Facility: LIMERICK GENERATING STATION

	1.	2.	3	B. Psyc	homet	ric Flaw	'S	4.	Job Con	tent FI	aws	5. C	Other	6.	7.	8.
Q#	LOK (F/H)		Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
1	Ħ	3												N	E S	Reference provided for Q57, i.e., OT-112, "Unexpected/Unexplained Change in Core Flow," Attachment 4, "LGS Power Flow Operation Map, OPRM Operable – ALL Feedwater Heaters in Service," can be used to eliminate Distractor D (Action to Scram would not be required). Distractor D will require replacement if issue is to be addressed under Q1. LIMERICK: Replacement "D" distractor written to remove potential use of Q57 reference to eliminate "D" as an answer.
2	F	3												В	S	2012 LGS NRC EXAM
3	Н	3												N	E S	NRC: • Provide procedure titles for E-1FA and E-1FC. LIMERICK: • Procedures titles added.

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 (easy) to 5 (difficult); questions with a difficulty between 2 and 4 are acceptable.
- 3. 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).
- 4. 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.
- 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. Enter question source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet criteria of ES-401 Section D.2.f.
- 7. 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?
- 8. At a minimum, explain any "U" status ratings (e.g., how the Appendix B psychometric attributes are not being met).

4	I	3 2		x				N	E S	NRC Early Review Question NRC: Distractor 'A' does not appear to be credible and can be easily eliminated. Question statement asks for the action required to mitigate the event. Performance of S38.1.L to apply different "Thermal Limit Curve Set Changes" within the 3D Monicore System, amidst rising reactor pressure with degraded BPV response, would not be a plausible action to mitigate the pressure rise. Editorial: Stem statement reads "Rising vibration on the Main Turbine require operators to trip the turbine." Should be "requires" plural. Label the Answer and Distractor Explanations. LIMERICK: Revised answer to: Reduce reactor power by incrementally lowering RRP speed; Wrong. Lowering reactor power is an immediate operator action in OT-102, however in this case lowering RRP speed is not an option since the RRPs are already operating at minimum speed (466 RPM). Fixed editorial comment as requested. Labeled Answer and Distractor Explanations.
5	F	2		x				В	E S	2012 HOPE CREEK NRC EXAM NRC: Distractor C is not credible. Why would an applicant believe that position "24" (i.e., mid-core) would be below the Maximum Sub-Critical Banked Withdrawal Position (MSBWP)? LIMERICK: Changed the question such that the control rod not inserted is at position "04" vice position "24". This improves the plausibility of distractor "C", with the control rod being closer to fully inserted (and the MSCBWP) rather than at the mid-point of the core.
6	F	2 3					X	N B	⊎ s	2016 LGS NRC EXAM (Replacement Question) NRC: Ouestion UNSAT as written. Question can be answered without any knowledge of Control Room Abandonment subject matter or Special Event Procedure SE-1, "Remote Shutdown," and as such, does not meet the intent of the coupled K/A. LIMERICK: Question replaced with Bank Q.
7	Н	2	X					N	E S	NRC Early Review Question NRC: Suggest changing the T=0 Temperature to 120°F and the heat-up rate to 2°F/min so that the times in Part 2 work out evenly (i.e., 130°F and 140°F)

										would be 5 min and 10 min respectively). Currently, based on a 3°F/min heat-up rate, the time to reach 130°F (from 119°F) would actually be 3.67 min. The potential to inadvertently cue the applicant exists if two of the four time options in Part 2 have to be rounded up. • Label the Answer and Distractor Explanations. LIMERICK: • Revised column 2 based on suggestion above to use 2°F/min heatup rate. • Labeled Answer and Distractor Explanations.
8	# F	2						₽. B	₽S	 Reference provided: Embedded Reference; Instrument Air Header Pressure Indicators PI-15-120A and PI-15-120B. Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." 2018 LGS NRC EXAM (Previous 2 NRC Exams) (Replacement Question) NRC: Stem conditions (i.e., Trip of all Air Compressors due to Loss of TECW, coincident with lowering air header pressures and single rod drift) indicate that multiple rod drifts are imminent, leaving no time for the conduct of mitigative actions to restore Instrument Air Header Pressure before additional rods begin to drift. Conservative action to proactively scram the reactor before this occurs is therefore warranted. The imminence of multiple control rod drifts is the apparent basis for why choice 'B' is seemingly the only correct answer, even though Limerick procedural guidance (i.e., ON-104 & ON-119) provides specific direction to manually scram the reactor when "more than one rod drifts." Accordingly, this information should be used to enhance/strengthen the explanations for correct Answer 'B,' and Distractors 'A' and 'C.' Separately, why would Distractor 'A' also not be a correct answer? The same guidance to manually scram the reactor when "more than one control rod drifts" exists in both ON-104 and ON-119. This guidance is not identified as an IMMEDIATE ACTION in either location. The argument could be made that ON-104 and ON-119 would both be entered given that neither procedure contains IMMEDIATE ACTIONS. Distractor C plausibility explanation states that the distractor is plausible if the applicant "incorrectly believes that ON-119 allows the cross tying of the headers." This claim appears to be inaccurate. ON-119, Step 2.5.8 (Rev 33), provides guidance for cross connecting Instrument Air between Units 1 & 2. The plausibility

										 room indications" aspect of the K/A can be accomplished without the use of a picture for this question. Accordingly, the Embedded Reference should be removed. LIMERICK: Replaced K/A with G2.4.4 and replaced with Q# 2078938 from 2017 NRC Q# 08
9	н	3						N	₽ S	 NRC: Distractor B, Part 1, plausibility explanation incorrectly references HV-051-2F017D; should instead reference HV-051-2F015B. Revise plausibility explanation accordingly. Distractor B, Part 2, plausibility explanation incorrectly references 118 INCHES; should instead reference 150 INCHES. Revise plausibility explanation accordingly. Distractor D, Part 1, plausibility explanation incorrectly references HV-051-2F015B; should instead reference HV-051-2F017D. Revise plausibility explanation accordingly. Distractor D, Part 2, plausibility explanation incorrectly references 118 INCHES; should instead reference 150 INCHES. Revise plausibility explanation accordingly. Plausibility explanation associated with the 150 INCHES RPV level in Part 2 of Distractors B and D is confusing as written, primarily with respect to the wording that states " without flooding the Main Steam Lines." Separately, is there any significance associated with 150 INCHES RPV level that would make it a credible distractor? Clarification / Enhancement required. LIMERICK: Fixed the plausibility explanations to match the appropriate components. Changed the distractor answers in part 2 of B and D to "Flooded to the MSLs". This should eliminate the ambiguity of 150".
10	Н	3						N	E S	 NRC: Distractors C and D, Part 1, plausibility explanations are written for a "Refuel Bridge Effect" that is different than that specified in answer choices B and D of the question. Revise the plausibility explanations for Distractors C and D. LIMERICK: Revised question part 1 answers for C and D to match the part 1 distractor C and D discussions.
11	Н	2						Ν	S	
12	Н	2						Ν	E S	 NRC: Specify only the RPV Pressure values in Part 2 of question. Revise the Part 2 question statement to read "The lowest RPV pressure above which entry into T-101, "RPV Control," is required"?

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										LIMERICK: • Modified as requested.
13	Н	3						N	S	
14	н	2						N	S	Reference provided: Embedded Reference; EOP "Reference Leg Saturation Limit Curve" with the SAFE and UNSAFE regions unmarked and associated coloring removed. Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: On the Pedigree Sheet, need to update the "Reference Provided" field with information that the SAFE and UNSAFE regions of the "Reference Leg Saturation Limit Curve" are unmarked and associated coloring has been removed. LIMERICK: Pedigree information modified as requested.
15	н	2						N	E S	Reference provided: Embedded Reference; EOP "RHR Vortex Limit Curve" with the SAFE and UNSAFE regions unmarked and associated coloring removed. Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: Correct Answer B explanation does not address the Part 2 Basis aspect of the question. Provide this additional detail. On the Pedigree Sheet, need to update the "Reference Provided" field with information that the SAFE and UNSAFE regions of the "RHR Vortex Limit Curve" are unmarked and associated coloring has been removed. LIMERICK: Added Part 2 Basis with applicable basis information from T-102 Basis document. Added pedigree information as requested.
16	F	3						N	E O	 NRC: Distractor B, Part 1, plausibility explanation incorrectly references "is NOT"; should instead reference "is". Revise plausibility explanation accordingly. Distractor B, Part 2, plausibility explanation incorrectly references 1800°F; should instead reference 2200°F. In addition, plausibility explanation is deficient (i.e, Level below -186 inches). Revise and Enhance the plausibility explanation to address both issues. Distractor C, Part 1, plausibility explanation incorrectly references "is"; should

											instead reference "is NOT". Revise plausibility explanation accordingly. • Distractor C, Part 2, plausibility explanation incorrectly references 2200°F; should instead reference 1800°F. Revise plausibility explanation accordingly. LIMERICK: • Labeling for Distractor B and Distractor C were reversed. These 2 distractors were correctly labeled and put in the correct order. • Distractor C (previously Distractor B) has been enhanced as requested.
17	н	3							N	E S	Revise Part 2 to make T-217 (Reset-Scram-Reset-Scram actions to vent & drain the SDV) the correct answer, given that a Hydraulic ATWS has occurred. Bypassing the RWM and manually inserting control rods (T-117, Step LQ/Q-9) is typically always performed and immediately precedes evaluation step LQ/Q-10, regardless of whether the ATWS is Electrical or Hydraulic. The applicant, needs to evaluate the stem conditions, determine the status of the Scram Valves (Open or Closed), and select the correct mitigative action at Step LQ/Q-9. In the revised version of this question, the applicant determines that the Scram Valves are open and that T-217 is the correct procedure. Use T-215, "De-energization of Scram Solenoids," as the incorrect option for Part 2 of the question. Revise the procedure references given in the stem, and revise the correct answer and distractor explanations accordingly. LIMERICK: Revised Part 2 of question as requested, including Stem and distractor explanations.
18	Н	3							N	S	 NRC: Question: Part 2 answer choices are "Unit 1 South Stack" and "North Stack." Is there a "Unit 1 North Stack"? If so, revise accordingly to provide consistency between the Part 2 answer choices LIMERICK: At LGS, the North Stack is a common elevated release point used by both Unit 1 and Unit 2.
19	F	3	X						Z	E S	NRC: Remove the conditional clause "if conditions warrant" from the question statement. Unclear as to what this actually means. The conditional wording makes the intent unclear and introduces an element of ambiguity in the stem. Label the Answer and Distractor Explanations. LIMERICK: Removed conditional statement as requested. Labeled Answer and Distractor Explanations.

20	Н	3						N	S	
21	н	2	×					N		 NRC: Change the Reactor Power level from 24% to 28% in the first bullet of the stem to raise the discrimination validity of the question. In addition, change the Reactor Power level from 24% to 28% in the explanations for correct Answer C and Distractor B. Remove the 3-minute action time from correct Answer C and Distractor B. The stem information and wording of the question statement are sufficient for the applicants to determine the correct answer. The applicants are expected to know the Main Turbine Trip Low Vacuum Trip Setpoint (21.5" Hg Vac) and that Main Turbine Trip is therefore imminent based on initial value of Condenser Vacuum and the rate of degradation. Providing the 3-minute action time can potentially cue the applicants that the Main Turbine must be tripped at 22" Hg Vac should they fail to recall the 21.5 " Hg Vac Trip Setpoint. Remove the word "only" from correct Answer C. Inclusion of this qualifier has the potential to cue the applicants and is not necessary. LIMERICK: Corrections made as requested Added Main Turbine 1st stage pressure to stem at 175 psig to limit indeterminate state of scram bypass state at the increased power level of 28%. The Rx scram signal for Main Turbine Stop/Control valve closure is bypassed until 1st stage pressure reaches 188 psig and is not based on directly on Rx power. At 28% Rx power, the bypass state is indeterminate
22	п	2						N	⊞ S	 NRC: Distractors A and B can be easily eliminated with 3 of 4 Narrow Range (NR) Level Instrument failures. Recommend eliminating the 3rd bullet for failure of 1A FWLC NR Level Instrument and enhancing the stem by stating that the electrical transient resulted in simultaneous failure of B and D NR Level Instruments. Choice D remains the correct answer. Revise Answer D explanation to reflect the fact that a simultaneous failure of 2 RPV NR Level Instruments will cause a Feedwater failure and resultant swap to Manual of the RFP Controllers. Note that the explanation for correct Answer D, as written, incorrectly states that the system has no level input. This would appear to be in error since 1C FWLC NR Level Instrument is unaffected (stem only indicates 3 RPV NR Level Instrument failures; 1A, 1B, 1D). Last sentence in the explanations for Distractors A and C states "A and B would not cause a trip." This statement is confusing. What is 'A' and 'B' referring to? Clarification required. LIMERICK: Removed the "A" Transmitter failure. D remains correct answer. Revised answer D explanation. A failure of 3 of 4 inputs would result in the FWLCS interpreting this as a loss of all level indication since there is no valid comparison checks.

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												 Removed the reference to "A and B would not cause a trip." This was a reference to the trip logic of A or B and C or D.
23	H H	3								N	E S	NRC: Applicants should know, based on the third bullet in the stem, that the SDV Vent and Drain valves are closed. The 3 rd bullet states "Full Core Display blue lights are LIT for all 185 control rods." The fourth bullet is not required to answer this question and should therefore be removed. Level of Knowledge (LOK) is classified as Low Cognitive Level (LCL) (i.e., Fundamental) on the Pedigree Sheet. Appears that the question should be classified as High Cognitive Level (HCL) based on the guidance in NUREG-1021, Appendix A. Explain the Low Cog assignment. LIMERICK: Removed fourth bullet as requested. Re-categorized as HCL in pedigree information.
24	Н	3								В	S	2012 LGS NRC EXAM; 2017 LGS NRC EXAM
25	F	3		X						B M	E S	2012 LGS NRC EXAM NRC: Plausibility for Distractor A, given the remaining answer choices, is questionable for an applicant that has trained for months in the simulator. Recommend revising the stem to indicate Mode 2, changing the Reactor Pressure value from 920 psig to 890 psig, and modifying the second statement to read "No CRD Pump is running" (makes Distractor B the correct answer). Explanations on the Pedigree Sheet would need to be revised accordingly. Note that the suggested change makes the question "Modified" in accordance with NUREG-1021, ES-401, which states: "Changing the conditions in the stem such that one of the three distractors in the original question becomes the correct answer would also be considered a significant modification. The intent or objective of the question does not necessarily have to be changed." LIMERICK: Revised question as requested. Re-categorized as Modified
26	F	3								N	S	
27	F	3								N	S	
28	Н	4								В	S	2017 LGS NRC EXAM
29	F	3						Х	Х	N	U S	NRC: • Question does not meet the intent of the K/A. K/A states "Knowledge of the

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										effect that a loss or malfunction of the SHUTDOWN COOLING SYSYEM (RHR SHUTDOWN COOLING MODE) will have on the following: Reactor temperatures (moderator, vessel, flange). Question uses Backward Logic in Part 1 and is a Math problem in Part 2. Stem provides (a) initial RPV Coolant Temperature, (b) information that a Group IIA isolation has occurred (Channel A & B Logic), and (c) an elevated value for RPV Coolant Temperature 5 minutes after the isolation. Part 1 requires the applicant to evaluate the SDC Channel isolation logic (i.e., the cause after the effect) and Part 2 requires a calculation to determine the Time of the OPCON change. Suggest meeting the K/A by developing a question to test concepts associated with the following Learning Objective from the RHR System Lesson Plan (LGSOPS0051): LO13.c, "Summarize the effects that a Loss of Shutdown Cooling has on the following: Moderator and Vessel Temperatures." c. Moderator and Vessel temperature: both would increase if natural circulation were established. Natural circulation is established by raising RPV water level to greater than 60". This level covers the moisture separator drains, which provide coupling between the inside and outside shroud area. If this is not achieved, water inside the shroud will be warmer than water outside. If this situation is allowed to continue the plant could change from OPCON 4 to OPCON 3. This warm-up / pressurization will occur with no indication until pressure begins to increase. In addition, based on the question as currently written, the follow discrepancies were identified: Distractor B, Part 1, plausibility explanation incorrectly references "OPEN", should instead reference "CLOSED". Distractor D, Part 1, plausibility explanation incorrectly references "CLOSED"; should instead reference "OPEN".
30	Н	3						N	S	
31	н	3						Z	E S	Explanation for Distractor A states that this option is plausible for an applicant who does not recall that the trip solenoid is energized to operate. This contradicts Distractor A which states that the HPCI trip solenoid will "Energize and allow control oil to flow to the governor valve, and HPCI will start." Revise the plausibility explanation. LIMERICK:

										Clarified Distractor A
32	Н	3						В	S	
33	H	3						В	E S	NRC: Distractor B, Part 1, plausibility explanation incorrectly references" ON", should instead reference "OFF". Revise plausibility explanation accordingly. Distractor D, Part 1, plausibility explanation incorrectly references "OFF"; should instead reference "ON". Revise plausibility explanation accordingly. Level of Knowledge (LOK) is classified as Low Cognitive Level (LCL) (i.e., Fundamental) on the Pedigree Sheet. Appears that the question should be classified as High Cognitive Level (HCL) based on the guidance in NUREG-1021, Appendix A. Explain the Low Cog assignment. LIMERICK: Distractors were mis-labeled. Revised as requested. Changed question to HCL
34	F	3						N	S	NRC: Answer and Distractor explanations are not labeled on the Pedigree Sheet. LIMERICK: Labeled Answer and Distractor explanations on Pedigree Sheet.
35	н	3						В	E S	Reference provided: Embedded Reference; Picture of RPS SCRAM SYSTEM LOGIC POWER Section of Panel 20C603 Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: A minimally competent applicants should know what it means when given the information that a "SCRAM SYSTEM LOGIC white light on Panel 20C603 has extinguished," without having to be provided a picture. Accordingly, the Embedded Reference should be removed. NRC Question History Field on the Pedigree Sheet contains the number 1151844. Confirm that this question was not used on either of the previous 2 NRC Exams? Answer and Distractor explanations are not labeled on the Pedigree Sheet. LIMERICK: Limerick believes embedded reference adds clarity to what the question is asking. Request more discussion on this. Question was verified not to have been on either of the last 2 NRC Exams. Labeled Answer and Distractor explanations on Pedigree Sheet.

36	H H	4 3					x	В	₩ S	NRC: Question is LOD=1 as written. In addition, the question does not meet the intent of the K/A. K/A states "Ability to predict and/or monitor changes in parameters associated with operating the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM controls, including: SCRAM and Rod Block trip setpoints." The "operate IRM system controls" aspect of the K/A has not been addressed. Suggest that the question be revised to include operation of the IRM Range Switches and determining the associated impact with respect to the Scram and Rod Block setpoints. NRC Question History Field on the Pedigree Sheet contains the number 1741662. Confirm that this question was not used on either of the previous 2 NRC Exams? LIMERICK: Replaced question.
37	Н	3						В	S	2018 LGS NRC EXAM (Previous 2 NRC Exams) NRC: • Answer and Distractor explanations are not labeled on the Pedigree Sheet. LIMERICK: • Labeled Answer and Distractor explanations on the Pedigree Sheet.
38	# F	3						B N	E S	 NRC: The plausibility explanations for Distractors B, C, and D do not appear to support the Distractor answers, given the 6% reading provided in the stem for the failed LPRM Detector at Elevation 'C'. Why reference T-101 "SCRAM condition with power above 4%" entry criteria as a bases for distractor plausibility, especially when the stem indicates that the LPRM Detector reading only dropped to 6%. Why not just say that the applicant may confuse or not recall the input signal level below which the signal is automatically removed from the RBM channels? Separately, suggest revising the question by providing an LPRM Detector failure reading below the 3% threshold value (i.e., 2%) and revising the explanations on the Pedigree Sheet accordingly. This would change the correct answer from Choice 'A' to 'B' while at the same time raising the overall Discrimination Validity of the question. Note that the suggested change makes the question "Modified" in accordance with NUREG-1021, ES-401, which states: "Changing the conditions in the stem such that one of the three distractors in the original question becomes the correct answer would also be considered a significant modification. The intent or objective of the question does not necessarily have to be changed."

П	1 1	1			1	T					
											LIMERICK:
											Wrote New question to make a Fundamental cognitive level question.
39	F	2							В	S	NRC: HPCI is incorrectly referenced in the second sentence of the Answer Explanation on the Pedigree Sheet; should instead be RCIC. Answer and Distractor explanations are not labeled on the Pedigree Sheet. LIMERICK: Changes made as requested. Labeled Answer and Distractor explanations on the Pedigree Sheet.
40	Н	3							N	S	NRC: • Answer and Distractor explanations are not labeled on the Pedigree Sheet. LIMERICK: • Labeled Answer and Distractor explanations on the Pedigree Sheet.
41	F	2	x					x	В	⊎ s	Question, as written, does not meet the intent of the K/A. K/A states "Ability to predict and/or monitor changes in parameters associated with operating the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF SYSTEM controls, including: Valve closures." The "operate PCIS/NSSSS system controls" aspect of the K/A has not been addressed. In addition, the HPCI and RCIC Steam Line Inboard Isolation Valves (F002 & F007 respectively) are not valves isolated by PCIS/NSSSS logic Separately, the direction to "Assume no Mode Switch manipulation" is leading and can potentially cue the applicant. LIMERICK: Replaced question.
42	Н	3							N	E S	NRC Early Review Question Reference provided: Embedded Reference; two digital recorders, one displaying Containment (i.e., Drywell & Torus) Temperatures, and the other Containment Pressures. NOTE: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: Questioning, based on the explanation for Distractor 'B', whether there could actually be two correct answers (i.e., Choices 'B' & 'D'). Given that Part 2 of the answer for Distractor 'B' is correct, and that Drywell Pressure is expected to rise due to failure of the SRV Tailpipe T-Quencher, could Choice 'B' also be

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										correct? With the Unit at 75% power (Initial Conditions), will the resultant Drywell Pressure exceed 1.68 psig, requiring entry into T-102, "Primary Containment Control," and action to maximize Drywell Cooling? Is it possible to validate the results of the SRV Tailpipe T-Quencher failure in the simulator? Label the Answer and Distractor Explanations. On the Pedigree Sheet, need to identify the Embedded Reference in the "Reference Provided" field. LIMERICK: Replaced question to address the 2 potential answers. Labeled Answer and Distractor Explanations. Removed Embedded Reference. NRC Supplemental Comment for Early Review Question (ERQ): Distractor A plausibility explanation states "With DW pressure > 1.68 psig, this vent path would be isolated." This statement is inaccurate for the conditions specified in Distractor A; i.e., DW pressure 1.20 psig and Suppression Pool pressure 1.72 psig Revise the explanation to appropriately address the plausibility of Distractor A, Part 2. Limerick Response to NRC Supplemental Comment for ERQ: Fixed plausibility explanation as requested.
43	н	3						N	E S	Question: In response to the Reactor Pressure Transmitter upscale failure, would not RPV Level be expected to initially rise prior to the SULC Valve repositioning to maintain RPV Level? If so, then an applicant could reasonably contend that (a) level did rise in response to the failure, (b) Choice B is therefore not entirely correct, and (c) Distractor A could be a second correct answer. Revision/Enhancement may be warranted based on the answer to this question. LIMERICK: Added 5 min to stem time. This allows time for settling.
44	Н	2						z	E S	NRC: Distractor A states "throttle flow with the HV-006-138 block valve." Should be HV-006-138A block valve. Same comment for Distractor A description on the Pedigree Sheet. References to LVC-006-138A in the plausibility explanations for Distractors A and C are incorrect. Should be LVC-006-138. LIMERICK: Revised as requested.

45	H F	1 2	x	x				₽ N	⊎ S	 NRC: Question UNSAT. Collection of Distractors point to the correct answer (Choice C). Each distractor consists of a range of values that provide no actual basis for individual selection given the information provided in the stem. With the SGTS Bypass Damper stuck closed, all air flow is directed through the B SGTS Fan. Because there is no way to determine even an approximate value for which any of the three distractors would be plausible, the applicant only need recall the proper D/P setpoint vale (i.e., ≤25 IN W.C.). What information would lead an applicant to incorrectly select (a) <0.00" to - 0.15" H₂0 over ≤ - 0.25" H₂0, or (b) 0.00" to + 0.15" H₂0 over ≥ + 0.25" H₂0 OR vice versa? LIMERICK: Replaced question.
46	Н	3						В	S	
47	Н	3						Z	S	NRC Early Review Question NRC: • Label the Answer and Distractor Explanations. LIMERICK: • Labeled Answer and Distractor Explanations.
48	₽ H	3						N	E S	 NRC: Explanation for Distractor A states "Plausible to the candidate that confuses the ASD Runback UPS with the ASD control power ASD." Should the last part of this sentence read " ASD control power UPS"? Last part of the explanation for Distractor D is awkwardly written and is confusing; i.e., " since the circuitry has no power or that if this power to the controller, the backup controller will take over." Improve the readability of the explanation. Level of Knowledge (LOK) is classified as Low Cognitive Level (LCL) (i.e., Fundamental) on the Pedigree Sheet. Appears that the question should be classified as High Cognitive Level (HCL) based on the guidance in NUREG-1021, Appendix A. Explain the Low Cog assignment. LIMERICK: Replaced with new HCL question.
49	Н	2					х	B M		Reference provided: Embedded Reference; Battery Ammeters (1A1 and 1A2) displaying DC amperes as a function of selector switch position (Positions 1 and 2). NOTE: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references."

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												NRC: NRC Question History Field on the Pedigree Sheet contains the number 2115215. Confirm that this question was not used on either of the previous 2
												NRC Exams?
												<u>LIMERICK</u> :
												 Verified this question was not used on either of the last 2 LGS NRC Exams (December 2019 and December 2018). Removed the question number from history block and added it in parenthesis to the "Bank" annotation in the question pedigree.
												Chief Examiner Comment (7/1/2021):
												 Upon further evaluation, determination made that the original question did not appropriately address the "Ability to prioritize" aspect of Generic K/A G2.4.45. New K/A randomly re-selected (System 263000, A3.01) and Question replaced with a Modified version of a Limerick Bank question.
50	F	3								N	S	
51	Н	3								N	S	
												NRC:
52	F	3								В	E S	Second sentence of the explanation for Distractor A is awkwardly written and is confusing; i.e., " Examinee who concludes that the 2BK101 air compressor has a motor large enough as to be powered from an LCC and recalls that the Examinee has believed that, he/she then recalls that the Instrument Air Compressors are" Improve the readability of the explanation.
												LIMERICK:
												Revised Distractor A to improve readability as requested.
												NRC Early Review Question Reference provided: Embedded Reference; TECW & RECW Pump Control Switches and Status Lights. NOTE: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references."
53	Н	3								N	E S	Recommend sharpening the Embedded Graphics to enhance the applicant's ability to visually interpret the information. Images submitted for early review are not optimum. If necessary, enlarge the images and use additional pages. Editorial: Answer Explanation, third sentence, is awkwardly written; i.e., "feeder breakers have an undervoltage trip which relay that will drop out" Enhance the readability of this statement. Distractor 'A' plausibility explanation addresses the indications for the TECW Pumps but not the RECW Pumps.

										 On the Pedigree Sheet, need to identify the Embedded Reference in the "Reference Provided" field. LIMERICK: Enlarged pictures to improve visibility. Revised 3rd sentence in the answer explanation. Added RECW plausibility statement. Added embedded picture to the reference provided field. NRC Supplemental Comment for Early Review Question (ERQ): Update the Pedigree Sheet "Reference Provided" field with the specifics of the Embedded Reference; i.e., "TECW & RECW Pump Control Switches and Status Lights". Limerick Response to NRC Supplemental Comment for ERQ: Pedigree updated as requested.
54	Н	3						N	E S	 Reference provided: Detached Reference (Separate Handout); ST-6-107-760-2, "Control Rod Exercise," Pages 1-6 NRC: Part 2 of the Question requires the applicant to determine the latest the Surveillance Test can be completed without exceeding the surveillance frequency. Is this considered RO knowledge at Limerick? Question acceptance contingent upon Licensee confirmation of RO knowledge. The date of 7/30/21 in Part 2 of Distractors A and C is incorrect. 92 Days from the date of last performance on 4/30/21 is 7/31/21. Note that the dates specified in the associated plausibility explanations are correct. LIMERICK: Part 2 of the Question is considered RO knowledge as confirmed by the exam technical reviewer. Corrected typographical error in second part of answers A and C to read 7/31/21.
55	F	2						В	S	2011 COLUMBIA NRC EXAM
56	F	2						N	₽ 00	NRC: • Pedigree Sheet states that a single steam flow indicator failing will result in the Total Steam Flow signal remaining at 21%. Is the 21% a correct value and how is it determined? The Percent Total Steam Flow Calculation on the Pedigree Sheet does not appear to yield the same result. Suspect that the Total Steam Flow signal should be 31%. LIMERICK:

1										Povigod anguer explanation typographical error to road 219/
<u> </u>	<u> </u>									Revised answer explanation typographical error to read 31%.
57	Н	3						Ν	S* S	Reference provided: Detached Reference (Separate Handout); OT-112, , "Unexpected/Unexplained Change in Core Flow," Attachment 4, "LGS Power Flow Operation Map, OPRM Operable – ALL Feedwater Heaters in Service" NRC: Satisfactory as written (S*), however, the reference provided for this question can be used to eliminate Distractor D in Q1. Determine appropriate resolution. LIMERICK: Distractor D in Q1 was replaced.
58	F	3						В	S	
59	F H	3						Ν	E S	NRC: Level of Knowledge (LOK) is classified as Low Cognitive Level (LCL) (i.e., Fundamental) on the Pedigree Sheet. Appears that the question should be classified as High Cognitive Level (HCL) based on the guidance in NUREG-1021, Appendix A. Explain the Low Cog assignment. LIMERICK: Reclassified as HCL question.
60	F	3						В	S	
61	# F	3					×	В		2012 LGS NRC EXAM (Replacement Question) NRC: K/A mismatch. Question, as written, would be a match for K/A K6.07, "Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM: Turbine inlet pressure." K/A (K5.04) states "Knowledge of the operational implications of the following concepts as they apply to REACTOR/TURBINE PRESSURE REGULATING SYSTEM: Turbine inlet pressure vs reactor pressure." Intent of the K/A is to test applicant knowledge of the 30 psig regulation band associated with the change in Pressure Averaging Manifold (PAM) pressure as steam line flow increases. As PAM pressure rises from 960 to 990 psig, Reactor pressure rises from 960 to 1045 psig. Reactor pressure rises non-linearly to a higher value due to increased differential pressure caused by MSL head loss as steam line flow increases. Recommend replacing this question with Bank Question #61 from the LGS 2012 October Exam. Note: suggested change would make the question LOK 'F' versus 'H'.

										Replaced with new LCL question from 2012 Exam.
62	Н	3						Z	E S	 NRC: Stator Cooling Water (SCW) runback description at the top of the Pedigree Sheet specifies two different times (i.e., 3 minutes and 3-1/2 minutes) for the runback to reduce generator load to 21.4% or 7469 amps. Which time is correct? Distractors C and D both state "Plausible to the candidate who recalls that 9 seconds after a Loss of Stator Cooling, the 'A' RRP will runback but only if FW flow >6.7 mlbm/hr" If the applicant recalls that FW flow has to be >6.7 mlbm/hr for the runback to occur, as stated in the explanations for Choices C and D, then what would make the 42% speed options plausible? Plausibility of Distractors C and D depends upon the applicant mistakenly believing FW flow to be >6.7 mlbm/hr. Revise the explanations for Distractors C and D accordingly. Importance Rating on the Pedigree Sheet is incorrect; should be 2.9 instead of 3.9. LIMERICK: Revised typographical error of 3 minutes to 3 ½ minutes. Revised Distractors C and D explanations. Fixed typographical error of importance rating.
63	н	2						Z	E S	Reference provided: Embedded Reference; Hotwell Level Controller NOTE: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: On the Pedigree Sheet, need to specify that the Embedded Reference is the "Hotwell Level Controller." Editorial error in the last sentence of the transient description on the Pedigree Sheet; i.e., "the condensate fine reject valve will controller signal will go to the full reject open and" LIMERICK: Pedigree Sheet for question updated as requested. Editorial error fixed as requested.
64	Н	2						В	S	NRC: NRC Question History Field on the Pedigree Sheet contains the number 2057821. Confirm that this question was not used on either of the previous 2 NRC Exams? LIMERICK: Verified that question was not present on either of the last 2 NRC exams.
65	Н	3						В	S	

66	F	2						N	E S	NRC: The explanation for Part 2 of Distractor C is missing. The explanation for Part 2 of Distractor D belongs with Part 2 of Distractor C. LIMERICK: Corrected mislabeling of Distractors C and D.
67	F	2						В	E S	2016 LGS NRC EXAM NRC: Plausibility associated with Distractor D is questionable; .i.e., No rubber gloves but a PPE requirement for face shield and insulating blanket to conduct a "proceduralized" bypass of the RWCU low flow trip by installing a jumper in the 125 VDC logic circuitEnhancement required. LIMERICK: Added rubber gloves to distractor D.
68	F	2					х	В	⊎ s	2016 LGS NRC EXAM NRC: NRC: K/A mismatch. Generic K/A 2.2.6 states "Knowledge of the process for making changes to procedures." Question, as written, does not test any aspect of the actual process for making procedure changes prescribed in AD-AA-101, "Processing of Procedures and T&RMs". LIMERICK: Replaced the question.
69	F	3						N	S	
70	F	2						В	S	NRC: NRC Question History Field on the Pedigree Sheet contains the number 980302. Confirm that this question was not used on either of the previous 2 NRC Exams? LIMERICK: Verified that question was not present on either of the last 2 NRC exams.
71	Н	3						В	s	NRC: NRC Question History Field on the Pedigree Sheet contains the number 738395. Confirm that this question was not used on either of the previous 2 NRC Exams? LIMERICK:

											Verified that question was not present on either of the last 2 NRC exams.
72	F	2							В	S	2012 LGS NRC EXAM
73	F	3							N	s	NRC Early Review Question NRC: • Label the Answer and Distractor Explanations. LIMERICK: • Labeled Answer and Distractor Explanations.
74	F	3							Z	E S	NRC: Part 1 question statement reads "IAW, OP-LG-101-111, Shift Staffing Requirements, a MINIMUM of Fire Brigade Members must be onsite to respond to this fire." The stem provides no information that a fire has occurred or is in progress. LIMERICK: Revised stem, changed "this" to "a".
75	F	2							N	S	
76	Н	2							В	E S	NRC: Explanation for correct Choice D does not address Part 2 of the answer. LIMERICK: Added applicable Tech Spec 3/4.4.1 basis discussion to choice D, to address part 2 of the answer.
77	Н	3							В	S	2018 LGS NRC EXAM (Previous 2 NRC Exams)
78	н	4 2						×	Ν	⊎ S	Reference provided: Detached Reference (Separate Handout); EP-AA-1008, Addendum 3, Emergency Action Levels For Limerick Generating Station, Table LGS 2-1, Emergency Action Level (EAL) Matrix, Page 2-15 with RG2 and RS2 blocked out or covered. NRC: LOD=1. Part 1 of the question is RO knowledge (OPCON determination). Part 2 requires selection between either the ALERT or UNUSUAL EVENT (UE) classifications. An applicant at the RO license level can easily eliminate the UE with the reference provided, given that no UNPLANNED water level drop in the REFUELING PATHWAY occurred. SEPARATELY: Pedigree Sheet "References Provided" field indicates that RG2 and RS2 on EAL Matrix Page 2-15 will be blocked out or covered. Neither RG2 or RS2 were blocked out on the reference document provided with the

											submittal. What information is actually being provided to the applicants? Stem states that ON-121 is entered; should actually be ON-120, "Fuel Handling Problems." Noun name not provided for the ON procedure. LIMERICK: Column 1 - has been changed to require SRO LOK. Column 2 - revised the stem to include information that results in both thresholds for RU2 being met, making RU2 applicable but still incorrect. This requires SRO to choose the highest classification. Providing the entire page as a reference.
79	I	2						×	Z	E S	 Reference provided: Embedded Reference; Heat Capacity Temperature Limit (HCTL) Curve, with the SAFE and UNSAFE regions unmarked. NOTE: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: Pedigree Sheet answer explanation incorrectly references T-117 Steps LQ/P-14 and 15, which are for Emergency Blowdown (ED). The stem does not provide information that an ED is required (i.e., inability to stay below the HCL curve). IF-THEN Step LQ/P-4 to control pressure should instead be referenced based on plant conditions in the submitted version of this question. Question is borderline SRO License Level. Recommend raising the LOD of this question by providing conditions where HCL has exceeded the 701-900 psig RPV Pressure Curve and requiring the SRO applicant to evaluate whether the required action is to ED (Step LQ/P-15) or lower pressure IAW LQ/P-4 to control pressure below the 501-700 psig RPV Pressure Curve. Update the Pedigree Sheet "Reference Provided" field with the specifics of the Embedded Reference; i.e., "Heat Capacity Temperature Limit (HCTL) Curve," with the SAFE and UNSAFE regions unmarked. LIMERICK: Revised question to exceed HCTL as suggested, making T-117 Steps LQ/P-14 and 15 applicable and correct. Updated pedigree as requested.
80	Н	3							N	S	
81	Н	2							Ν	E S	NRC Early Review Question NRC: Suggest revising the second bullet in the stem to read "A report of fire and heavy smoke in the RCIC room is called in to the MCR." This change serves to enhance the plausibility of Distractor 'C' with respect to SE-8 being the controlling procedure. Label the Answer and Distractor Explanations.

										LIMERICK: Revised second bullet in the stem as requested. Labeled Answer and Distractor Explanations.
82	т	3						В	E S	NRC: Suggest changing the 500 KV Switchyard Voltage from 499 to 500 KV to further test the SRO applicant's ability to determine the operational status/operability of the 20 BUS SOURCE based on the 230 KV Switchyard Voltage of 224 KV. K/A No. referenced on the Pedigree Sheet is incorrect; should be AA2.05 instead of AA2.02. K/A Stem Statement referenced on the Pedigree Sheet is for K/A No. AK3. This is incorrect; should be the Stem Statement for AA2. Question, as written, is an appropriate K/A Match for AA2. Label the Answer and Distractor Explanations. LIMERICK: Revised Stem value to 500KV. Changed K/A to AA2.05 Changed K/A wording to correct wording for AA2. Labeled Answer and Distractor Explanations. NRC Supplemental Comment for Early Review Question (ERQ): Stem value for the 500 KV Switchyard Voltage was not revised as indicated in the above response (i.e., Revised Stem value to 500 KV). Different values were used for both the 230 KV and 500 KV Switchyard Voltages than had been previously discussed for the ERQ revision. Specifically, the 230 KV voltage was changed from 224 KV to 225 KV. The 230 KV voltage was not supposed to have been changed. In addition, the 500 KV voltage was changed from 499 KV to 495 KV. The 500 KV voltage was supposed to have been changed from 499 to 500 KV. These revisions changed the correct answer from D to B. Limerick Response to NRC Supplemental Comment for ERQ: Revised question to allow for answering without references based on must know requirements. Changed 230 KV to 224 KV per follow-up discussion with Chief Examiner. Changed 500 KV to 499 KV per follow-up discussion with Chief Examiner.
		_								Reference provided:
84	Н	2					Х	В	U S	Embedded Reference; SRV Tail Pipe Level Limit (STPLL) Curve, with the SAFE and UNSAFE regions unmarked.

											PRIMARY CONTAINMENT PRESSURE LIMIT (PCPL) CURVE Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." NRC: K/A mismatch. Question, as written, would be a match for K/A EA2.01, "Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Suppression pool water level." Question 84 K/A is EA2.03, Drywell/containment water level. Downcomer Vacuum Breaker plausibility explanation belongs in Distractor D, not Distractor C. LIMERICK: Rewrote question to require determination of containment level and action to vent the Drywell
-	85	Н	3						z	E S	NRC Early Review Question References provided: Embedded Reference; SAMP-2 H2 and O2 Concentration Tables for Drywell (DW/G-1) & Suppression Pool SP/G-1) Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." Detached Reference (Separate Handout); TSG-3.3 (Page 1), "Limerick Generating Station Technical Support Guideline Guidance and Criteria for Primary Containment Venting / Inerting / Purging' NRC: Stem indicates that Suppression Pool (SP) H2 Concentration is 5.7%, whereas the Pedigree Explanation immediately below the SAMP-2 Table graphic states that SP H2 Concentration is 3%. This discrepancy does not appear to impact the correct answer choice. Resolve this item. Distractor 'B' Plausibility Explanation for how DW/G-1 could be selected as the correct strategy, "by using DW H2 Concentration instead of SP H2 Concentration in the 4th row," is confusing. It appears that a DW/G-2 determination still results if the H2 Concentration data is misapplied as described in the explanation. Clarification required. On the Pedigree Sheet, need to identify the Embedded Reference in the "Reference Provided" field. Label the Answer and Distractor Explanations. LIMERICK: Updated question to include 2nd table with appropriate distractor changes to make SP venting plausible. Revised the plausibility explanations accordingly. Added embedded picture to the reference provided field. Labeled Answer and Distractor Explanations.
	86	Н	3				I		В	S	2015 LGS NRC EXAM

										E	Reference provided: Detached Reference (Separate Handout); ARC-MCR-113 B5, "Core Spray Internal Break," Pages 1-2; LGS U1 Tech Spec 3.5.1, "ECCS – Operating," Pages 5-1 thru 5-3 NRC: Remove the parenthetical information "Assume no RCIT" from the question statement. This information (a) is not required to answer the question, (b)
87	Н	2	X						N	S	 appears in the Tech Spec (TS) Reference paragraph that corresponds to the correct answer (i.e., ACTION a.1), and (c) is leading, with the potential to cue the SRO applicant. Underline the word "most" in the question statement for consistency with the convention utilized throughout the exam (e.g., Q13, Q39, Q76, etc). LIMERICK: Revised question as requested.
											2017 LGS NRC EXAM
88	н	2 3						×	Z B	⇒ o	Reference provided: Embedded Reference; SRM Quadrant Boundaries Note: Embedded pictures, sketches, drawings, and graphs, with exception, are considered to be "references." Detached Reference (Separate Handout); SRM Count Rate Versus Signal To Noise Ration Curve (TS Figure 3.3.6-1) NRC: • Question can be answered using RO knowledge. ROs are expected to know the LCO statements and associated applicability information (i.e., information above the double line separating the ACTIONS from the LCO and associated applicability statements). ROs are also expected to know ≤ 1 Hour LCO ACTION requirements. Tech Spec (TS) 3.9.2 requires the IMMEDIATE suspension of Core Alterations when the requirement to have 2 Operable SRMs (i.e., one in the quadrant where Core Alterations are being performed and the other in an adjacent quadrant) is not met. SUGGESTION: Given that CORE ALTERATIONS are in progress (OPCON 5 Core Shuffle), consider incorporating a determination of SRM operability based on evaluation of the SRM "Signal-to-Noise Ratio Curve" shown in TS Figure 3.3.6-1 (reference the single asterisked item associated with Surveillance Requirement 4.9.2.c.2), as a possible alternative for ensuring K/A compliance at the SRO License Level. Refer to SRO Question #87 from the LGS 2012 October Exam regarding this concept. SEPARATELY: • Correct Answer A states "Suspend all Core Alterations and insert SRM "D" fully per GP-6.2." GP-2 only provides direction to suspend Core Alts. GP-6 provides no direction regarding SRM insertion. • Distractor B states "Enter ON-122 and ensure that visual indication and

										audible alarm available in MCR." ON-122 only addresses the audible alarm associated with the SRM; there is no mention of visual indication. Explanation for Distractor B states "Plausible to the candidate who recalls the step in ON-122 which directs suspending Core Alts if visual and/or audible indication is lost." ON-122 only addresses the audible alarm associated with the SRM; there is no mention of visual indication. Explanation for Distractor C incorrectly references SRM B. Update the Pedigree Sheet "Reference Provided" field with the specifics of the Embedded Reference; i.e., "SRM Quadrant Boundaries" LIMERICK: Replaced question with SRM S/N ration question from 2017 NRC exam.
89	н	2	x					N	E S	NRC: The three DC Undervoltage Alarms are leading and can potentially cue the SRO applicant to correct Answer B, "Inject with RCIC using T-305, Local Operation of RCIC without DC Power," given that Choice B is the only option that contains the words "without DC Power". SRO applicants should (a) know that DC power loss has either occurred or is imminent given the Station Blackout conditions and the 4-hour duration time specified in the stem, and (b) be able to reasonably conclude that DC Undervoltage Alarms are therefore expected to activate as a result of these conditions. Sufficient information exists to correctly answer this question without listing the DC alarms, given that the Title for T-305 has been provided. Recommend removing the DC Undervoltage Alarm information. LIMERICK: Removed DC alarms as requested. Changed time to 5 hours.
90	Н	3						N	E S	Confirm that use of the word "Verify" in Distractors C and D is not synonymous with "Ensure" at Limerick. Explanation for Distractor D is deficient. Explanation does not address Part 1 of the answer and provides the plausibility for Part 2 of Distractors A and C rather than that of D. LIMERICK: Limerick Procedures AD-LG-101-1001 and OP-LG-101-101 define Verify as to check the status of an item, component, etc. Ensure is to check the status of the item, component, and if not in the proper state, make the necessary corrections to put it in the proper state. The terms are not synonymous. Revised distractors as requested.
91	Н	3		х				N	⊎ S	Part 1 of Distractors C and D are not credible and can therefore be easily eliminated, given the fact that indicated Recirc Loop Flows are already within

										 5% of each other. In addition, no reasonable explanation of plausibility has been provided for Distractor C in terms of how "Maintaining the ability to flood the reactor to 2/3 core height" could be a possible basis for "Raising the speed of the 2A RRP to increase A loop flow to within 5% of the B loop." Explanations for Distractors B and D are incorrectly labeled; B should be D, and D should be B. LIMERICK: Rewrote question to require candidate to determine procedure action and select the correct basis.
92	н	3		X				В	₽ S	 NRC: Questioning the plausibility of Part 2, "Verify position of control rods within 1 hour," for correct Answer D (and Distractor B). Stem indicates that 10Y201, Circuit 15, has de-energized. Discussion section of ON-127, "Loss of RPIS," states; "On a loss of an RPIS power supply, the affected control rods' indication on the full core display is not functional. The only means to verify rod position for control rods that have lost power to RPIS is using IC-11-00730, "Determining Control Rod Position Using the Rod Position Analyzer". If the failure mechanism for the RPIS Inoperative alarm is a loss of a power supply, the 1 hour action for per T.S. 3.1.3.7 cannot be met. IC-11-00730 must be completed within 12 hours, otherwise the reactor must be placed in Hot Shutdown IAW T.S. 3.1.3.7." How is it possible to comply with the 1-hour TS requirement if using IC-11-00730 to determine rod position? Questioning the plausibility of Part 2 for Distractors A and C. "Verifying no control rod drift alarm at least once per 12 hours," following confirmation of a loss of power supply does not seem credible. Conservatively speaking, 12 hours would be a long time to verify the alarm, especially considering that ST-6-107-590-1, "Daily Surveillance Log – Control Room," contains a requirement to check the alarm clear twice per shift. IAW TS 3.1.3.7, verifying the absence of a Control Rod Drift Alarm once per 12 hours is only performed as a follow-up action after having first determined rod position within the first hour (to ensure TS compliance) by moving it a single notch and then returning it back to the original position. LIMERICK: Enhanced question to require candidate to select procedure to determine rod position and appropriate action.
93	Н	3						N	E S	Reference provided: Detached Reference (Separate Handout) LGS U1 TRM 3.3.7.9, "Fire Detection Instrumentation," Pages 3-92 thru 3-96

										 LGS U1 TRM 3.7.6.2, "Spray and/or Sprinkler Systems," Pages 7-22 thru 7-23 NRC: Part 2 question statement reads "WHICH ONE of the following identifies whether or not a TRM 3.7.6.2 entry is potentially required for an automatic sprinkler/spray system affected by the failed detector?" Explain use of the underlined word "potentially" in this statement. NOTE: Last sentence of the correct answer discussion states "Therefore, from the 0/3 listed on Table 3.3.7.9-1, we can conclude that this failed heat detector is required for that Fire Zone's sprinkler system." There is no reference to, or mention of, the word "potentially" in the answer explanation. Use of this qualifier introduces an element of ambiguity and does not appear to be warranted. LIMERICK: Removed the word "potentially".
94	F	2						В	E S	 2010 OYSTER CREEK NRC EXAM NRC: Question is Borderline LOD=1. Items 1 and 3 for "Withdrawal and "Insertion of fuel" within the vessel are "equivalent/synonymous" Core Alteration activities compared to Item 2 for "Control Rod removal from a defueled cell." Recommend raising the LOD of this question by (a) replacing either the "Withdrawal" or "Insertion" activity with a different Core Alt (i.e., Source or viable Reactivity Control Component) and (b) replacing the Item 2 "Control Rod Removal" activity with any one of the exceptions not considered to be a Core Alteration, as defined in Tech Spec Def 1.7, CORE ALTERATION (i.e., SRMs / LPRMs /TIPs etc). RECOMMENDATION: While Q94 is an acceptable K/A Match for associated Generic 2.1.37, "Knowledge of procedures, guidelines, or limitations associated with reactivity management," it is a better and more appropriate K/A Match for Generic 2.1.40, "Knowledge of refueling administrative requirements," in Q95. Procedures OP-AB-300-1001, 1003, 1005 may serve as good sources of information for Tier 3 Generic 2.1.37. LIMERICK: Replaced question to match the KA.
95	F	3					X	N	U S	Reference provided: Detached Reference (Separate Handout); Tech Spec 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control (WIC)," Pages 5-6, 5-6a, 5-7 NRC: K/A Mismatch. Conditions provided in the stem place the Unit in a Refueling Outage. However, the question does not in any way evaluate SRO applicant knowledge of Refueling Administrative Requirements. Per ES-401, Paragraph D.2.a (last sentence), questions selected for Tier 3 are to maintain their focus on the plant-wide generic K/As, and are not to become

										 an extension of Tier 2 Plant systems. As written, the ability to apply Technical Specifications using system-specific knowledge is required to answer this question correctly, making it an extension of Tier 2. "Cognitive Level" Filed on the Pedigree Sheet identifies the LOK as "Low". LOK for this question, as written, is "High". On the Pedigree Sheet, need to update the "Reference Provided" field to reflect the actual page numbers that comprise the TS 3.5.2 reference. RECOMMENDATION: While Q94 is an acceptable K/A Match for associated Generic 2.1.37, "Knowledge of procedures, guidelines, or limitations associated with reactivity management," it is a better and more appropriate K/A Match for Generic 2.1.40, "Knowledge of refueling administrative requirements," in Q95. Level of Knowledge (LOK) is classified as Low Cognitive Level (LCL) (i.e., Fundamental) on the Pedigree Sheet. Appears that the question should be classified as High Cognitive Level (HCL) based on the guidance in NUREG-1021, Appendix A. Explain the Low Cog assignment. LIMERICK: Original Question 94 of the submittal (Low Cog Question) was used to replace original Question 95.
96	F	2	x					В	E S	Plausibility associated with Distractor A is questionable (i.e., Temporary Configuration Change Package (TCCP) required for the removal of fuses under the conduct of a Routine Test procedure). Suggest replacing Distractor A with a different "controlled exclusion" from Section 4.2.1 of CC-AA-112, "Temporary Configuration Changes." Remove the parenthetical information included as part of Distractor B. This information is unnecessary and has the potential to lead/cue the SRO applicant. LIMERICK: Replaced Distractor A with Freeze Seals. Removed parenthetical information included as part of Distractor B.
97	н	2		х				N	E S	 NRC: Distractors C is highly implausible. The concept of administratively declaring an Inoperable piece of equipment Operable prior to the performance of a PMT to demonstrate its Operability (Distractor C), is not credible. Enhance Distractor A by specifying TRM LCO 3.0.3. The distinction makes huge difference regarding the plausibility of this distractor and the determination of whether the question is SAT or UNSAT. Enhance Answer D by specifying TRM LCO 3.0.5. Labeled Answer and Distractor Explanations. LIMERICK: Distractor C was replaced with TRM LCO 3.0.7.

98	Н	3						В	S	Distractors A and D enhanced with TRM LCO 3.0.3 and TRM LCO 3.0.5 respectively. Labeled Answers and Distractor Explanations as requested. 2015 LGS NRC EXAM
99	F	2						Ν	E S	Enhance the plausibility explanations for Distractors B and D with the information that Security Related Events warrant expedited communications to the NRC; i.e., NRC Notification within 15 minutes. LIMERICK: Enhanced B and D Distractors with NRC Notification within 15 minutes for security events.
100	п	ω						N	₽ 8	Reference provided: Detached Reference (Separate Handout); EP-AA-111-F-11, "Limerick PAR Flowchart," Pages 1-4 NRC: Remove the parenthetical qualifier "if any" from the question statement. There are no answer choices for which the "if any" qualifier is applicable. On the Pedigree Sheet, need to update the "Reference Provided" field with the Page information. LIMERICK: Removed "if any" from stem. Updated Pedigree sheet with reference information as requested.

Facility: LIMERICK GENERATING STATION

	B= 26	F= 31	E= 35	
RO TOTALS:	M= 2	H= 44	U= <mark>8</mark>	Additional Notes: 10.7% of RO questions assessed as unsatisfactory.
	N= 47			
	B= 11	F= 4	E= 15	
SRO TOTALS:	M= 0	H= 21	U= 5	Additional Notes: 20.0% of SRO questions assessed as unsatisfactory.
	N= 14			

GENERAL COMMENTS:

- 2. Questions from the previous 2 NRC Exams: <u>2</u> (RO)/<u>1</u> (SRO)