
234000 Fuel Handling Equipment														0
239001 Main and Reheat Steam														0
239003 MSIV Leakage Control SUPPRESSED														0
241000 Reactor/Turbine Pressure Regulator											04 21	Knowledge of the parameters and logic used to assess the status of safety functions including:□ 1 Reactivity control□	4.3	1
245000 Main Turbine Gen. / Aux.														0
256000 Reactor Condensate														0
259001 Reactor Feedwater											01 07	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation	4.4	1
268000 Radwaste														0
271000 Offgas														0
272000 Radiation Monitoring														0
286000 Fire Protection														0
288000 Plant Ventilation														0
290001 Secondary CTMT														0
290003 Control Room HVAC														0
290002 Reactor Vessel Internals														0
K/A Category Totals:	0	0	0	0	0	0	0	1	0	0	2	Group Point Total:		3

Facility Name: Date of Exam:

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1. 02	Knowledge of operator responsibilities during all modes of plant operation.	3	1		
	2.1. 33	Ability to recognize indications for system operating parameters which are entry-level cond	3.4	1		
	2.1. 31	Ability to locate control room switches, controls and indications and to determine that they	4.2	1		
	2.1.					
	2.1. 12	Ability to apply technical specifications for a system.			4	1
	2.1. 23	Ability to perform specific system and integrated plant procedures during different modes of plant operation.			4	1
	Subtotal			3		2
2. Equipment Control	2.2. 01	Ability to perform pre-startup procedures for the facility, including operating those controls	3.7	1		
	2.2. 13	Knowledge of tagging and clearance procedures.	3.6	1		
	2.2. 02	Ability to manipulate the console controls as required to operate the facility between shutd	4	1		
	2.2.					
	2.2. 29	Knowledge of SRO fuel handling responsibilities.			3.8	1
	2.2. 22	Knowledge of limiting conditions for operations and safety limits.			4.1	1
	Subtotal			3		2
3. Radiation Control	2.3. 10	Ability to perform procedures to reduce excessive levels of radiation and guard against per	2.9	1		
	2.3. 04	Knowledge of radiation exposure limits and contamination control, including permissible lev	2.5	1		
	2.3.					
	2.3. 01	Knowledge of 10 CFR 20 and related facility radiation control requirements.			3	1
	2.3.					
	2.3.					
	Subtotal			2		1
4. Emergency Procedures / Plan	2.4. 06	Knowledge symptom based EOP mitigation strategies.	3.1	1		
	2.4. 31	Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1		
	2.4.					
	2.4. 38	Ability to take actions called for in the facility emergency plan, including (if required)supporting or acting as emerg			4	1
	2.4. 04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for eme			4.3	1
	2.4.					
	Subtotal			2		2
Tier 3 Point Total				10		7