

Facility: QUAD CITIES NUCLEAR POWER PLANT

Exam Date: July, 2018

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
1	H	2												B	E	<p><u>Facility:</u> Fewer words reduces unnecessary fatigue. The bulleted items just below follow from this event. Removing the bullet adds clarity. Remove sentence following bulleted list; unnecessary. Reword part (1) for clarity.</p> <p><i>Response: Removed excess words from first line. Removed bullet from first line. Removed sentence following bulleted list. Part (1) reworded.</i></p>
2	H	3												M	E	<p><u>NRC 1:</u> Editorial. In the question stem it says that the following annunciator is received: HPCI GROUP 4 PRIMARY CONTAINMENT ISOLATION VALVES DC TRIP CHANNEL DIVISION ISOLATION. This should say: HPCI GRP 4 PCI VLVS DC DIV ISOL.</p> <p><i>Response: Wording matches wording on annunciator tile. No changes</i></p> <p><u>NRC 2:</u> Leave "(SBO)" in the first question of the stem of question, since SBO is referred to in the 2nd sentence of stem.</p> <p><i>Response: Reworded second sentence to remove acronym.</i></p> <p><u>Facility:</u> Remove reference to Generator Overvoltage condition and lockout: irrelevant.</p> <p>Remove phrase "Shortly after the SBO".</p> <p>Replace "Given the above, which one of" with "Which of".</p> <p>Replace "SRV" with "Relief Valve"</p> <p><i>Response: Removed reference to generator conditions.</i></p> <p><i>Replaced phrase with "A short time later"; establishes a sequence of events.</i></p> <p><i>No changes to stem question.</i></p> <p><i>Replaced SRV with Relief Valve.</i></p>
3	F	3				X						N		N	U	<p><u>Facility:</u> This question is really two questions in one, neither of which has to do with the KA, which is "WHY are these actions performed", not "WHAT actions are performed". The first part is asking for knowledge of permission required for different types of colored switches. The second part is asking for system specific knowledge of HOW the system is affected and what actions are taken to mitigate those effects. Neither part asks for WHY the actions are taken.</p> <p>Additionally, the first part of choices 'A' and 'B' are different from the other choices such that if the first part is correct, then the 2 part of every choice is irrelevant.</p> <p><i>Response: Replaced question.</i></p>
3R	F	3												N	S	
4	F	2												B	S	<p><u>Facility:</u> "EHC" in choices C and D should be "DEHC."</p> <p><i>Response: Editorial changed made.</i></p>

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5	F	2												B	E	<p><u>Facility:</u> Backward logic</p> <p><u>Response:</u> Reworded stem to ask "Which of the following conditions will NOT generate an automatic RPS actuation?" instead of "Which of the following would require an Operator to take manual action to insert all control rods?"</p>
6	F	3												N	E	<p><u>NRC 2:</u> Reword part of the stem "...inserts a manual SCRAM the reactor". "...inserts a manual SCRAM of the reactor".</p> <p><u>Response:</u> Reworded to "...inserts a manual Reactor SCRAM..."</p> <p><u>NRC 2:</u> Is saying "leave the mode switch in" leading the applicant into RUN being the answer? Can this be reworded to not lead the applicant? Question does not have LOD filled out.</p> <p><u>Response:</u> Replaced "leave ... in" with "ensure that the Mode Switch is in ..."; and Added LOD</p> <p><u>Facility:</u> Replace OATC to UNSO. Replace "Manually attempts to SCRAM the reactor" with "Inserts a manual reactor SCRAM"; avoid diagnosis of ATWS.</p> <p><u>Response:</u> Made suggested changes.</p>
7	H	3												N	E	<p><u>Facility:</u> Remove unnecessary words from stem and answer choices, add clarifying word to 2nd bullet, add procedure reference for actions taken.</p> <p><u>Response:</u> Made suggested changes.</p>
8	H	2												M	E	<p><u>NRC 1:</u> Add the following words to the end of distractor B: "into the core."</p> <p><u>Response:</u> Changed as requested.</p> <p><u>NRC 2:</u> Ensure consistency in plant operating conditions. "Unit 1 and 2 are at full power." Q7 says "Unit 1 is operating at 100% power." Ensure consistency between questions.</p> <p><u>Response:</u> Status of both units is required to answer the question. Whether its stated "at full power" or "at 100% power" is insignificant unless a specific power level needs to be stated to answer the question. No changes.</p> <p><u>Facility:</u> Remove opening statement, delete third bullet (there is no auto start feature for the 1/2 IAC, and replace "dropping" with "lowering."</p> <p><u>Response:</u> Retained opening statement and made remaining suggested changes.</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
9	H	3	X					X				N	X	N	U	<p><u>NRC 2:</u> Borderline SRO-only question. Is this really a TS entry condition question? <i>Response: ROs are expected to recognize system configurations that satisfy the LCO.</i></p> <p><u>Facility:</u> 1. Backward logic.</p> <p>2. In addition, this is really four questions in one, as the stem does not include enough information to answer the question without combining each of the distractors with the stem and then comparing them to each other.</p> <p>3. Each answer choice also includes two parts "coincident" with each other, so the examinee not only has to analyze the two conditions in each choice and then combine that outcome to the conditions in the stem, but has to do that four times. This is not only not realistic, but far more difficult than it needs to be.</p> <p>4. Details of the referenced surveillance test is probably not common knowledge. <i>Response: Question significantly modified to address concerns 1-4. Plant conditions moved from answer choices to stem and referenced procedure changed to one that is more likely to be common knowledge (routine test) to examinees.</i></p> <p>5. The KA is to recognize parameters during a loss of shutdown cooling that are tech spec entry conditions. This question very loosely defines "parameters" as component conditions. Failed valves and broken motors are not system parameters.</p> <p>6. The KA is an APE for loss of shutdown cooling, which does not exist in this question. This question would match 205000. THIS QUESTION DOES NOT MEET THE KA. <i>Response: Stem was changed to include a single event that would result in a loss of SDC with answer choices changed to recognition of which LCOs are not being met.</i></p> <p>7. This seems like SRO level knowledge to answer the question. RO level is knowing that two RHR SDC subsystems need to be operable. Knowing not only the actual components that make up the subsystem, but their interrelation to each other requires knowledge of the tech spec bases in order to analyze and interpret the term "subsystem".</p> <p>8. From NUREG 1021, it's SRO level if: knowledge of TS bases that is required to analyze TS-required actions and terminology. <i>Response: Question revised so that specific knowledge of TS bases is not required in order to answer the question.</i></p>
9R	H	4												N	S	

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10	H	2												B	E	<p><u>NRC 2:</u> Need punctuation in first bullet for consistency. <i>Response: Punctuation added.</i></p> <p><u>Facility:</u> Believability of situation described by bulleted list is very low. With 40 feet of water as shielding the ARMs on the refuel floor would not go off. Change to be the same as the bank question. <i>Response: Bulleted list modified to be more similar to original bank question (Pilgrim 2013 exam).</i></p>
11	H	3	X									X	X	N	U	<p><u>Facility:</u> Question appears to be more relative to an SRO only question. This question asks for far more than the overall sequence or mitigative strategy of a procedure. There are very specific parameter conditions that require analysis and comparison in order to transition to an event specific sub procedure. Choices B and D are essentially the same. RHR loops are not operated in a split configuration. Question does not match K/A. <i>Response: Answer choices modified to test understanding of how various alignments of the RHR system affect maintenance of adequate core cooling while ensuring maximum cooling (i.e., Torus Temperature)</i></p>
11R	H	3												N	S	
12	H	3												N	E	<p><u>NRC 2:</u> Must include what Unit this transient is occurring on. "...initiated on Unit due to..." <i>Response: Added "unit" number.</i></p> <p><u>Facility:</u> Remove "Given the above conditions,"; this is implied. <i>Response: Removed phrase. Added ERVs cycling to clarify plant condition.</i></p>
13	H	2												M	E	<p><u>Facility:</u> Add RCIC status to bulleted list. Remove "Given the above conditions." <i>Response: Made suggested changes.</i></p>

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14	H	2				X								B	U S	<p><u>NRC 1:</u> 1) Distractors C and D in combination are not plausible, since in both distractors the temperature is above saturation (and thus level instruments would be unreliable) and the level is outside the range where the Lower Wide Range is usable.</p> <p>2) Change the following in distractors B and C: Distractor B: Change 250 degrees F to 290 degrees F. Distractor C: Change 370 degrees F to 330 degrees F.</p> <p>In this one there is only one distractor (i.e., distractor D) in which both temperature and level is unreliable.</p> <p>3) In the <u>Explanation</u> section, change the following: - Wherever it says -301 inches, change to -299 inches (per Detail C of QGA 100). - Where distractors 1, 2, and 3 are mentioned, change these to distractors B, C, and D.</p> <p><i>Response: Changes were made as recommended. Question now SAT</i></p> <p><u>NRC 2:</u> Consistency in stem "operating at near rated power" <i>Response: See previous comment on consistency. OK as is.</i></p>
15	H	3	X											N	E	<p><u>NRC 1:</u> In the question stem, add the word "procedures" (i.e., Which of the following procedures ...).</p> <p><i>Response: Revised stem to "Which of the following procedures provides the"</i></p> <p><u>Facility:</u> Add 'rapidly' to the stem because D would be correct.</p> <p><i>Response: Reworded to ask for the quickest method to restore water level.</i></p>
16	H	3												B	S	
17	F	2												B	S	<p><u>Facility:</u> Remove unnecessary wording from opening line.</p> <p><i>Response: Removed "and the following conditions exist" from first sentence.</i></p> <p><u>Facility:</u> Remove Heat Capacity Temperature Limit Curve; curve is not necessary to answer question and may be misleading.</p> <p><i>Response: Curve removed from question, but will be included with provided references.</i></p>
18	H	2												B	E	<p><u>NRC 1:</u> Change distractor D as follows to agree with wording on page 7 of Lesson Plan L-QGA400 on reason for step: Isolation of these systems could result in loss of RPV control and primary containment functions which take precedence over radioactivity release control.</p> <p><i>Response: Evaluated recommended change and determined that no change was necessary.</i></p>

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19	F	2												N	E	<p><u>NRC 1:</u> Since the first part of distractors A, B, C, and D are all the same (i.e., Local and control room alarms will sound alerting operators of the condition), add this to the question stem at the end of the first paragraph, and delete this from each distractor.</p> <p><u>Response:</u> <i>Removed statement altogether.</i></p> <p><u>Facility:</u> Remove excess wording from stem question.</p> <p><u>Response:</u> <i>Excess wording removed as suggested.</i></p>
20	H	3						X	X			X		N	U	<p><u>NRC 2:</u> typo: slowly RISING, not slowly "RAISING"</p> <p><u>Response:</u> <i>Corrected</i></p> <p><u>Facility:</u> Determining operational status of offsite sources is an SRO function that requires input from either the TSO or NDO to determine the value of the predicted Post Unit Trip with LOCA Loading Switchyard Voltage. Answering the question require detailed procedural knowledge to be considered, which is SRO level and is frankly minutiae as the lowering switchyard voltage would realistically require entering the QCOA at the highest entry value, after which the procedure would be referenced, not requiring information from memory.</p> <p><u>Response:</u> <i>K/A reselected and new question developed.</i></p>
20R	H	3												N	S	
21	H	2												B	E	<p><u>Facility:</u> Remove excess wording from stem. Change initial period from 120 to 350 seconds to make next step of rod withdrawal more plausible. Change final period from 15 seconds to 40 seconds to preclude the possible belief that choice C would be correct if an applicant believed that a SCRAM was the correct response.</p> <p><u>Response:</u> <i>Made suggested changes.</i></p>
22	H	2	X											N	U	<p><u>Facility:</u> At QUAD, I&C testing for RPS involves the installation of an RPS Test Box to bypass the ½ SCRAM. Therefore the B channel SCRAM would not be expected apart from error on the part of IMD.</p> <p><u>Response:</u> <i>Changed initial condition to an instrument failure.</i></p> <p><u>Facility:</u> Question has very little operational validity as it is highly unlikely to have multiple failures or even a single point failure in RPS A concurrently with another independent scram signal in RPS B. It's also unnecessarily complicated.</p> <p><u>Response:</u> <i>Complexity is required to test the examinee's knowledge of the RPS power distribution.</i></p>
22R	H	3												N	S	
23	H	3												N	E	<p><u>Facility:</u> Remove excess wording from stem question.</p> <p><u>Response:</u> <i>Excess wording removed as suggested.</i></p>

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24	H	3												B	S	NRC 2: Applicant may ask which Unit this is on, although it has no impact on the question. <i>Response: No changes.</i>
25	H	2												B	E	<i>Facility:</i> Remove excess wording from stem question. <i>Response: Excess wording removed as suggested.</i> <i>Facility:</i> Operational experience will show that 'A' would be the most likely entry into QGA 300 under these conditions. With the MSIV room coolers, the temperatures stay cool even without RB vents. Whereas there is typically a dip in D/P while SBGTS is starting up. Recommend changing the distractor to 'D' Heater Bay. This room is in the vicinity of the MSIV Room and would have an rise in temperature on a Group 2 signal, however, it is not one of the areas called out in QGA 300 <i>Response: Made recommended change.</i>
26	F	2				X						X		N	U	NRC 1: Distractors A and B are NOT plausible in that if distractor C is correct, then distractors A and B are also correct. <i>Response: Question replaced. New question evaluated as SAT</i> <i>Facility:</i> The KA is an Emergency Plant Evolution. From NUREG 1123: An emergency plant evolution is any condition, event or symptom which leads to entry into the plant-specific emergency operating procedures (EOPs). This question does not meet the criteria for the EPE. Replace with provided replacement question. <i>Response: Replaced question with one that incorporates the concept of replacement question.</i>
26R	H	3												N	S	
27	H	3												B	E	NRC 1: Change from a Modified question to a Bank question, since there is no pertinent condition in the question stem that is changed, and the correct answer is the same. <i>Response: Agree; Changed to "Bank"</i> <i>Facility:</i> Remove excess wording from stem question. <i>Response: Excess wording removed as suggested.</i> <i>Facility:</i> Provide QGA 300 as a reference. The bank question provided a EOP reference <i>Response: Embedded a portion of QGA within question.</i>

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28	H	3	X											N	U	<p><u>NRC 1:</u> Typo. In distractor D, change the last word from "depressurize" to "depressurized."</p> <p><i>Response: Corrected</i></p> <p><u>NRC 2:</u> K/A match is questionable. Question is not too difficult, as facility states.</p> <p><i>Response: No changes made. K/A match may be a bit of a stretch, but continued operation of RHR will have an effect on pool level.</i></p> <p><u>Facility:</u> This question is over complicated and is basically a full-blown control room scenario that requires the examinee to keep track of at least 15 discrete pieces of information and their implications with at least as many analysis points in just the stem. All of that aside, the question does not meet the KA. The KA is for predicting and/or monitoring changes in suppression pool level while operating RHR/LPCI controls in injection mode. It's also either safety function 2 or 4, which is reactor water inventory control, or heat removal from the reactor core, neither of which are being examined by this question, which concerns itself with the trend in torus level. The RHR pumps may as well be in pull to lock as they have nothing to do with the KA in this question.</p> <p><i>Response: Knowledge of the RHR/LPCI configuration and whether that configuration will change as the RPV is depressurized is necessary in determining the answer to the question. Stem initial conditions revised so that Core Spray injection is not available. While the scenario specified in the question is complex, I feel that the level of difficulty is within NRC guidelines.</i></p>
28R	H	3												N	S	
29	H	4												N	S	<p><u>NRC 2:</u> punctuation in stem bullets</p> <p><i>Response: Punctuation added</i></p> <p><u>Facility:</u> Remove excess wording from stem question.</p> <p><i>Response: Excess wording removed as suggested.</i></p>
30	F	3												N	E	<p><u>NRC 2:</u> Stem consistency with plant operating conditions "at rated power". Add something like "The following conditions were noted:" prior to the bulleted items.</p> <p><i>Response: "At rated power" and 100% power should be synonymous. Suggested phrase addition was considered unimportant information by facility. No changes</i></p> <p><u>Facility:</u> Shorten the answer choices.</p> <p><i>Response: Answer choices shortened per recommendation.</i></p>
31	F	3												M	S	<p><u>NRC 2:</u> Stem consistency with "X% power" and "X% RTP". Is answer B supposed to include "Emergency" prior to Diesel Generator? Capitalize Loss of Offsite Power, as done elsewhere in the exam questions (consistency)</p> <p><i>Response: Stated power level is acceptable. "Emergency" is not part of the component ID. LOOP capitalized.</i></p>

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32	F	2												M	E	<p>NRC 2: Numbering the questions in the stem that need answers 1, 2, and 3 and numbering the answer choices would help.</p> <p><i>Response: No change</i></p> <p><i>Facility:</i> ATWS and RPV water level irrelevant to question.</p> <p><i>Response: Reworded stem to remove ATWS conditions and to test knowledge SLC affects simply related to repositioning of control switch.</i></p>
33	F	3												M	S	<p><u>NRC 2:</u> Should list EPA 2-1 circuit breaker noun name, if possible.</p> <p><i>Response: EPA 2A-1 is the way the component is identified in the procedures. No Change.</i></p> <p><i>Facility:</i> Remove second paragraph; unnecessary information.</p> <p><i>Response: Made recommended change.</i></p>
34	H	2												B	E	<p><u>NRC 1:</u> Typo. In the Explanation for distractor A, it refers to "IRM H." This should be "IRM 14."</p> <p><i>Response: Corrected.</i></p>
35	H	3												N	S	
36	H	3												B	S	
37	H	2	X											N	E	<p>NRC 2: Consistency in stem with "operating at full power"</p> <p><i>Response: No change</i></p> <p><i>Facility:</i> Do not agree with the answer. This may not be accurate due to us being top peaked at the EOC life. Facility does not believe there is sufficient detail to force the answer.</p> <p><i>Response: Changed initial condition to from just before, to just after, a refueling outage and removed reference to specific core location.</i></p>
38	H	3												M	S	<p><u>NRC 2:</u> Underline Reactor Pressure and RCIC Speed, in both the question stem and the answer columns.</p> <p><i>Response: Answer columns underlined.</i></p>
39	F	2												N	S	<p><u>NRC 2:</u> typo in distractor D answer explanation "RRCI"</p> <p><i>Response: Corrected</i></p>
40	H	3												B	E	<p><u>NRC 1:</u> Typo. In the question stem, change "lowing" to "lowering" when referring to RPV pressure.</p> <p><i>Response: Corrected</i></p>
41	H	3												M	S	

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42	F	2				X								N	U	<p>NRC 1: Distractors C and D are NOT plausible that the actuator motive force for the outboard MSIV is supplied from the Drywell Pneumatic System, when the outboard MSIV is NOT in the drywell.</p> <p><i>Response: Both inboard and outboard valves are pneumatically operated and the examinee needs to know which pneumatic system is used for each valve. This is system level knowledge and while the answers are relatively obvious, they are not implausible. No changes.</i></p> <p><u>Facility:</u> There are two correct answers for this question (A and B). There is an AC and DC valve associated with each MSIV, 125 VDC 1A-1 (2A-1) supplies the inboard, 1B-1 (2B-1) supplies the outboard. 120 VAC valve power comes from RPS A for inboard and RPS B for outboard.</p> <p><i>Response: Removed reference to AC or DC power and simply stated RPS A or RPS B.</i></p>
42R	F	2												N	S	
43	F	2												N	E	<p><u>Facility:</u> Replace the word "actuators" with "isolations. Move panel reference in answer choices to stem. Add the word "ONLY" to choices B and D to remove sub-set conflict.</p> <p><i>Response: Made recommended changes.</i></p>
44	H	2												N	S	<p>NRC 2: Stem consistency "100% power"</p> <p><i>Response: No change necessary.</i></p> <p><u>Facility:</u> Remove excess wording from stem question.</p> <p><i>Response: Excess wording removed as suggested.</i></p>
45	H	3												N	E	<p><u>Facility:</u> Shorten the answer choices.</p> <p><i>Response: Answer choices reworded.</i></p>
46	H	3												B	S	<p>NRC 2: stem consistency "100% rated thermal power". Can simply say the fan is OOS for maintenance; "danger tagged" is unnecessary (see Q50 for similarity)</p> <p><i>Response: Changed from "Danger Tagged" to OOS</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
47	H	3												N	E	<p><u>NRC 2:</u> Is the bus current limit a 'from memory' knowledge objective? Seems like a better fit for a requal exam where the applicant can look it up</p> <p><i>Response: Expected "from memory" knowledge.</i></p> <p><u>Facility:</u> Remove excess wording from stem question. "Should" could be interpreted as not required; replace with "are required."</p> <p><i>Response: Excess wording removed as suggested. "Should" replaced.</i></p> <p><u>Facility:</u> The existing wording of answer choice C is straight out of Attachment F in QCOP 6500-08, which is far beyond what is required to be committed to memory. The revised version requires the operator to recognize the 600A cross tie limit, which is discussed both in the precautions and limitations and actions sections of the procedure, which is RO license level.</p> <p><i>Response: Changed current loading on 13-1/23-1 cross tie and reworded answer choice.</i></p>
48	H	4	X											N	U	<p><u>Facility:</u> This timeline and asking for what's being powered at two different times is unnecessarily complicated and literally asks the same question twice. The KA is predicting the impacts of under voltage on the operation of the ESS UPS. The ESS UPS has four different power supplies. Operators must know how the UPS will receive and distribute power based on available sources and conditions. This question proposes multiple consecutive failures, which is highly unrealistic and therefore not operationally valid. To test the KA in its simplest form, remove the second redundant question and the multiple failures. The operator is still required to use knowledge of the system to determine the power distribution through the UPS, but without the unnecessary complications.</p> <p><i>Response: Replaced the question.</i></p>
48R	H	4												N	S	
49	F	2												B	S	<p><u>NRC 2:</u> Consistency in steam "operating at near rated power"</p> <p><i>Response: OK as is.</i></p>
50	F	3				X								N	U	<p><u>NRC 1:</u> Distractors A and B are NOT plausible in that if distractor C is correct, then distractors A and B are also correct.</p> <p><i>Response: Added the word "Only" to choices A and B</i></p>
51	H	2												B	S	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
52	H	2												M	E	<p><u>NRC 1:</u> Editorial. In the question stem, change the word "loads" to "loaded" (i.e., Unit ½ EDG started and loaded).</p> <p><i>Response: Corrected</i></p> <p><u>NRC 2:</u> Stem consistency; "both units were operating at rated conditions"</p> <p><i>Response: OK as is</i></p> <p><u>Facility:</u> This question is unnecessarily complicated and difficult. The KA is power supplies to instrument air compressors. This question is testing knowledge of loss of offsite power, EDG loading sequence, and power supplies to compressors.</p> <p><i>Response: Simple recall of power supplies presents a low level of difficulty. Question tests greater understanding of power distribution.</i></p> <p><u>Facility:</u> Recommend saying where the ½ EDG is aligned to. This allows the question to test information from the KA and not extra information that is not associated with the KA.</p> <p><i>Response: Rejected recommendation. See previous comment.</i></p> <p><u>Facility:</u> Do not use statements like "if the applicant thinks" in distractor explanations. Rewrite distractor explanations to more clearly state what makes the answer choices plausible.</p> <p><i>Response: Distractor explanations reworded.</i></p>
53	F	2												N	E	<p><u>Facility:</u> Each answer choice contains the wording "to provide cooling water to..." Move to stem.</p> <p><i>Response: Reworded stem to incorporate suggested change.</i></p>
54	F	2												N	S	
55	H	3												M	E	<p><u>Facility:</u> The addition of another control rod to this question is literally testing the same knowledge twice in one question and is completely redundant and confusing</p> <p><i>Response: Deleted reference to a second control rod.</i></p> <p><u>Facility:</u> There is no need to state "following the scram". The question is already structured as such. "Complete the following" is totally redundant. Operators do not need additional instructions for how to answer a question. If the question needs instructions on how to answer it, then it's a poorly written question.</p> <p><i>Response: Removed unnecessary wording.</i></p>
56	F	2												N	S	
57	H	2												N	E	<p><u>Facility:</u> Replace question intro with simply "Both units are at full power. The intro is Completely and totally irrelevant, unnecessary, and adds absolutely nothing of value.</p> <p><i>Response: Made recommended change.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
58	F	3												B	E	<p><u>NRC 2:</u> Should clarify "reactor" coolant leak in the stem of the question.</p> <p><i>Response: Added "reactor"</i></p> <p><u>Facility:</u> Remove "...with the following:" from the intro.</p> <p><i>Response: made recommended change.</i></p>
59	H	2												N	S	
60	F	3												N	U	<p><u>NRC 2:</u> I would consider this a new question, rather than modified.</p> <p><i>Response: Same knowledge is tested but question is sufficiently different and should be categorized as NEW.</i></p> <p><u>Facility:</u> We do not operate with the 1-1001-19A shut. This question can be shortened to just say that Torus Sprays are operating when 1C RHR pump trips.</p> <p><i>Response: Incorporated recommendation. Verified QCOA would still be applicable. Question SAT with recommended change.</i></p>
61	H	3												N	S	<p><u>NRC 2:</u> stem consistency "100% rated thermal power"</p> <p><i>Response: OK as is.</i></p>
62	F	3												N	U	<p><u>NRC 2:</u> Typo in stem - What is the operational concern with the <u>Glad</u> Seal Steam Supply pressure?</p> <p><i>Response: Corrected</i></p> <p><u>Facility:</u> Distractors B and D are NOT plausible due to Gland Seal Steam Supply pressure being listed in psig in the stem and then being listed as inches water in the distractors. In both A and C, listing the same units for pressure as the stem is a specific determiner.</p> <p><i>Part 2 revised to ask for required operator action to correct high pressure condition. Question SAT with this change.</i></p>
63	H	3												N	E	<p><u>NRC 2:</u> Explanation for the time/RFP pressure table is needed (need a lead-in sentence between the low pressure alarm and the table).</p> <p><i>Response: Lead-in would not provide useful information and therefore unnecessary.</i></p> <p><u>Facility:</u> Correct switch position "name" and recommend change status of RFP SELECTOR switch to "OFF"</p> <p><i>Response: Made recommended changes.</i></p>
64	H	3												N	E	<p><u>NRC 2:</u> Identify the separate columns with headings; time and volume.</p> <p><i>Response: Unnecessary since the previous sentence describes the information.</i></p>
65	F	2												N	E	<p><u>Facility:</u> Remove unnecessary wording from stem and answer choices.</p> <p><i>Made suggested changes.</i></p>
66	H	3												N	S	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
67	F	2												B	E	<p><u>NRC 2:</u> Specify "Quad Cities Nuclear Power Station" in lieu of "the station's"</p> <p><i>Response: OK as is</i></p> <p><u>Facility:</u> Include the operational limit so that the candidate understands that there is some urgency in performing the power change. Avoid the use of the word "shoud."</p> <p><i>Response: Stem reworded to address concerns.</i></p>
68	F	3												N	U	<p><u>NRC 2:</u> No 55.41 link specified</p> <p><i>Response: Link added.</i></p> <p><u>Facility:</u> Is this an SRO only question?</p> <p><i>Question revised to test Reactor Mode Switch position vice SRM requirements to eliminate concern over applicable license level. Question SAT following changes.</i></p>
69	F	3												B	S	<p><u>NRC 2:</u> You may get a question on approving the checklist, specifically by SROs, as only an SRO can sign/approve the checklist to hang or clear equipment. However, any licensed individual can prepare and approve C/O checklists in eSoms (formerly done in Passport).</p> <p><i>Response: Procedure simply specifies a licensed or previously licensed individual. No concerns raised by validators (both RO and SRO). No changes.</i></p> <p><u>Facility:</u> Remove 2nd sentence. It is irrelevant to the question.</p> <p><i>Response: Sentence removed.</i></p>
70	F	2												N	S	
71	F	3												N	U	<p><u>Facility:</u> Not an operationally valid question. Look for questions that have more validity.</p> <p><i>Response: Question was replaced.</i></p>
71R	H	3												N	S	
72	H	3												B	E	<p><u>Facility:</u> Potentially change question to be less ambiguous.</p> <p><i>Response: Added clarifying statement to choice 'D'</i></p>
73	F	2												B	S	
74	F	2												N	E	<p><u>NRC 2:</u> Change "manned" to "staffed" and "manning" to "staffing".</p> <p><i>Response: Recommended change was made.</i></p>
75	H	3	X											N	U	<p><u>Facility:</u> Validators had a tough time understanding what the question was asking. The question implies that generator load would not be changed but does not specifically state such. Additionally some differences in opinion that the limitations are specific only to the intersection of the gas pressure curves and no interpolation is allowed.</p> <p><i>Response: Question replaced to address concerns.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
75R	H	3												N	S	
76	H	3	X	X										N	U S	<p>NRC 1: In the <u>Explanation</u> that distractor B is the correct answer: 1) Step D1 is required (to enter SBO procedure). 2) Step D.2 has nothing to do with power being available for the opposite Unit via the battery chargers. 3) Steps D.3 and D.5 have nothing to do with load shedding. Also, the explanations conflict with each other (in that the explanation for D.3 says load shedding is not required, while the explanation for D.5 days load shedding is required. 4) Step D.6 has nothing to do with RPV level and pressure control with HPCI and RCIC required.</p> <p><u>Response:</u></p> <p>1) D.1 is not listed since the stem already states that the SBO procedure is being implemented.</p> <p>2) From QCOA 6100-04 -- D.2. IF power is available from opposite Unit, THEN restore power to 125 VDC charger per QCOP 6900-40(41).</p> <p>3) DC load shedding for step D.3 is not required. Step D.5 strips the AC busses is preparation for power restoration.</p> <p>4) From QCOA 6100-04 -- D.6. Maintain Reactor water level AND pressure as directed by QGAs using HPCI AND RCIC systems minimize HPCI use to conserve 250 VDC power and system cycling.</p> <p><u>Facility:</u> Remove unnecessary wording from the stem.</p> <p><u>Response:</u> Unnecessary wording removed.</p> <p><u>Facility:</u> Provide the action required in the choices or the stem rather than making them read it in a procedure.</p> <p><u>Response:</u> Procedure is provided therefore it is unnecessary to duplicate the procedure actions in the question.</p> <p><u>Facility:</u> The second part of each answer tests the K/A, but the first part of each answer is different; therefore, the K/A is not being tested because the second part of each choice need not be evaluated.</p> <p><u>Response:</u> The K/A was being tested; question revised to simply question structure. Stem restructured to simply identify applicable steps (to make SRO only) based on evaluation of step conditions (to match K/A). To arrive at the correct answer the examinee must evaluate the stem conditions; i.e. determine or interpret the cause for the loss of power.</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
77	H	3												B	E	<p><u>NRC 2:</u> The reportability manual is not provided for this question. Are 1 hour and 4 hour reportable events required to be known from memory by SRO candidates that are not Shift Manager qualified? They are tested in the position in LORT, but is this not minutia in ILT space? Does the OP-AA-106-101 reference provided in Q80 make this question a direct lookup?</p> <p><i>Response: LS-AA-1020 will be provided. OP-AA-106-101 in Q80 did not appear to be the appropriate reference and was replaced with LS-AA-1020 also.</i></p> <p><u>Facility:</u> Revise plausibility statements in the distractor explanations. Making a mistake, not knowing, etc. does not justify plausibility.</p> <p><i>Response: Changed "misses" to "does not recognize" in choices 'C' and 'D' explanations and deleted last sentence of choice 'C' explanation.</i></p>
78	H	3												M	E	<p><u>Facility:</u> A long and confusing sequence of events. One possible fix is just below the original question stem. It uses time 'stamps.' The advantage of using times for a question such as this are clarity, precision and you can write everything in present tense. But there are other equally valid approaches to add clarity. Bottom line: as written, stem is long and confusing.</p> <p><i>Specific times are not required to answer the question. Bulleted list relocated to help indicate that the alarms, trips, and actuations occurred while pool level was lowering. Final stem sentence revised to ask a question rather than making a statement.</i></p>
79	F	3	X		X									N	U	<p><u>Facility:</u> We have two separate questions here. The first question references the stem. The second question does not reference the stem, nor does it reference the answer to the part 1 question. Therefore, the second question reduces to two True – False question.</p> <p><i>Response: Question modified so that 2nd part identifies the event that the SRVs are designed to mitigate. Question SAT with the associated change.</i></p>
80	H	3	X											N	E	<p><u>Facility:</u> Lots of useless words and unnecessary information. The report is due to the Alert, which is the correct answer, and must be made within one hour; it wouldn't be wrong to make the report earlier than 1 hour, so distractor 'A' is not be clearly incorrect.</p> <p><i>Response: Question reformatted to identify the condition that requires the earliest notification of the NRC.</i></p>
81	H	3												N	E	<p><u>NRC 2:</u> Include the noun name for recorder 1/2-1740-202. Include a Note or description for explaining the given stack flow and release rate calculation.</p> <p><i>Response: Added noun name for the recorder. Reason for flow rate and release rate equation is self-revealing. Equation modified slightly to improve readability.</i></p> <p><u>Facility:</u> The data is difficult to read. Can we build a word table or something?</p> <p><i>Data rearranged to improve readability.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
82	H	3												N	E	<p><u>NRC 2:</u> Consider a word other than "erupt". The applicants may ask whether or not a max safe temp has been exceeded.</p> <p><u>Response:</u> <i>Replaced with "breaks out".</i></p> <p><u>Facility:</u> Stick with one wrong procedure per distractor; otherwise, as written, you're offering multiple reasons to reject distractors C and D. One possible rewrite has been provided.</p> <p><u>Answer choices reformatted. QCOA 0010-12 moved to stem since it appeared in all answer choices.</u></p> <p><u>Facility:</u> Remove references to QGA 100 and QCOA 2300-01; neither is plausible based on given conditions.</p> <p><u>Removed reference to QGA 100. QCOA 2300-01 is plausible since system realignment (open steam admission valve) is one of the indications of a HPCI initiation.</u></p>
83	H	3												N	E	<p><u>Facility:</u> As written, the entire stem of the question is there to test the EAL classification and only the EAL classification, which has nothing whatsoever to do with the K/A.</p> <p><u>Response:</u> <i>1st part of question revised to ask for current level control strategy.</i></p> <p><u>Facility:</u> We have two separate questions here. The first question references the stem. The second question – which tests the K/A - does not reference the stem, nor does it reference the answer to the part 1 question. Therefore, the second question reduces to two True – False question.</p> <p><u>Response:</u> <i>2nd part of question revised to ask reason for limiting the injection rate.</i></p>
84	H	3												N	E	<p><u>NRC 2:</u> Is the QCAN action an action that is expected to be performed from memory (i.e an immediate operator action)? Is the applicant supposed to have the setpoint memorized?</p> <p><u>Response:</u> <i>While not an immediate action, the SRO should have a general understanding of the expected actions.</i></p> <p><u>Facility:</u> How are we testing "determine and/or interpret...Reactor power?"</p> <p><u>Response:</u> <i>All answer choices result in varying degrees of reactor power reductions.</i></p> <p><u>Facility:</u> Consider simplifying the stem by giving them the status of alarms and indication they will have at the time of the interrogative. The last rate of temperature rise is what they'll use to answer the question. That would eliminate the need for this detailed, rather laborious sequence of events.</p> <p><u>Response:</u> <i>Timing corrected.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
85	H	3												N	E	<p><u>Facility:</u> The part of the question related to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS (part 1) has no relationship to the EOPs, much less to the EOP entry conditions.</p> <p><i>Response: Initial conditions have been revised to help clarify initial conditions by stating that QGA 100 and 200 are being implemented Secondary rad levels adjusted to clearly identify QGA 300 entry conditions have been exceeded.</i></p>
86	H	3												N	E	<p><u>Facility:</u> The temperature is not operationally valid. Lower the temperature to 130F</p> <p><i>Response: Temperature changed to recommended value (130°F)</i></p> <p><u>Facility:</u> Revise answer choice A to eliminate 2nd sentence. Other choices do not contain a second sentence.</p> <p><i>Response: Removed second sentence.</i></p> <p><u>Facility:</u> Distractor explanations need to better explain plausibility.</p> <p><i>Response: Added additional justification for plausibility.</i></p>
87	H	3	X											B	S	<p><u>NRC 1:</u> 1) I do not understand how the answer for the first part is correct for either of the choices available. It seems like a date involving March 26th is more appropriate for when RCS temperature must be less than or equal 212 deg F than a temperature in the range of March 26th. 2) Also, I do not understand why the allowable time is 44 hours.</p> <p><i>Response</i></p> <p>1) <i>Shutdown and cooldown of the RCS is not required until both SLC trains are inop, which occurs on the 26th.</i></p> <p>2) <i>When both trains go inop, you have 8 hours to restore one train to service then 36 hours to be in Mode 4.</i></p> <p><u>NRC 2:</u> Does the question really address the (b) portion of the A.2 K/A?</p> <p><i>Response: The TS action is considered a procedure action.</i></p>
88	H	3												B	E	<p><u>Facility:</u> Place initial Mode Switch position (SU/Hot Standby) to initial conditions instead of including it as an assumption in part 1 of question.</p> <p><i>Response: Made recommended chang.</i></p> <p><u>Facility:</u> Testing the second part of the K/A should follow logically and technically from the answer to the first part: (1) change mode switch position; (2) an effect results due to the stem conditions; (3) based on those effects, "use procedures to correct, control, or mitigate"</p> <p><i>Response: Changed distractor order so that part 1 evaluates the impact of installing the jumpers on RPS operability. Part 2 asks for required action specified by TS. TS in this case provide direction (i.e. a procedure).</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
89	H	4												N	S	<p>NRC 2: Both choices for part 2 are correct. May want to specify as to which the Unit Supervisor will first direct, to ensure that blocking channel inputs / tripping bistables is not a correct answer.</p> <p><i>Response: The key to making the part 2 response for choices B and D incorrect, is the phrase "To minimize the plant transient" The action to block the failed input is a post transient action, i.e. after the plant is stabilized.</i></p>
90	H	3				X								N	U	<p>Facility: As written this question is psychometrically flawed. This is, essentially, a two-part question due to the construction of the answer and distractors. If a candidate evaluates part 1 first (first procedure), they are all different, so part 2 (the second procedure) need not be evaluated. Conversely, if a candidate evaluates part 2 first, they are all different also, so the first procedure need not be evaluated. Even when you modify the question to test the second part of the K/A, it is possible you still may have what is essentially a two-part question; for example, interpret indications, then (part 1) identify applicable procedure and (part 2) "how operator actions and directives affect plant and system conditions". But maybe not.</p> <p>Additionally as written answer D is also correct since event would result in a SCRAM and loss inventory.</p> <p><i>Response: Answer choices rewritten to address the above concerns. Question SAT with associated changes.</i></p>
91	H	3										X	X	B	U	<p>Facility: All of the part 1 answers are different; therefore, the second question need not be addressed, so part (b) of the K/A is not being tested. Interlocks for runbacks are RO level, meaning that this question can be answered solely on RO knowledge. UNSAT.</p> <p><i>Response: Modified the part 1 answer choices to create a 2X2 question. Question SAT with changes.</i></p>
92	H	3	X			X								M	U	<p>NRC 1: Editorial comment. In distractor D, delete the "I" at the end and replace with a period (".").</p> <p><i>Response: Corrected.</i></p> <p>NRC 2: Delete the word "the" in "the Unit 2 experienced"</p> <p><i>Response: "the" deleted.</i></p> <p>Facility: Per the Hard Card for Containment Cooling Control the RHRSW Pump Start Permissive will already be placed into "MANUAL OVERRIDE", invalidating choice 'D' as the correct answer. Additionally choice C is a potentially correct answer. The Containment Cooling Permissive switch is place in "ON" per the above mentioned Hard Card and therefore can be removed from the initial conditions.</p> <p><i>Response. Stem conditions were modified (changes reactor power conditions and added rates of change in key parameters). Answer choices were changed accordingly. Question SAT with associated changes.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
93	H	2												N	S	<p><u>NRC 2:</u> Is the given reactor pressure valid if the RCS is lost? Typo in the word "reading"</p> <p><i>Response: Yes – the EAL refers to "loss" or "potential loss" Typo corrected.</i></p> <p><u>Facility:</u> Distractor explanations need to better explain plausibility.</p> <p><i>Response: Added additional justification for plausibility.</i></p>
94	F	3						X					X	N	U	<p><u>Facility:</u> Processing 50.59 evaluations is not a specific SRO task at Quad Cities and the referenced site specific objective does not tie to the question.. This is a broad tier 3 K/A, so the universe of potential questions at the SRO level that discriminate between safe and unsafe operators is vast. Surly there are more operationally valid, safety significant questions that discriminate between operators who have and have not mastered the "ability to interpret and execute procedure steps." Proposed replacement question provided.</p> <p><i>Response: Question replaced with proposed replacement question.</i></p>
94R	F	3												N	S	
95	H	3												N	E	<p><u>Facility:</u> Initial Conditions are unnecessarily difficult to read in paragraph form. Break it out into discrete chunks of information.</p> <p><i>Response: Incorporated recommended change.</i></p> <p><u>Facility:</u> Distractor explanations need to better explain plausibility.</p> <p><i>Response: Added additional justification for plausibility.</i></p>
96	F	3												B	S	<p><u>Facility:</u> Provide additional justification for plausibility of distractors.</p> <p><i>Response: Additional justification added to distractor explanations.</i></p>
97	H	3												N	E	<p><u>Facility:</u> There is no reason to withhold the procedure. It is not operationally valid to approve permits from memory. The candidates are not expected to have memorized all permits and the subsequent information that is needed to approve said procedure from memory.</p> <p><i>Response: Procedure will be provided.</i></p> <p><u>Facility:</u> Reformatting with specific times allows us to avoid confusing wording and verb tense shifts. Look it over in "No Markup" under the Review tab.</p> <p><i>Response: Stem reformatted as suggested.</i></p>
98	F	3												N	S	<p><u>NRC 2:</u> Part 2 of the question clues the applicant to the answer of Part 1.</p> <p><i>Response: Recorders are separate from the monitors therefore the apparent clue is not there.</i></p> <p><u>Facility:</u> Question appears to be answerable with only RO knowledge.</p> <p><i>Response: Not all instrumentation functions have recorders that are required to be operational during an accident. These recorders are specifically spelled out in the Bases to be operable making it a SRO question</i></p>

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
99	H	3												N	E	<p><u>Facility:</u> With regards to RPV water level, "Unknown" means that the value of RPV water level relative to the action levels of concern cannot be determined or inferred by any method. With a medium range water level indication at -25 inches it would not be assumed that the candidate would determine this situation as one where RPV water level is unknown. Recommend placing the plant in conditions where the reference leg will flash and make erratic and rising/upscale conditions so that it is apparent that there is no viable indication.</p> <p><u>Response:</u> <i>Stem conditions modified to address concern.</i></p> <p><u>Facility:</u> All of the procedures are different, so the contingency actions don't matter. This is more obvious with the suggested edit, but it was equally true when the choices were written in the passive voice, do X by performing Y. Without the second part, this is an RO level question: EOP entry conditions and overall mitigating strategy. UNSAT</p> <p><u>Response:</u> <i>Suggested edit not incorporated. The contingency procedures are an extension of the EOPs and entry is directed from within the EOPs by the SRO. Therefore this is a SRO level question.</i></p>
100	H	3										X		B	U	<p><u>Facility:</u> This is a tier 3 generic, it should not be tied to specific system knowledge. This needs to be a question about general EOP usage.</p> <p><u>Response:</u> <i>Replace with suggested replacement question.</i></p>
100R	F	3												B	S	

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

- Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
- Enter the level of difficulty (LOD) of each question a 1 (easy) to 5 (difficult); questions with a difficulty between 2 and 4 are acceptable.
- Check the appropriate box if a psychometric flaw is identified:
 - "Stem Focus": The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
 - "Cues": The stem or distractors contain cues (e.g., clues, specific determiners, phrasing, length).
 - "T/F": The answer choices are a collection of unrelated true/false statements.
 - "Cred. Dist.": The distractors are not credible; single implausible distractors should be repaired, and more than one is unacceptable.
 - "Partial": One or more distractors are partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by the stem).
- Check the appropriate box if a job content flaw is identified:
 - "Job Link": 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).
 - "Minutia": 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).
 - "#/Units": The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
 - "Backward": The question requires reverse logic or application compared to the job requirements.
- Check questions that are sampled for conformance with the approved K/A and those K/As that are designated "SRO-only." (K/A and license-level mismatches are unacceptable.)
- Enter question's source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet the criteria of Form ES-401, Section D.2.f.
- Based on the reviewer's judgment, is the question, as written, (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
- At a minimum, explain any "U" status ratings (e.g., how the Appendix B psychometric attributes are not being met).

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RO TOTALS:	B= 23 M= 10 N= 42	F= 28 H= 47	E= 35 U= 16	Additional Notes:
SRO TOTALS:	B= 6 M= 2 N= 17	F= 5 H= 20	E= 13 U= 7	Additional Notes:
<u>GENERAL COMMENTS:</u> 1. Chief Examiner comments are indicated in <i>blue</i> . 2. There are <u>4</u> (RO)/ <u>12</u> (SRO) questions with references/attachments provided.				