

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	Backward	Q=K/A	SRO Only			
1	F	2												B	S	NRC: None. <b>Reference Provided: Control room layout embedded in stem Perry 2015 NRC Initial Exam (Q2)</b> Response:
2	F	2												N	S	NRC: None. Response:
3	F	2												M	S	NRC: None. <b>Grand Gulf 2012 NRC Initial Exam (Q41)</b> Response:
4	F	3												N	E S	NRC: This question requires fundamental knowledge only to answer. Specifically, what is done to correct a typographical error in a procedure. Response: <a href="#">Agree this is fundamental knowledge. Changed on pedigree page.</a>

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 using 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 (i.e., 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, 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 stem).
- Check the appropriate box if a job content error 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 that are designated "SRO-only." (K/A and license-level mismatches are unacceptable).
- Enter question source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet criteria of 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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5	F	2												B	S	NRC: None. <b>Perry 2013 NRC Initial Exam (Q5)</b> Response:
6	F	2												M	S	NRC: None. <b>Previous Two Exams: Perry 2017 NRC Initial Exam (Q1)</b> Response:
7	H	2												N	S	NRC: None. Response:
8	F	2												B	S	NRC: None. <b>Perry 2013 NRC Initial Exam (Q7)</b> Response:
9	F	3												N	S	NRC: None. Response:
10	F	3												B	S	NRC: None. <b>Perry 2013 NRC Initial Exam (Q29)</b> Response:
11	H	2												M	S	NRC: None. <b>Perry 2001 NRC Initial Exam (Q48)</b> Response:
12	H	3												B	S	NRC: None. <b>Perry 2001 NRC Initial Exam (Q1)</b> Response:
13	H	4												N	S	NRC: Explain and demonstrate the normal/alternate power sources for the normal battery charger in greater detail. It was not clear how MCC F-1-B-08 interacts with the normal battery charger from the drawings provided. Response: MCCs F-1-B-08 and F-1-D-08 are equipped with ABTs that allow them to be powered from two different sources (transformers) One source is off a transformer fed from the Div.2 Stub Bus. The other source is transformers LF-1-B or LF-1-D. Also Load Centers EF-1-A, EF-1-B, EF-1-C, and EF-1-D can each be powered from two different sources. Therefore, with the bus lineup given and the alarm given in the stem, "DC Bus ED-1-B undervoltage" a loss of transformer EHF-1-D indicates a loss of input to Normal Charger for DC Bus ED-1-B. Question is SAT as written.

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14	H	3	X											B	E S	<p>NRC: Add the word <i>directly</i> to the stem sentence, "Which of the following conditions <b>directly</b> caused the reactor scram..." An MSIV closure or turbine trip would cause pressure to rise which would/could cause a high pressure scram. By adding directly, it is clear that the only acceptable answer is which actual RPS signal is received.</p> <p><b>Perry 2007-2 NRC Initial Exam (Q5)</b>                      Response: Agree. Added "directly" to stem.</p>
15	F	2												M	S	<p>NRC: None.</p> <p><b>Nine Mile Point 2 2014 NRC Initial Exam (Q39)</b>                      Response:</p>
16	H	3												N	E S	<p>NRC: Justification for distractors and A and B are reversed.</p> <p>Response: Fixed Justifications for distractors A and B.</p>
17	H	3												N	S	<p>NRC: None.</p> <p>Response:</p>
18	F	3												M	S	<p>NRC: None.</p> <p><b>Perry 2013 NRC Initial Exam (Q62)</b>                      Response:</p>
19	H	3	X											N	E S	<p>NRC: Consider removing the phrase, <i>Then an hour ago</i>, from the stem. It makes the timeline in the stem confusing as above the phrase the following conditions exist. The discharge valve on the HX closing doesn't need to have occurred 1 hour to have to identify how RCS temperature should be monitored going forward under the new plant conditions.</p> <p>Secondly, the proposed reference indicates IOI-12. Then in parentheses, modified – will not help on RO-19, this is confusing. Why does IOI-12 have to be modified and it should help in this question to be a useable reference? Please explain what the intended attached reference will look like.</p> <p><b>Reference Provided: IOI-12, Maintaining Cold Shutdown</b>                      Response: 1) The 1-hour time reference was provided so the Applicant could see a temperature change on the indications provided. Reworded stem to provide a more coherent timeline.                      2) IOI-12 will be provided as a reference in its entirety. However, P&amp;L 2.1 on page 4 was deleted as it could have helped answer Question RO-26. Corrected pedigree sheet to show Q RO-26 vs. Q RO-19 in "Proposed References Provided To Applicants".</p>

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20	H	2				X								N	U S	NRC: Distractors B and D are not plausible, specifically with no condition which challenges an RCS or primary containment parameter, the applicant is not expected to assess that an emergency depressurization would be required. The action to ED would add to the complexity of the event as operators attempt to mitigate the release from the FHB. Response: Deleted "and Emergency Depressurize" from both B & D distractors as discussed with Chief Examiner.
21	H	3												M	S	NRC: None. <b>Previous Two Exams: Perry 2019 NRC Initial Exam (Q21)</b> Response:
22	H	3												B	S	NRC: None. <b>Perry 2001 NRC Initial Exam (Q46)</b> Response:
23	H	2												M	S	NRC: None. Response:
24	H	4												B	S	NRC: None. <b>Reference Provided: EOP SPI Supplement</b> Response:
25	F	3												B	S	NRC: None. Response:
26	F	2												B	S	NRC: None. <b>Perry 2007 NRC Initial Exam (Q9)</b> Response:
27	H	4												B	S	NRC: None. Response:
28	H	2												N	S	NRC: None. Response:
29	F	3												B	S	NRC: None. <b>Perry 2015 NRC Initial Exam (Q29)</b> Response:

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
30	H	4												B	S	NRC: None. <b>Reference Provided: PDB-C0002, Generator Capability Curve Perry 2015 NRC Initial Exam (Q30)</b> Response:
31	F	2												M	S	NRC: None. <b>Perry 2007 NRC Initial Exam (Q31)</b> Response:
32	H	2										X		N	U S	NRC: Question does not match the KA. Specifically, heat up rate as it applies to high reactor water level is not addressed. Perhaps a question that compares a time to boil (heat up rate) calculation with water level at the flange vs. cavity flooded. <b>Reference Provided: Decay Heat and Pool Heat-up Curves</b> Response: <a href="#">Developed new question for heat-up rate based on time to boil.</a> <a href="#">New question is now a high cog. The pedigree sheet has been corrected to show this.</a>
33	F	2												M	S	NRC: None. <b>Perry 2010 NRC Initial Exam (Q1)</b> Response:
34	H	2												B	S	NRC: None. <b>Perry 2013 NRC Initial Exam (Q44)</b> Response:
35	H	2												B	S	NRC: None. <b>Perry 2010 NRC Initial Exam (Q36)</b> Response:
36	F	3												N	S	NRC: None. Response:
37	F	4	X											N	E S	NRC: The question and how it is asked (and answered) is not completely clear. The recombiners appear to be the hard limit at <6% for either the DW or containment. The igniters are dependent on multiple variables including RPV level, containment pressure and DW hydrogen concentration. Since both is underlined, the recombiner value is limiting so 5% would be the highest you could run them together. It may be more clear to have a single answer value instead of breaking them out by recombiner and igniter since there is no actual 5% limit for igniters. Response: <a href="#">Provided single value answer/distractors vs. 2-part question. Added</a>

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																"simultaneously" to stem for clarity. Also updated Answer Explanation on pedigree sheet. New answer is B
38	H	3												M	S	NRC: Why did the blue indicating light <i>just extinguish</i> if the plant is at rated conditions (>530 psig before the LOCA)? <b>Perry 2007-2 NRC Initial Exam (Q21)</b> Response: Stating that the blue light "just extinguished" means that the pressure between the Injection Valve and the Check Valve just increased above 530 psig. If the Check valve had been leaking since Rx startup/Heatup, the blue light would not have been on. When the blue light initially illuminates, a 15-minute timer starts. If within that 15-minute period, pressure between the Injection Valve and the Check Valve increases above 530 psig, the blue light will extinguish, but the Injection valve can be opened using the control switch. Question is SAT as written.
39	H	3												B	S	NRC: None. <b>Perry 2013 NRC Initial Exam (Q35)</b> Response:
40	H	3												N	S	NRC: None. Response:
41	H	2												B	S	NRC: None. <b>River Bend 2012 NRC Initial Exam (Q30)</b> Response:
42	H	1				X								N	U S	NRC: All three distractors include EH13 Preferred source breaker trips. If the applicant can eliminate this option, they have identified the correct answer. Since no indication of grid trouble exists, the applicant should be able to easily eliminate this option as ESF buses do not strip from their preferred sources without a degraded/lost voltage signal present. The elimination of the three distractors with this one piece of information resulted in the question being considered LOD =1. Response: Reworded stem and made this a 1-out-of-2-part question.
43	H	2												M	S	NRC: None. <b>Previous Two Exams: Perry 2017 NRC Initial Exam (Q40)</b> Response:
44	F	2	X				X							M	U S	NRC: The stem indicates that a "loss of some 120 VAC power" has occurred. It is not specific as to what 120 VAC bus is lost. The stem also states that the SLC A OUT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
																	OF SERVICE annunciator is lit. In addition to a loss of Squib valve continuity, an undervoltage for the suction valve will give this alarm. Therefore, since 120 VAC powers the opening circuit for the suction valve and an annunciator was received which could also indicate that the suction valve has an undervoltage condition the applicant could make the conclusion that distractor D is also correct. More information as to which 120 VAC appears to be needed to eliminate distractor D completely. <u>Response:</u> Changed "loss of some 120 VAC power" to "loss of 120 VAC Panel EB-1-A-1" to eliminate possibility that distractor D could also be considered correct.
45	H	3												N	S		<u>NRC:</u> None. <u>Response:</u>
46	F	3												B	S		<u>NRC:</u> None. <b>Grand Gulf 2011 NRC Initial Exam (Q2)</b> <u>Response:</u>
47	F	3												B	S		<u>NRC:</u> None. <b>Browns Ferry 2012 NRC Initial Exam (Q37)</b> <u>Response:</u>
48	H	2												N	S		<u>NRC:</u> None. <u>Response:</u>
49	H	4												M	E S		<u>NRC:</u> Justification for correct answer should say it takes 1 hour 40 minutes to reach 105 °F. <b>Reference Provided: SVI-D23-T1213, Attachment 1</b> <u>Response:</u> Corrected Justification for correct answer in Answer Explanation of pedigree sheet to say it takes 1 hour 40 minutes to reach 105 °F.
50	H	3												B	S		<u>NRC:</u> None. <b>Perry 2015 NRC Initial Exam (Q51)</b> <u>Response:</u>
51	F	2												M	S		<u>NRC:</u> None. <b>Columbia 2013 NRC Initial Exam (Q42)</b> <u>Response:</u>
52	H	2												B	S		<u>NRC:</u> None. <b>Perry 2015 NRC Initial Exam (Q52)</b>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
																	<u>Response:</u>
53	F	2												N	S		<u>NRC:</u> None. <u>Response:</u>
54	F	3												N	S		<u>NRC:</u> None. <u>Response:</u>
55	F	2												B	S		<u>NRC:</u> None. <b>Perry 2007-1 NRC Initial Exam (Q52)</b> <u>Response:</u>
56	H	3												B	S		<u>NRC:</u> None. <b>Perry 2015 NRC Initial Exam (Q57)</b> <u>Response:</u>
57	F	4												B	S		<u>NRC:</u> None. <b>Perry 2013 NRC Initial Exam (Q58)</b> <u>Response:</u>
58	H	2												B	S		<u>NRC:</u> None. <b>Perry 2007-2 NRC Initial Exam (Q38)</b> <u>Response:</u>
59	H	3												B	S		<u>NRC:</u> <b>Reference Provided: Image of Main Control Room panel DC indicators</b> <b>Previous Two Exams: Perry 2017 NRC Initial Exam (Q59)</b> <u>Response:</u>
60	H	3												M	E S		<u>NRC:</u> Was EDG start system modified since 2001? Previous exam answer justifications contradict the wording found in ARI-H13-P877-0002-F1. <b>Perry 2001 NRC Initial Exam (Q9)</b> <u>Response:</u> The 2001 exam lists the System Description Manual (SDM) as a source for the question. A copy of the SDM from that time frame could not be found. However, ARI-H13-P877-0002 from that time frame was reviewed and agreed with the Justification. ARI-H13-P877-0002 revised in 2012 to indicate that the starting air solenoids would deenergize at 150 psig in the starting air header for either a LOOP or a LOCA. Prior to 2012 this ARI indicated that the 150 psig limit did not affect a LOOP Start.



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61	H	2	X											B	E S	<p>NRC: How would the applicant know that the particular EDG with high crankcase pressure is the Division 1 EDG? By the time the alarm is received, all three EDGs are operating due to the LOOP. The original question this is modeled after indicated the alarm was specifically for the Division 1 EDG. The annunciator does not specifically tell which EDG the high crankcase pressure is associated with and the annunciator number on its own is minutia knowledge in and of itself. It appears that an assumption would have to be made since the question started out with the Division 1 EDG in surveillance mode.</p> <p>In addition, the question appears not to be modified IAW ES-401, D.2.f in that no significant change to the stem occurred along with a change to a distractor or that a change to the stem resulted in a distractor becoming the correct answer.</p> <p><b>Perry 2007-2 NRC Initial Exam (Q49)</b></p> <p><u>Response:</u> 1) In the stem, the annunciator window number "H13-P877-01" indicates that this alarm is for the Div.1 EDG. This is expected RO knowledge. 2) Agree, this should be listed as direct from bank and not modified. Corrected pedigree sheet to indicate as such.</p>
62	F	3												N	S	<p>NRC: None.</p> <p><u>Response:</u></p>
63	F	3												B	S	<p>NRC: None.</p> <p><b>Perry 2010 NRC Initial Exam (Q63)</b></p> <p><u>Response:</u></p>
64	H	3						X						M	E S	<p>NRC: Explain in greater detail how the applicant would be incorrect for selecting distractor A based on C51 actions. Even though power is less than its initial value, C51 does in multiple steps give directions to insert control rods (without a &lt;42% power limitation mentioned) to avoid the instability region.</p> <p>The question that this was modified from was originally classified as higher cog and it only required the applicant to assess which TS was entered if applicable. This version also requires potential mitigation strategies be identified. This question is higher cog.</p> <p><b>Perry 2013 NRC Initial Exam (Q4)</b></p> <p><u>Response:</u> 1) ONI-C51 Immediate Actions direct use of Cram Rods if core flow is &lt;42 MLb/hr. In this case, core flow is 64 MLb/hr. Additionally, Cram Rods are used if a Recirc Pump is tripped (which it is not) and if Rx power is above the MEOD Boundary line. Since FCVs ran back, the operating point is further away from the MEOD boundary line. Added additional detail to Justification for distractors A &amp; C. 2) Agree this is a higher cog question. Corrected pedigree sheet to show high cog.</p>

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65	F	2												B	S	NRC: None. <b>Perry 2007 NRC Initial Exam (Q65)</b> Response:
66	F	4												N	E S	NRC: This question effectively asks what does bus EK-1-A1 power, which is fundamental/memory knowledge. Response: <a href="#">Agree this is a lower cog question. Corrected pedigree sheet to show low cog.</a>
67	H	3												M	S	NRC: None. <b>Perry 2001 NRC Initial Exam (Q75)</b> Response:
68	F	3												M	S	NRC: None. <b>Previous Two Exams: Perry 2017 NRC Initial Exam (Q68)</b> Response:
69	H	4												N	S	NRC: None. Response:
70	F	3												M	S	NRC: None. <b>Nine Mile Point -1 2008 NRC Initial Exam (Q28)</b> Response:
71	H	3												N	S	NRC: None. Response:
72	F	3												N	S	NRC: None. Response:
73	F	2												B	S	NRC: None. <b>Perry 2015 NRC Initial Exam (Q73)</b> Response:
74	F	4												N	S	NRC: None. Response:
75	F	2												B	S	NRC: None. <b>Perry 2003 NRC Initial Exam (Q76)</b> Response:

<b>RO TOTALS:</b>	B= 31	F= 36	E= 10	Additional Notes: <b>SATISFACTORY SUBMITTAL</b>
	M= 19	H= 39	<b>U= 4 (5.3%)</b>	
	N= 25			

**GENERAL COMMENTS:**

1. Bank questions are indicated by **B**; Modified are indicated by **M**; New questions are indicated by **N**
2. There are 7 questions with references/attachments provided.
3. There are 5 questions from the last 2 previous NRC written exams (4 were substantially modified).
4. Answer key breakdown is as follows: A 19 B 17 C 20 D 19