DC-03-2007-INIT EXAM (TAC#: X02326/7)

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	2												S	Closed Reference (CR), D, 41.7
2	H	3												S	CR, D, 41.10
3	H	2										U		U S	CR, A, 41.10 - BV NRC EXAM 12/02. The KA is focused on the basis for maintaining subcooling during accident conditions. The question is focused on the basis for depressurizing after a LOCA. Revised
4	H	3												S	CR, C, 41.5,
5	F	3												S	CR, D, 41.10
6	H	3												S	CR, C, 41.7
7	H	3										U		E	CR, B, 41.5 - The KA is focused on the reasons for isolating pressurizer sprays following a loss of heaters. The question asks what the actions are and not the basis. Revised Distr. 'A'
8	H	3												S	CR, C, 41.7 - BV NRC EXAM 12/02.
9	H	3												S	Open Reference (OR), D, 41.10

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 distractors is (are) 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. 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).

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			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	# / units	Back-ward	Q= K/A	SRO Only		
10	H	3												S	CR, C, 41.4
11	F	3										U	S	S	CR, A, 41.4 - The KA is focused on LCOs/safety limits that are related to loss of feedwater. The question is focused on the function of the FW isolation valves. Second, the answer is justified using TS bases which makes it an SRO only question. Expected RO Know.
12	F	3												S	CR, B, 41.10 -
13	H	3												S	CR, B, 41.7 -
14	H	3												S	CR, B, 41.4
15	H	3												S	CR, C, 41.4
16	H	1										U		U	OR, C, 41.10 - ECA-1.2, LOCA was not available for this review, but the question and reference provided suggest the question is a direct lookup. Second, the KA is focused on the reasons for taking an action whereas the question is focused on what actions to take. Revised
17	F	3												S	CR, D, 41.10 -
18	F	3												S	CR, B, 41.10 -
19	H	3												S	CR, C, 41.10 -
20	H	3												S	CR, A, 41.7
21	H	3										U		U	CR, A, 41.10 - The KA is focused on the reasons for terminating a plant startup following a loss of IR instrumentation while the question is focused on the operator actions to be taken in response to a loss of IR instrumentation. Replaced.
22	F	3						U					U	S	CR, D, 43.7 - Braidwood, 2001 -This is an SRO only question because it is focused on the refueling equipment in the fuel handling building (see CFR 43.7). Suggest rejecting this KA. Sat. as is after review.
23	F	3												S	CR, A, 41.13
24	F	3												S	CR, A, 41.10

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			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	# / units	Back-ward	Q= K/A	SRO Only		
25	F	3												E	CR, A, 41,10 - DC-10/02 - Recommend adding the component titles for the RMs referenced in the distractors. Revised
26	H	3												S	CR, C, 41.5 -
27	F	3												S	CR, A, 41.10 -
28	F	2												S	CR, D, 41.5 -
29	F	3										U		U	CR, C, 41.10 - This is a two part KA and the question only addresses one part of the KA. Revised
30	H	3												S	CR, B, 51.5 -
31	H	2												S	CR, D, 51.5 -
32	F	2												S	CR, D, 43.2 - This question is SRO only because it uses TS bases for determining the correct answer. Expected RO Know
33	F	3												S	CR, B, 41.4 -
34	F	3										U		E	CR, A, 41.10 - The KA is focused on CCW temperature response following operating CCW controls. The question is focused on reactor trip criteria. Replaced
35	H	3												S	CR, A, 41.4 -
36	H	3										U		U	CR, B, 41.7 - This is a two part KA and the question only address one part. Revised 'C'
37	H	3												S	CR, B, 41.10 -
38	F	3												S	CR, A, 41.7 -
39	F	2												S	CR, A, 41.5 -
40	H	4												S	CR, C, 41.7 -
41	H	3										U		E	CR, D, 41.7 - This question does not address both parts of the KA (impact and mitigation). Revised
42	F	3												S	CR, C, 41.7 -
43	H	3												S	CR, B, 41.7
44	H	3												S	CR, D, 41.11 -
45	H	3												S	CR, D, 41.7 -

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			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	# / units	Back-ward	Q= K/A	SRO Only		
46	H	2												S	CR, A, 41.5 -
47	F	2												S	CR, A, 41.4 -
48	H	2												S	CR, B, 41.14
49	F	2												S	CR, B, 41.7 -
50	H	3												S	CR, C, 41.4
51	H	3												S	CR, B, 41.7 - Salem 11/02
52	F	2												S	CR, D, 41.13 -
53	F	2												S	CR, A, 41.7 -
54	H	2												S	CR, A, 41.4 -
55	F	3		E										E	CR, D, 41.10 - Recommend the distractors be revised so that there is more than one located in the control room. Revised
56	H	3				E								E	CR, A, 41.1 - Distractor C could also be argued to be technically correct because power, or the production of energy will not change if just critical and below the point of adding heat. Recommend changing the stem from “power” to “neutron count rate.” Chg’d to intermed Rg
57	H	3												S	CR, D, 41.5 -
58	F	3												S	CR, A, 41.7 -
59	F	3				U								S	CR, D, 41.4 - It is believed answer A could also be argued to be correct since the breakthrough would eventually result in SG cation conductivity high alarms. Chg’d Stem
60	F	3												S	CR, D, 41.13
61	F	3						U					U	S	CR, C, 43.7 - This is an SRO only question because it deal with fuel handling equipment. Expected Sys Know
62	H	3										U		U	CR, A, 41.10 - This is a 2 part KA and the question only addresses one part. Rewritten
63	H	3												S	CR, A, 41.1
64	F	3												S	CR, A, 41.10
65	F	3												S	CR, C, 41.13

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			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	# / units	Back-ward	Q= K/A	SRO Only		
66	F	3												S	CR, A, 41.10
67	F	2												S	CR, D, 41.10
68	F	2												S	CR, C, 41.10
69	F	2										U		S	CR, A, 41.10 - The KA is focused on ability to track LCO while the question is focused on meeting LCO surveillance requirements. Resampled
70	H	3										U		E	CR, D, 41.1 - The KA is focused on the process for determining core reactivity while the question is focused on variable that can change core reactivity. Revised
71	F	2												S	CR, A, 41.12
72	H	3												S	CR, B, 41.10
73	H	3												S	CR, A, 41.10
74	H	3												S	CR, C, 41.10
75	F	3												S	CR, C, 41.10
76	H	3												S	CR, C, 43.5
77	H	3												S	CR, B, 43.5
78	H	3												S	CR, D, 43.5
79	F	3												S	CR, D, 43.2
80	F	3												S	CR, D, 43.5
81	H	3											U	U	OR, B, 41.10, IP 12/2004 - This question tests on specific operator actions in the EOPs. This makes it an RO question. It needs to include a procedure selection to make it an SRO. Revised
82	F	1				U							U	U	CR, A, 41.10 - Distractors B, C, and D are not credible. The correct answer tests on immediate actions and EOP entry conditions making it an RO question. Revised 2 Dis.
83	H	3												S	CR, D, 43.7
84	H	3												S	CR, C, 43.2
85	H	3												S	CR, D, 43.5

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			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	# / units	Back-ward	Q= K/A	SRO Only		
86	H	3											U	U	CR, D, 41.10, DC 2005 - This question tests on specific operator actions in the EOPs. This makes it an RO question. It needs to include a procedure selection to make it an SRO. Revised
87	H	3											U	S	CR, B, 41.7 - This is an RO question because it is testing on the design limits for the component to perform its function and specific action to recover the component. Recommend constructing a question that would require selecting and use of an ABN procedure. Ref. Removed
88	H	2	E											E	CR, D, 43.2 - Recommend rewording “feedwater flow available” to “feedwater flow required” in the stem. Edited
89	H	3											U	U	CR, A, 41.10 - This question tests on specific operator actions. This makes it an RO question. Revised D (twice) and changed MVAR in stem on Rev 2.
90	F	2												S	CR, A, 43.2
91	H	3										U		U	CR, B, 4 - This is a two part KA and the question only addresses one part. Revised
92	F	3												S	CR, D, 43.7
93	H	3										U		U	CR, B, 43.5 - This is a two KA and the question only addresses one part. Revised
94	H	2												S	CR, C, 43.5
95	F	2												S	CR, A, 41.10 - Note this is a CFR 41.10 (RO) question but is an SRO only question based on JTA.
96	F	3												S	CR, A, 41.10 - Note this is a CFR 41.10 (RO) question but is an SRO only question based on JTA.
97	H	2											U	E	CR, D, 41.12, DC 2005 - This is an RO question because it tests on radworker limits. Recommend developing a similar question that involves the emergency director and increased dose limits. Chg’d Stem
98	F	3												S	CR, A, 43.4
99	H	3												S	CR, B, 43.5
100	H	3												S	CR, A, 43.5

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RO B=12 M=16 N=40 P=7	H = 39 (52%) F = 36 (48%)											U = 16 (21%) E = 3 (4%) S = 56 (75%)			**RO TOTALS**
SRO B=4 M=2 N=16 P=3	H = 17 (58%) F = 8 (32%)											U = 8 (32%) E = 1 (4%) S = 16 (64%)			**SRO TOTALS**

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GENERAL COMMENTS:

1. Bank questions are indicated by B; Modified are indicated by M; New questions are indicated by N; Previous NRC exam questions are indicated by P. The breakdown for the two exams is as follows: RO exam has 25% Banked questions, 21% Modified questions, and 53% New questions. The SRO exam has 28% Banked questions, 64% New questions, and 8% Modified questions. This meets the criteria contained in NUREG-1021 for these metrics.

2. The number of questions used from the previous 2 NRC exams is also within limits.

2. Comment resolution is indicated in *blue*.

3. Average difficulty is 2.76 on the RO exam and 2.72 on the SRO exam. Both these values are comparable to other exams.

4. The 10CFR55.41/43 distribution is:

41.1 = 3	43.1 = 0
41.2 = 0	43.2 = 5
41.3 = 0	43.3 = 0
41.4 = 10	43.4 = 1
41.5 = 9	43.5 = 10
41.6 = 0	43.6 = 0
41.7 = 18	43.7 = 2
41.8 = 0	
41.9 = 0	
41.10 = 27	
41.11 = 2	
41.12 = 1	
41.13 = 4	
41.14 = 1	

The distribution is skewed on the RO exam toward procedures more than normal. A typical value for 41.10 is about 18-20 questions. The distribution on the SRO exam is fairly typical.

5. The answer distribution is:
RO / SRO / TOTAL
a = 24 / 7 / 31
b = 13 / 6 / 19
c = 17 / 3 / 20
d = 21 / 9 / 30

6. There are 13 questions with attachments provided.

7. Recommend adding titles to alpha/numeric component nomenclatures and procedures.

8. The percentage of higher order cognitive questions is within the guidance contained in NUREG-1021 on both exams.