Susquehanna Training Center
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ppl

September 16, 1999

Mr. John Caruso
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

Susquehanna Training Center
SRO Examination
PLA 0005112 Files A14-13D, R41-2

Dear Mr. Caruso:

Enclosed is a final copy of the SRO exam questions we propose to administer to our two candidates Tuesday, September 21, 1999 beginning at 8:00 A.M

I have also included a list of the changes made to the original set of questions sent to you previously. Enclosed are any questions that have had wording changes since they were last sent to you.

Pursuant to ES-201 of NUREG-1021, Rev. 8, these materials are to be withheld from public disclosure until after the examination is complete.

If any additional information is required, please contact Russ DeVore at (570) 542-3882.

Howard J. Palmer
Manager-Nuclear Training

Enclosures

Response: No

cc: C. Fedako
A.S. Fitch
G.J. Radishofski
Licensing
NTG Files
Nuc Records - Site

rbd2999

HJP/RBD/vah

A070

September 16, 1999

Mr. Caruso,

The following changes were made to Rev 0 of the Susquehanna written SRO License Exam and are included in the attached copy of the proposed exam.

1. Question 11. Corrected a typo in the stem (instruments) and corrected the explanations.

2. Question 14. Expanded the explanation of the correct answer.

3. Question 18. Changed the stem by asking the question more directly. The choices were also altered.

4. Question 22. Expanded explanation of the correct answer.

5. Question 23. Changed the flow indication to 2000 gal so that the question is technically correct. The min flow valve will not open unless flow indicates less than 2400 gal (for 30 sec).

6. Question 25. Simplified the stem and choices.

7. Question 29. Changed the stem to a more direct question.

8. Question 30. Changed the stem to a more direct question.

9. Question 32. Replaced the question.

10. Question 33. Changed the stem for clarification also made it read condensate and/or feedwater. The distractors were also changed.

11. Question 34. Added a statement about the condition of the Lo Load Valve control in the stem.

12. Question 35. Replaced the question. Modified the replacement question (Choice D).

13. Question 37. Corrected a typo (filed to field).

14. Question 39. Replaced the question.

15. Question 42. Underlined the word required and expanded the explanation for one of the incorrect answers.

16. Question 44. Reworded the stem for clarification.

17. Question 49. Changed the stem to prevent a double jeopardy with another question (question 36). (The old question 49 essentially gave the correct answer for question 36. Now it does not, so we kept question 36 and altered 49.)

18. Question 54. Replaced the question. This is a new question.

19. Question 56. Expanded the explanation of the correct answer. Clarified references.

20. Question 57. Corrected typos (switch and pressure in the stem and permissive in distractor A).

21. Question 58. Noted that Section 2 of Tech Specs will not be given to the candidates. Corrected a typo (mblm to Mlbm). Made the explanations clearer.

22. Question 61. Capitalized Pool twice in the stem.

23. Question 62. Replaced the question. Modified the replacement question (Stem and choices).

24. Question 64. Changed the "A' choice to read "Table 4 subsystem" so that there is no confusion with the Tech Spec definition of a subsystem..

25. Question 67. Reworded the stem for clarification.

26. Question 71. Replaced the question.

27. Question 72. Changed the stem to a more direct question.

28. Question 75. Changed the stem and the distractors due to a technical error. Only HPCI will swap suctions and only if it is given an injection signal. Enhanced the explanation of the correct answer.

29. Question 76. Changed the stem to a more direct question.

30. Question 78. Reworded the stem.

31. Question 79. Changed the question. Changed the LOK and LOD.

32. Question 82. Capitalized Building.

33. Question 86: Underlined "all" and "no" in choices.

34. Question 88: Corrected typos in "D" distractor (Removed a second "100% power". Corrected inadvertent).

35. Question 89. Changed the question. Modified the changed question be capitalizing Pool (numerous times) and Bypass Valves.

36. Question 91. Changed Suppression Pool level to eliminate subjectivity of choices. Capitalized Chamber in the stem.

37. Question 92: Corrected procedure reference in stem and in notes. (ON-203-003)

38. Question 96. Added a reference.

39. Question 97. Changed the explanation of the correct answer.

40. Question 100. Replaced the question. Modified the replacement question by expanding the explanation for "A". Also modified the replacement question to eliminate the possibility of two correct answers.

Included are copies of the questions that have been changed as discussed in our phone conversation of 9/15/99.

I have also included a final copy of the exam that we plan to give 9/21/99 starting at 0800.

If you have any questions, give me a call.

Sincerely,

Russ

Russell B. DeVore

Facility: Susquehanna SES Date of Exam: 9/20/99 Exam Level: Initial SRO

Tier	Group	KA Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G*	
1. Emergency and Abnormal Plant Evolutions	1	4	5	5				6	3			3	26
	2	3	4	3				3	1			3	17
	Tier Totals	7	9	8				9	4			6	43
2. Plant Systems	1	2	2	3	2	2	4	2	1	2	1	2	23
	2	1		1	2	1	1	1	1	2	1	2	13
	3				1	1			1			1	4
	Tier Totals	3	2	4	5	4	5	3	3	4	2	5	40

3. Generic Knowledge and Abilities	Cat 1	Cat 2	Cat 3	Cat 4	
	4	5	4	4	17

Note: 1. Ensure that at least two topics from every K / A category are sampled within each tier (i.e., the 4 Tier Totals" in each K / A category shall not be less than two).
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6. *The generic K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

ES-401 BWR SRO Examination Outline Form ES-401-1
Emergency and Abnormal Evolution – Tier 1/1Group1

E / APE # / Name / Safety function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp	Points
295003 Partial or Complete Loss of AC Pwr /6				1			HPCI operation during station blackout	3.3	2
			1				Effects of load shedding logic	4.4	
295006 SCRAM /1					1		RPS logic effects with mode switch in shutdown	4.6	2
			1				Immediate operator actions on a scram	4.3	
295007 High Reactor Pressure /3	1						Plant response to pressure set increase	3.9	2
			1				SRV response to high pressure	3.2	
295009 Low Reactor Water Level /2		1					Relationship between low level and recirc system	3.2	1
295010 High Drywell Pressure /5				1			Isolations at high drywell pressure	2.6	1
295013 High Suppression Pool Temp. /5				1			Stuck open SRV consequences	3.9	1
295014 Inadvertent Reactivitv Addition / 1					1		Cause of a reactivity change	3.9	2
	1						Results of a reactivity anomaly	3.7	
295015 Incomplete SCRAM /1		1					Actions required to complete a scram	4.1	1
295016 Control Room Abandonment / 7									
295017 High Off-site Release Rate / 9						1	Entry requirements for EO-105	4.1	2
				1			Results of a Rod Drop Accident	3.7	
295023 Refueling Accidents Cooling Mode /8									
295024 High Drywell Pressure /5				1			Plant response to a small break LOCA	3.9	2
		1					MSIV response to high drywell pressure	3.4	
295025 High Reactor Pressure /3		1					ECCS operation at high pressure	3.6	1
295026 Suppression Pool High Water Temp. /5						1	Supp Pool temperature requirements for a scram	3.6	2
					1		Action for high supp pool temperature	4	
295027 High Containment Temperature /5									
295030 Low Suppression Pool Water Level /5		1					RHR operation with low supp pool level	3.8	1
295031 Reactor Low Water Level /2						1	Response to loss of condensate pump	4.6	2
				1			HPCI problem while operating	4.5	

ES-401 BWR SRO Examination Outline Form ES-401-1 Emergency and Abnormal Evolution – Tier 1/1Group1									
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown /1	1		1				Depressurization during ATWS ARI during an ATWS	4.2 3.9	2
295038 High Off-site Release Rate/9	1		1				General Emergency release rates Release rates requiring rapid depressurization	4.4 3.9	2
500000 High Containment Hydroqen Conc. /5									
K / A Category Totals:	4	5	5	6	3	3	Group Point Total:		26

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

Emergency and Abnormal Evolution – Tier 1/ Group2

E / APE # / Name / safety function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp	Points
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1						1	Response to loss of recirc flow	4.1	2
				1			Flow instrumentation during loss of recirc flow	2.9	
295002 Loss of Main Condenser Vacuum /3	1						Loss of steam se4als with vacuum	3.4	1
295004 Partial or Total Loss of DC Pwr / 6						1	Restoration of ECCS control power	3.6	2
				1			Alternate control power for ECCS	4.1	
295005 Main Turbine Generator Trip /3					1		Response to a failure to trip	2.9	2
		1					Results of a high vibration turbine trip	2.7	
295008 High Reactor Water Level /2		1					RCIC response to high vessel level	3.6	1
295011 High Containment Temperature / 5									
295012 High Drywell Temperature / 5									
295018 Partial or Total Loss of CCW / 8			1				Response to RBCW leak	3.2	1
295019 Partial or Total Loss of Inst. Air /8		1					HVAC response to loss of instrument air	2.9	1
295020 Inadvertent Cont. Isolation / 5 & 7				1			Response to drywell cooling isolation	3.2	1
295021 Loss of Shutdown Cooling / 4									
295022 Loss of CRD Pumps / 1	1						Consequences of loss of CRD flow	3.7	1
295028 High Drywell Temperature / 5			1				Increased drywell cooling due to high D/W temp	4.1	1
295029 High Suppression Pool Water Level / 5									
295032 High Secondary Containment Area Temperature / 5						1	Bypassing containment high temp isolation logic	3.4	1
295033 High Secondary Containment Area Radiation Levels / 9		1					How area rad levels are monitored	4	1
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area water Level / 5	1						Results of high area water level	2.8	2
			1				Depressurizing due to high area water levels	3.6	
600000 Plant Fire On Site / 8									
K / A Category Totals:	3	4	3	3	1	3	Group Point Total:		17

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

Plant systems Tier 2 / Group 1

System / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topics	Imp	Points
201005 RCIS														
202002 Recirculation Flow Control							1					Input transient effect on recirc flow control system	2.9	2
								1				Scoop tube signal failure	3.1	
203000 RHR/LPCI: Injection Mode		1										RHR pump interlocks	3.5	1
206000 HPCI			1									HPCI isolation due to a steam leak	4	2
					1							HPCI line vacuum breaker operation	3.2	
207000 Isolation (Emergency) Condenser														
209001 LPCS											1	Core Spray pumps affecting reapid depressurization	4	2
		1										Core Spray isolation logic power	3.1	
209002 HPCS														
211000SLC					1							SBLC tank level instruments	3.2	1
212000 RPS				1								Basis for RPS scram inputs	3.6	2
						1						RPS trip logic	3.1	
215004 Source Range Monitor	1											SRM rod blocks	3.4	1
215005 APRM / LPRM														
216000 Nuclear Boiler Instrumentation										1		Vessel level instrumentation status	3.1	2
						1						Drywell temp effects on level accuracy	2.8	
217000 RCIC			1									Realignment from pressure control	3.6	1
218000 ADS											1	Instrumentation required for ADS	3.7	2
						1						ADS response during a LOCA	3.1	
223001 Primary CTMT and Auxiliaries														
223002 PCIS/Nuclear Steam SUPPLY Shutoff							1					Manual N4S initiation	2.8	1
226001 RHR/LPCI: CTMT Spray Mode				1								Rad monitoring during Supp Chamber Spray	2.9	1
239002 SRVs									1			SRV open indication	4.3	2
						1						Tailpipe vacuum breaker failure	3.2	

ES-401 BWR SRO Examination Outline Form ES-401-1 Plant systems Tier 2 / Group 1														
241000 Reactor/Turbine Pressure Regulator			1									Max combined flow limiter failure	4.3	1
259002 Reactor Water Level Control	1											Support system requirement for level control	3.1	1
261000 SGTS														
262001 AC Electrical Distribution														
264000 EDGs														
290001 Secondary CTMT									1			HVAC response to high rad	4	1
K / A Category Totals:	2	2	3	2	2	4	2	1	2	1	2	Group Point Total:		23

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

Plant systems Tier 2 / Group 2

System / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topics	Imp	Points
201001 CRD Hydraulic														
201002 RMCS														
201004 RSCS														
201006 RWM									1			Position indication failure	3.2	2
					1							Design basis	3.7	
202001 Recirculation			1									Coolant sampling flowpath	2.5	1
204000 RWCU						1						Autoclosure of isolation valve	2.6	1
205000 Shutdown Cooling								1				Recovery from Loss of SDC	3	1
214000 RPIS														
215002 RBM						1						RBM Rod Blocks	3.5	1
215003 IRM							1					IRM generated Rod Block	3.4	1
219000 RHR/LPCI: Torus/Pool Cooling Mode										1		Swapping from pool cooling to injection	2.9	1
230000 RHR/LPCI: Torus /Pool Sprav Mode														
234000 Fuel Handling Equipment				1								Refuel platform interlock	4.1	1
239003 MSIV Leakage Control														
245000 Main Turbine Gen. and Auxiliaries									1			Main Turbine Oil Pump operation	2.6	2
	1											Effect of TBCCW on EHC	2.6	
259001 Reactor Feedwater														
262002 UPS (AC/DC)														
263000 DC Electrical Distribution											1	Scram with loss of annunciators	3.5	1
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
290003 Control Room HVAC											1	Control of HVAC from outside Control Room	3.6	1
300000 Instrument														

ES-401 BWR SRO Examination Outline Form ES-401-1														
Plant systems Tier 2 / Group 2														
400000 Component Cooling Water														
K / A Category Totals:	1		1	1	1	2	1	1	2	1	2	Group Point Total:		13

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

Plant systems Tier 2 / Group 3

System / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topics	Imp	Points
201003 Control Rod and Drive Mechanism														
215001 Traversing In-core Probe														
233000 Fuel Pool Cooling and Cleanup														
239001 Main and Reheat Steam														
256000 Reactor Condensate								1				Requirements for use of condensate	3.1	1
268000 Radwaste					1							ALARA limits in Radwaste fields	3.6	2
											1	Liquid radwaste release requirements	4.2	
288000 Plant Ventilation				1								Zone I pressure control	3.8	1
290002 Reactor Vessel Internals														
K / A Category Totals:				1	1			1			1	Group Point Total:		4

Plant Specific Priorities System / Topic	Recommended Replacement for...	Reason	Points
Plant-Specifici Priority Total (limit 10):			

Facility: Susquehanna SES	Date of Exam: 9/20/99	Exam Level: Initial SRO		
Category	K/A #	Topic	Imp.	Points:
Conduct of Operation	2.1.12	T. S. requirements for mismatched recirc pumps	3.3	1
	2.1.14	Required prompt notification	4	1
	2.1.20	Consequences of erroneous Heat Balances	4.2	1
	2.1.25	Bypassing a rod in the RSCS	3.1	1
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.4	Station Blackout coping strategies	3	1
	2.2.17	Filling out a Permit Schedule	3.5	1
	2.2.23	T. S. requirements for high Suppression Pool level	3.8	1
	2.2.32	Actions resulting form a Fuel Loading Error	3.3	1
	2.2.33	Programming the RSCS	2.9	1
	2.2.			
	Total			5
Radiation Control	2.3.4	Rad dose limits	3.1	1
	2.3.6	Requirements for a liquid rad release	3.1	1
	2.3.9	Purging primary Containment	3.4	1
	2.3.11	Requirements for venting the Containment	3.2	1
	2.3.			
	2.3.			
	Total			4
Emergency Procedures/ Plan	2.4.6	Adequate Core Cooling strategy for low water level	4	1
	2.4.7	Station blackout diesel strategies	3.8	1
	2.4.18	Basis for T. S. actions for high Suppression Pool level	3.6	1
	2.4.45	Post scram annunciators	3.6	1
	2.4.			
	2.4.			
	Total			4
Tier 3 point total (RO / SRO)				13 / 17

ES-401 Written Examination Review Worksheet Form ES-401-9

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
*1	H	3										S	
2	F	1- 2*										S*	*System design question - low level of knowledge/low discriminatory value. Allowed three of these simple questions.
*3	H	3										S	
*4	H	3										S	
5	H	3										S	
6	H	4										S	
7	F	3										S	
8	H	3										S	the applicants will not be told that ON-149, attach "C" applies to this question per R. DeVore. SRO level.
*9	F	2										S	Reworded question and distractors from original sample
*10	F	2										S	

Instructions

[Refer to Appendix B for additional information regarding each of the following concepts.]

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

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

3. Check the appropriate box if a psychometric flaw is identified:
   - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
   - The answer choices are a collection of unrelated true/false statements.
   - More than one distractor is not credible.
   - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).

4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.

5. Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?

6. For any "U" ratings, at a minimum, explain how the Appendix B psychometric attributes are not being met.

*Reviewed previously with the outline submittal as part of a preliminary sample.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
*11	F	2										S	"D" distractor revised after sample review, when asked to verify plausibility
12	H	3										S	SRO level.
*13	F	1*										S*	*Simplistic power supply question. This is the same comment as sample question #8 minor wording change. Second allowed low level of knowledge/low discriminatory value.
*14	F	2										S	
*15	F	2										S	
*16	H	3									X	S*	*Backward Logic questions should be avoided.
*17	H	3									X	S*	
*18	F	2									X	S*	*Backward Logic questions should be avoided. Reword stem from "significance to cause". SRO level. **Reworded/refoucsed stem and distractors.**
*19	F	2										S	"C" distractor was originally incorrect (implausible) in the sample provided - correction made.
20	H	3										S	SRO level.
*21	F	2										S	
22	H	2										S	
23	H	3										S	
*24	F	2										S	
25	F	1			X							U	This answer can be predicted almost without the stem almost (T/F). Russ DeVore agreed with comment will work on at least revising distractors "C & D" **Simplified the stem and changed distractors "C" & "D".**
*26	H	3										S	SRO level.
*27	H	3									X	S*	Original sample question replaced based on NRC feedback. *Backward Logic questions should be avoided.
*28	F	2										S	
* 29	H	2									X	E*	*Backward Logic questions should be avoided. **Refocused stem**
30	H	3									X	E*	*Backward Logic questions should be avoided. **Refocused stem.**

*Reviewed previously with the outline submittal as part of a preliminary sample.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
31	F	2										S	
*32	F	2	X								X	U	note: Original question was replaced based on NRC feedback. Backward Logic questions should be avoided. Requested rewrite or replace question - stem focus. **Question replaced sat. Lok-H, LOD-2.**
33	H	3										S	SRO level.
* 34	F	1-2*										S*	note: Original question was replaced based on NRC feedback. *low level of knowledge/low discriminatory value - allowed third example of easy question.
35	H	2				X						U	Licensee agreed that "A, C, D" distractors were perhaps overly conservative and therefore not really plausible. SRO level. **Question replaced LOK-H, LOD-3.**
36	F	2										S	see #49 testing same area. Licensee agreed and will replace either #49 or this question. Try to avoid "except" questions. SRO level.
37	H	2										E	misspelled word - **corrected.**
*38	H	3										S	SRO level.
*39	H	3									X	U	Backward Logic questions should be avoided. Also reword/refocus stem. **Replaced question LOK-H.**
40	F	2										S	SRO level.
*41	F	2										S	SRO level. Try to avoid "except" questions.
42	H	3										E	Licensee will underline the word "required" in stem. With an emphasis on required action "D" would not be correct. SRO level.
*43	H	3										S	SRO level. **Licensee reworded stem for clarification.**
44	H	3										S	SRO level.
45	F	2										S	SRO level.
46	F	2										S	
47	F	2										S	SRO level.
*48	F	2										S	
49	F	2										U	Too close to #36 same topic - replace one of these questions. Licensee agreed. SRO level. **Licensee changed stem to avoid double jeopardy.**
50	H	3										S	SRO level.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
51	H	2										S	SRO level.
52	H	3										S	This is an SRO level question.
53	F	2										S	This is an SRO level question.
54	H	4	X			X	X					U	What strategy are you currently implementing for "C & D" distractors - no strategy is listed like you did for "A & B". Also "C" looks like it could involve a change in strategy. Licensee agreed question needs work and will revise "C & D" distractors. **Licensee rewrote/refocused stem also revised all distractors - "A &B" distractors were still both correct. Subsequently replaced question.**
55	F	2										S	
56	H	3	X									E*	Stem - Highest priorty item based on what - time to respond or procedure guidance? **Procedure driven expanded answer explanation.**
57	F	* 1-2										S*	*This question is just a set point for an alarm. Allowed several low level of knowledge questions. Try to avoid "except" questions. **Typo also corrected.**
58	F	2										S	TS safety limits and definitions will not be provided to the applicants during the exam. SRO level.
59	H	3										S	
60	H	2										S	
61	H	2										S	SRO level.
62	F	*1										*U	low level of knowledge/low discriminatory value - purpose of Load shed. **Licensee replaced question and then modified stem and choices of replacement question to focus and clarify stem and distractors.**
63	H	4										S	SRO level.
64	H	3										S	SRO level question
65	H	3										S	
66	H	2										S	
67	F	2										S	
*68	F	2										S	Try to avoid "except" questions.
69	H	3										S	
70	H	3									X	S*	*Backward Logic questions should be avoided.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
* 71	H	3									X	U	*Backward Logic questions should be avoided. Rework/replace. **Licensee replaced question LOK-H, LOD-3.**
*72	H	3	X									E	This question was significantly revised based on NRC feedback part of a sample. **Licensee reworded/refocused stem based on further comments.**
73	F	2										S	
74	F	2										S	SRO level.
75	H	2										S	
76	H	3									X	E*	*Backward Logic questions should be avoided. **Licensee reworded/refocused stem.**
77	H	2										S	SRO level.
78	H	3										S	
79	F	1?				X						U	"B, C, D" Not plausible distractors? Licensee agreed with the comment and they will look at this question further for revision or replacement. SRO level. **Licensee revised stem & all distractors.**
80	F	2										S	
*81	F	2										S	"D" distractor was reworded to be less leading based on sample comment.
82	H	3										S	
83	F	2										S	
* 84	F	2										S	Distractors reworded based on a sample question comment.
* 85	H	3										S	Question replaced from sample previously reviewed had been asked to provide comments. Question replaced because of similarity to another question.
86	H	2										S	
*87	H	2										S	
88	F	*1-2										S	Low level of knowledge but testing recent procedure change - Really only a simple set point question SP temp 110Frequires scram .
89	H	3					X					U	"A" appears to be at least partially correct. **Licensee agreed with comment and revised stem to require restoring margin of safety, which should make "A" incorrect.**
*90	H	3										S	

*Reviewed previously with the outline submittal as part of preliminary sample.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5.	6.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	U/E/S	Explanation
91	H	3										E	EO-100-102 also required as reference. Licensee agreed. SRO level. Stem should or shall?
92	H	3										S	SRO level.
*93	H	3										S	SRO level.
94	F	2										S	
95	F	3										S	
96	H	3										S	EO-100-102 also required as reference. Licensee agreed. SRO level.
97	H	3										S	SRO level.
*98	F	2										S	SRO level.
99	F	2										S	SRO level.
100					X							U	Collection of true/false statements. Licensee agreed and will rework question. SRO level. **Licensee rewrote question with new distractors.**

*Reviewed previously with the outline submittal as part of a preliminary sample.

56 Higher order questions - sat.
11 unsat questions
25-30 SRO level questions - sat.

Name: _____

1. A Unit 1 Reactor Shutdown is in progress. Power is at 18%.

- Control Rod 30-35 is being inserted to its Insert Limit of 12.
- During insertion, the position 14 reed switch fails to provide indication.

What is the expected result with respect to Rod Worth Minimizer?

✓A. Withdraw Block and Insert Block

B. Withdraw Block and Withdraw Error

C. Insert Error and Insert Block

D. Insert Error and Withdraw Error

"A" is correct since loss of RPIS requires substitute positions to continue Insert/Withdraw.

"B", "C" AND "D" are incorrect since no Error will occur due to a reed switch failure.

K/A 201006 A3.02 SRO Imp Fac 3.2 LOK F LOD 2

SYO17 K-6 ON-155-004 NEW

* ORIGINAL SUBMITTAL WITH EXAM COMMENTS

* NOTE: LICENSEE PREVIOUSLY SUBMITTED A SAMPLE OF 37 QUESTIONS REVIEWED ON 8/20/99 & PROVIDED LICENSEE COMMENTS, & LICENSEE INCORPORATED CHIEF EXAMINER'S COMMENTS PRIOR TO THIS SUBMITTAL

2.Which condition is the Rod Worth Minimizer designed to limit?

✓A. Energy deposition to ≤280 cal/gm for an in-sequence Rod Drop Accident.

B. Integral Rod Worth to <1% Δk/k/notch for in-sequence Rod Withdrawals.

C. Fuel clad failure to ≤0.01% for an out-of-sequence Rod Drop Accident.

D. Local to Average Flux ratio to<0.1% for out-of-sequence Rod Withdrawals.

"A" is correct per calculations.

"B", "C", and "D" are incorrect because they don't reflect CRDA or energy deposition criteria.

K/A 201006 K5.01 SRO Imp Fac 3.7 LOK F LOD 2

SY017 K-6 NEW

3. A Unit 2 Reactor Startup/Heatup is in progress when a LOCA occurs. Parameters achieved were:

Lowest RPV level (actual) -55"

Highest drywell pressure 14 psig

Which reactor water coolant sampling flowpath is still available without the reset or override of any NSSS isolations?

A. Reactor Recirc Pump suction via the RWCU System through the F001 and F004 valves.

B. Reactor Recirc Pump discharge via the Recirc sample valves, F019 and F020.

✓C. Jet Pump discharge via the sample valve SV 12374.

D. RHR Pump discharge through RHR sample valves F079 and F080.

"C" is correct because it is designed for these conditions.

"A" and "B" are incorrect because these valves close at -38" RPV vessel level.
"D" is incorrect since these valves close on +13" and -38" isolation signals.

K/A 202001 K3.13 SRO Imp Fac 2.5 LOK F LOD 2

ON-159-002 NEW

4.Unit 1 is at 75% power.

- A loss of speed control signal exists on the "B" Reactor Recirculation Pump. I&C is investigating.
- A momentary transient on the selected Narrow Range Level transmitter now causes the output to go downscale and return to the present level (35") 4 seconds later.

Predict the response of the Reactor Recirculation System.

A. Both Recirc Pumps will runback to 30% speed 10 seconds after the level transmitter transient.

✓B. "A" Recirc Pump will runback to 30% speed immediately upon receipt of downscale trip.

C. Both Recirc Pumps remain as is.

D. "A" Recirc Pump will runback to 45% speed 15 seconds after the level transmitter transient.

The speed control signal failure is a Scoop Tube Lockup.

"B" is correct because Limiter #1 will take effect immediately

"A" is incorrect since the 10 second time delay is on the ATWS pump trip.
"C" is incorrect since the "A" pump will run back.
"D" is incorrect since the pump will run back to 30% immediately. (45% is the #2 Limiter)

K/A 202002 A1.04 SRO Imp Fac 2.9 LOK F LOD 2

SY017 L-9 NEW

5. Unit 1 is at 100% when the "A" Reactor Recirc MG Set tachometer output fails downscale. Predict the response to this condition and the required actions if this condition is not corrected.

A. A Scoop Tube Lockup will occur. This will require local manual operation of the Scoop Tube Positioner if a Recirc runback signal is received.

✓B. Reactor Recirc Pump speed will increase to the upper electrical stop at a rate of 10% per second. This will require local manual operation of the Scoop Tube Positioner to effect a change in pump speed.

C. A Reactor Recirculation Pump trip will occur. This will require entry to ON-164-002 Loss of Reactor Recirc Flow.

D. Reactor Recirc Pump Speed will decrease to minimum speed of 30%. This will require operator action to reduce the speed mismatch between the "A" and "B" Recirc Pumps.

"B" is correct because feedback signal from speed controller recognizes large delta between tachometer and demand signal, and will attempt to null the deviation.

"A" is incorrect because this is not a Scoop Tube Lockup Signal
"C" is incorrect because it is not a pump trip signal.
"D" is incorrect because pump speed will increase.

K/A 202002 A2.05 SRO Imp Fac 3.1 LOK H LOD 3

SY017 L-9 NEW

6. Unit 1 at 100%.
Unit 2 Startup in progress, RPV pressure 300 psig. All systems operable on both units.

- T= 0 Loss of Offsite Power (LOOP) occurs.
- T= 3 minutes Fault Lockout occurs on the "1B" ESS Bus.
- T= 5 minutes On Unit 1 a loss of feed results in RPV level decrease to -135"
- T= 7 minutes On Unit 2 a steam leak causes Drywell Pressure to exceed 1.72 psig.

At T= 8 minutes, which RHR pumps will be in service?

	UNIT 1	UNIT 2
A.	1A, 1C, 1D	2B
B.	1A	2C, 2D
C.	1A, 1C	2B, 2D
✓D.	1A	2B, 2C, 2D

"D" is correct because all available pumps are running on Unit 2. The 2B pump is in service because no breaker interlock from 1B exists.

"A" and "C" are incorrect because dual unit LOCA preferred pumps are not in service.
"B" is incorrect because the 2B ESS bus is not de-energized. 2B should be in service. (Unit 2 assumed to have a LOCA because the RPV pressure is <436 psig due to startup conditions.)

K/A 203000 K2.01 SRO Imp Fac 3.5 LOK H LOD 4

SY017 C-1 ON-104-202 NEW

7. Which condition will result in auto closure of RWCU Isolation Valve (HV-F001)?

✓A. Trip of the "B" RPS EPA breakers.

B. Inboard Isolation logic (RPV Level -38") transmitter (LITS N028C) fails downscale.

C. Standby Liquid Control System initiation.

D. Non-regenerative heat exchanger outlet high temperature (>140°F).

"A" is correct due to cross-divisionalization of K88 relay in N4S logic.

"B" is incorrect because it requires both A and B detectors to indicate low rpv level.
"C" and "D" are incorrect because they affect the outboard isolation logic (HV-F004)

K/A 204000 K6.08 SRO Imp Fac 2.6 LOK F LOD 2

SY017 L-1 ON-159-002 NEW

8.Unit 2 Reactor scram occurred 6 days ago due to a Main Turbine High Vibration trip. A faulty vibration transmitter has been replaced.

- The plant is in Mode 4.
- "B" Loop RHR is in SDC with the "D" RHR pump.
- RPV Level has been lowered to 35" in preparation for plant startup.
- RCS temperature is currently 110°F.

A "2D" ESS Bus Lockout occurs due to a faulty overcurrent relay. Following the trip, which action would prevent an inadvertant Mode Change?

✓A. Placing the "B" RHR in SDC within 2.25 hours after the loss of the ESS Bus.

B. Placing the "A" RHR loop in service 3 hours after the loss of the ESS Bus.

C. Placing the "A" Loop RHR in Suppression Pool Cooling and opening 3 SRV's 1.5 hours after the loss of the ESS Bus.

D. Placing the "B" Loop of RHR in SDC Mode from Remote Shutdown Panel 1 hour after the loss of the ESS Bus.

"A" is correct because this meets the criteria of Attachment C of ON-149-001

"B" is incorrect because 3 hours does not meet the criteria of Attachment C of ON-149-001
"C" is incorrect because RCS temperature will have to exceed 212 °F to steam off to the Suppression Pool. (Mode Change occurs at 200°F)
"D" is incorrect because Unit 2 Remote Shutdown Panel controls only the "A" Loop of RHR.

** ON-149-001 Attachment "C" ** required

K/A 205000 A2.12 SRO Imp Fac 3 LOK H LOD 3

ON-149-001 NEW

Ans: Per Russ DeVore the applicants will not be told ahead of time that ON-149-001 applies to this question

When the reference is provided - the applicant will be told up front that this should be used with question #8?

The 3rd student question - ~~[illegible]~~ for simulator

9. Unit 1 was at 50 % power when a Loss of Off Site Power occurred.

- HPCI auto initiated and has been placed in Pressure Control Mode.
- RCIC auto initiated and is maintaining RPV level at +13" to +54".
- A steam leak develops in the HPCI PIPE ROUTING AREA.

Assuming the temperature reaches the isolation setpoint, predict the effects on HPCI and RCIC operation.

✓A. Both HPCI and RCIC will isolate in approximately 15 minutes.

B. HPCI will isolate immediately. RCIC will continue to operate indifinitely.

C. HPCI and RCIC will continue to operate indifinitely.

D. HPCI will isolate in approximately 15 minutes. RCIC will continue to operate indifinitely.

"A" is correct because both systems share the same pipe routing area and the instrumentation triggers a 15 minute timer.

"B" is incorrect because 15 minute timer must expire.
"C" is incorrect because isolation will cause trip of both systems .
"D" is incorrect because RCIC will also isolate.

K/A 206000 K3.01 SRO Imp Fac 4 LOK F LOD 3

SY017 C-6 NEW

10. Unit 1 is at 100% power.

- During the performance of SO-152-004 Quarterly HPCI Valve Exercising, the power supply to HPCI Vacuum Breaker Isolation Valve HV-155-F079 tripped open immediately when the valve was being re-opened.
- The valve is assumed full closed at this time
- HPCI Vacuum Breaker Isolation Valve HV-155-F075 was tested successfully.

A plant transient occurs and RPV level decreases to the HPCI initiation setpoint. How will this condition affect HPCI operation ?

✓A. A subsequent restart of HPCI can result in severe water hammer in the steam exhaust line.

B. If HPCI is secured from operation, one vacuum breaker may still operate because HV-155-F075 is open.

C. HPCI will auto initiate, but will trip on Low Suction Pressure.

D. When Low RPV pressure occurs, the redundant HV-155-F075 will ensure vacuum breaker isolation.

"A" is correct because vacuum breakers are isolated. If HPCI is secured, water will rise up into the exhaust line when the steam condenses.

"B" is incorrect because vacuum breakers are in-series.
"C" is incorrect because isolation valves do not interfere with suction flowpath.
"D" is incorrect because isolation signal needed with low RPV pressure is 1.72 drywell pressure. The initiation signal here is low RPV water level.

K/A 206000 K5.08 SRO Imp Fac 3.2 LOK F LOD 2

OP-152-001 NEW

11. Unit 1 power ascension was in progress at 30%. A Reactor Scram and MSIV isolation occurred for unknown reasons.

- RCIC is in Pressure Control Mode in accordance with OP-150-001.
- A Maintenance crew on Reactor Building Elevation 749 accidentally bumps into the 1C004 Instrument Rack resulting in a momentary Division I Wide Range Level instrument indicating -40".

Predict the RCIC system response to this event.

✓A. Valves automatically re-align. Injection will occur.

B. All valves re-align for injection <u>except</u> HV-149-F013 Injection Valve. It must be manually opened for injection to occur.

C. RCIC remains in Pressure Control Mode. Both divisions must be actuated for initiation.

D. RCIC remains in Pressure Control Mode. Initiation is received from Division II instrumentation only.

"A" is correct because only one division actuation is required.

"B" incorrect. F013 manual opening not required in this case. (Would be required if it had been tripped previously.)
"C" incorrect. Either division will provide system initiation and injection
"D" incorrect. Either division will provide system initiation and injection

K/A 217000 K3.02 SRO Imp Fac 3.6 LOK H LOD 3

SYO17 C-5 OP-150-001 NEW

12. After a LOCA, the following conditions exist:

- RPV pressure is 700 psig and steady.
- Indicated Fuel Zone RPV water level is -180".
- 1A and 1C Core Spray Pumps are the only pumps running and lined up for injection.

Given these conditions when would Rapid Depressurization be required?

A. It is required at this time.

B. After a Table 5 Alternate Subsystem is lined up, pump(s) started, and injecting to max.

✓C. When RPV level cannot be restored and maintained >TAF.

D. When Minimum Zero Injection RPV Water Level is reached.

"C" is correct because even if level has been below TAF, some time is allotted to determine the success of injection to return to >TAF. (therefore "restored and maintained")

"A" is incorrect because level has not decreased to < TAF, and requirement to continue is not authorized.
"B" is incorrect even though < 2 Table 4 Subsystems are lined up. (Only "A" Loop Core Spray).
"D" is incorrect because 1A and 1C Core Spray Pumps are in Service.

EOP Flowcharts, FUEL ZONE Level correction Graph required

K/A 209001 2.4.6 SRO Imp Fac 4 LOK H LOD 4

PP002 NEW

13. With Unit 1 at rated power 125 VDC 1D610 is lost. Which of the following will result due to this power loss?

A. HPCI aux oil pump will not start.

✓B. Div 1 Core Spray initiation logic will not actuate.

C. RCIC outboard injection valve will not close.

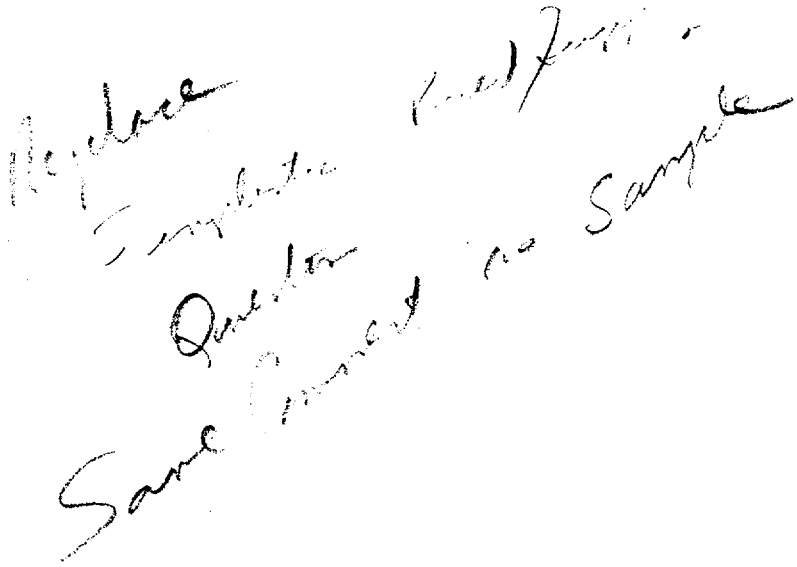
D. RHR SDC outboard isolation valve will not open.

"B" is correct because this is the only one affected.

"A", "C", and "D" are incorrect because the power supplies for these components are not 1D610.

K/A 209001 K2.03 SRO Imp Fac 3.1 LOK F LOD 2

ON-102-610 NEW



14. Unit 2 is operating at rated power when a loss of stator cooling water occurs. If stator cooling water flow is not restored, which protective function will prevent exceeding a thermal limit?

A. The APRM Fixed Neutron Flux Upscale Trip

B. None. Power must be reduced at least 20% and the reactor manually scrammed to avoid a thermal limit violation.

C. An input from reactor vessel instrumentation will input to the RPS circuitry to initiate a scram on high RPV pressure.

✓D. An input from turbine stop valve position to the RPS scram circuitry initiates a reactor scram.

"D" is the correct answer because this scram signal (turbine stop valve position limit switch) is designed to anticipate the high pressure power transient resulting from the stop valves going closed.

"A" is not correct because the Stop Valve Closure scram is designed to scram the reactor to preclude a hi neutron flux scram.
"B" is not correct because a turb trip is protective for equipment. We will get a valve closure scram
"C" is not correct because a high pressure scram is backup for turb trip failure or when turb trip is bypassed.

K/A 212000 K1.01 SRO Imp Fac 3.9 Diff Fac 2

T.S. 3.3.1 NEW

↑ Hydrogen temp →

→ temp 174F for 70 seconds Stator Cooling will trip turbine

Do the turbine stop valves close when Stator cooling water do lose Pr Does the turbine trip as a result of loss of Stator Cooling water ?

Yes, when stator water temp reaches 174F for 70 Seconds turbine trips

15. A loss of 125 VDC power occurs to the RPS B trip logic and RPS components supplied by that power. The trip system power loss will:

A. deenergize the "B" scram pilot solenoid valve associated with each Hydraulic Control Unit (HCU). No rod motion will occur directly from this event.

B. deenergize the Group 2 and Group 4 scram pilot solenoid groups. One-half of the control rods will scram.

✓C. prevent energizing the "B" Backup scram valve if a full scram signal occurs. No rod motion will occur directly from this event.

D. cause the "B" backup scram valve to fail closed. A scram signal will result in no rod motion.

"C" is correct.

"A" is incorrect because the solenoid valves are AC powered.
"B" is incorrect because the solenoids are AC powered, no rod motion will result.
"D" is incorrect because it is already closed, and only one Backup Scram valve is needed in the event that normal RPS circuitry fails.

K/A 212000 K6.04 SRO Imp Fac 3.1 LOK F LOD 2

ON-102-620 NEW

16. During the overlap determination on a Unit 2 startup, IRM C did not show proper overlap. The C IRM was bypassed and the startup was continued.

I & C reports the C IRM has been repaired and can be returned to service. The following conditions exist:

APRM Power	2%
OPERABLE IRM channel status	
IRM readings	All between 20 and 40 / 125
Range	All on range 7

The US directs the PCOU to place the BYPASS switch for C IRM out of BYPASS. When this is performed a ROD OUT BLOCK occurs. No other alarms are received.

Assuming no other malfunctions have occurred, which of the following is the cause of the ROD OUT BLOCK?

A. The high voltage power supply to the IRM C detector is failed.

B. The IRM C MODE SWITCH was left in STANDBY.

C. The C APRM should be checked to ensure no downscale condition exists.

✓D. The C IRM is not fully inserted.

The mode change occurs between 7 - 11% power.

"D" is correct because all IRMs must be fully inserted with Mode Switch in Startup.

"A" and "B" are incorrect since each generates a half scram and rod block signal.
"C" is incorrect no coincident protective functions exist between IRMs and APRMs with Mode Switch in Startup.

K/A 215003 A1.04 SRO Imp Fac 3.4 LOK H LOD 3

SY017 I-2 NEW

17. Unit 1 plant conditions during a reactor startup are:

Reactor Period	+200 seconds	
IRMs	FULL IN RANGE 1	Reading 3 / 125
SRMs A & B	FULL IN	Reading 2 x 10^3 cps
SRMs C & D	PARTIALLY WITHDRAWN	Reading 90 cps
ROD OUT BLOCK annunciator	lit	

What action, if any, must be taken to clear the ROD OUT BLOCK condition and continue rod withdrawal?

A. No action required. When the IRMs rise above 5 on range 1 the ROD OUT BLOCK will clear.

B. Withdraw SRMs A & B. When the indications fall below 10^3 cps rod withdrawal may continue.

C. Insert the in-sequence control rod. When period gets longer than 300 seconds, rod withdrawal will be permitted.

✓D. Reinsert the C and D SRMs. When the indications rise above 100 cps rod withdrawal is permitted.

Rod Out Block is being generated because counts are <100cps and SRMs are not full-in (retracted when not permitted). Per procedure, SRMs are withdrawn 2 at a time to maintain counts between downscale and upscale Rod Blocks

"D" is correct because this would satisfy the full-in requirement.

"A" is incorrect because the DNSCL IRM block bypassed on Range 1.

"B" is incorrect because at 10^3 cps rod block is already clear. (Upscale Rod Block is 2E5)
"C" is incorrect because there is no SRM period withdraw block.

K/A 215004 K1.02 SRO Imp Fac 3.4 LOK H LOD 3

SY017 I-1 NEW

18. Unit 1 is at 100% with the feedwater Narrow Range "B" RPV level channel surveillance in progress.

- "A" RPV Level Channel is currently selected.
- The indicating bulb above the "B" Level Select HS-C32-1S01 on panel 1C651 is illuminated.
- The indicating bulb above the "A" Level Select HS-C32-1S01 on panel 1C651 is extinguished.

What is the significance of this condition?

A. The "B" level transmitter at instrument Rack 1C005 is tripped.

B. The "A" level transmitter at instrument Rack 1C004 is bypassed.

✓C. The "Out of Service" switch for the "B" instrument is in the "Out" position.

D. The "A" indicating bulb is burned out.

"C" is correct. This informs the operator that I&C will be working on the instrument and that it will be unavailable for use.

"A" is incorrect because indication for tripped channel is separate indicator.
"B" is incorrect because an extinguished bulb does not signify bypassing the instrument.
"D" is incorrect because normal indication is no lamps illuminated unless maintenance/surveillance in progress.

K/A 216000 A4.02 SRO Imp Fac 3.1 LOK F LOD 2

SY017 D-2 NEW

19. On Unit 2 a small steam leak developed inside Primary Containment with the unit at rated conditions.

- Drywell temperature is 265°F and continues to rise.
- Actual RPV level remains constant.

How will the accuracy of the Extended Range level instrument be affected by this condition?

✓A. Net decrease in reference leg density will cause an increase in indicated level.

B. Net decrease in variable leg density will cause a decrease in indicated level.

C. Decrease in reference and variable leg density is equal. No change in indicated level.

D. Reg Guide 1.97 level indicators are temperature compensated. No change in indicated level.

"A" is correct due to the differential pressure generated from the density changes.

"B" is incorrect because variable leg density change is less than the reference leg.
"C" is incorrect because this is not true for extended range level instruments.
"D" is incorrect because the instruments are not temperature compensated.

K/A 216000 K6.03 SRO Imp Fac 2.8 LOK F LOD 3

SY017 J-2 ON-145-004 MOD EXAM BANK

20. Unit 1 Startup is in progress. Reactor pressure is 950 psig. Turbine startup preparations are being made.

The Reactor Building NPO discovers that the "B" Core Spray Pump discharge pressure switch has developed a leak. The Operator isolates the pressure switch as directed. No corrective maintanence has been performed at this time.

Which of the following statements would be applicable?

✓A. ADS remains OPERABLE for 8 days; if not repaired within 8 days declare ADS INOPERABLE.

B. Declare the "B" Core Spray Pump INOPERABLE. Restore the pressure switch to OPERABLE within 7 days or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

C. Declare the "B" Core Spray LOOP INOPERABLE. Restore the loop to OPERABLE status in 7 days or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

D. Declare Division 2 ADS INOPERABLE and place the Division 2 ADS trip system in the trip condition within 96 hours. Repair the pressure switch within 8 days or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

"A" is correct because this instrument by itself does not result in any ECCS INOP.

"B" is incorrect because this is not required for Core Spray Operability.
"C" is incorrect because the "B" pump is not INOP.
"D" is incorrect because sufficient instrumentation is still available from RHR.

K/A 218000 2.2.25 SRO Imp Fac 3.7 LOK H LOD 3

T.S. 3.3.5 NEW

21. A LOCA occurred three minutes ago. All systems responded per design. The following conditions exist:

Drywell Pressure	24 psig
RPV Level	-240" on Fuel Zone
RPV pressure	740 psig lowering rapidly

At this time a loss of offsite power occurs. All diesel generators restore power to their emergency busses. No operator action has been taken. The ADS valves will:

✓A. remain open throughout the event.

B. close and remain closed throughout the event.

C. close and reopen 3 seconds after power is restored to the ESS Busses.

D. close and reopen 102 seconds after power is restored to the ESS Busses.

"A" is correct because ADS logic is 125 VDC. The signal seals in after initiation and will not secure even if LP ECCS pumps are lost.

"B" and "C" "D" are incorrect because the valves will not close.

K/A 218000 K6.05 SRO Imp Fac 3.1 LOK F LOD 2

SY017 C-4 NEW

22. If the air supply to the SLC level detector component(s) is greater than the required pressure:

A. pump operation will be inhibited.

B. sodium pentaborate may precipitate out of solution.

✓C. HSBW may be injected with control room indication >2800 gal.

D. the hi / lo tank level alarm will be inoperable.

"C" is correct because the tank indication will read false high.

"A" is incorrect because pump operation does not depend upon tank level.
"B" is incorrect because solubility depends upon temperature, not level.
"D" is incorrect because the ultrasonic detector will provide the hi / lo alarms.

K/A 211000 K5.06 SRO Imp Fac 3.2 LOK H LOD 2

SY017 C-3 NEW

HSBW what does this mean

Explain answer ?

Hot Shut Bor Water

28

23.023 001

Unit 1 startup is in progress. 1A RHR pump is in Suppression Pool Cooling to reduce pool temperature following SRV operability surveillance.

A small Loss of Coolant Accident occurs. Plant conditions are as follows:

RPV pressure	200 psig dropping slowly (10 psig / minute)
RPV level	45" rising slowly using condensate as inventory source
Drywell pressure	3.5 psig rising slowly
Drywell temperature	185°F steady
A RHR Loop flow	2000 ~~2500~~ gpm Min flow open at < 2400 gpm

Which of the following is the correct response for conditions currently existing within the A RHR loop?

A. Dispatch an auxiliary operator to manually open the discharge valve fully.

✓B. Verify the minimum flow valve F007A is open.

C. Dispatch an auxiliary operator to locate the leak in the RHR System because no flow should exist within the loop.

D. Close the A loop RHR Inboard injection valve (F015A) to remain in suppression pool cooling on the A RHR loop.

"B" is correct because the min flow valve opens with flows less than 3000 gpm.

"A" is incorrect because RHR will not establish rated flow until approx. 220 psig.
"C" is incorrect because some flow from RHR to the RPV will exist.
"D" is incorrect because the 15A seals in open until initiation signal is reset.

K/A 219000 A4.04 SRO Imp Fac 2.9 LOK H LOD 3

SY017 C-1 MOD EXAM BANK

24. Which of the following Manual N4S Initiation Pushbuttons will result in a closure of the Reactor Water Cleanup Inboard Isolation Valve HV-1F001, if armed and depressed?

A. A

✓B. B

C. C

D. D

"B" is correct by design.

"A" and "C" are incorrect because no actions occur from these individual pushbuttons by themselves.
"D" is incorrect because it actuates the outboard isolation logic.

K/A 223002 A1.04 SRO Imp Fac 2.8 LOK F LOD 2

SY017 E-3 MOD EXAM BANK

25. Plant conditions exist requiring the use of Suppression Chamber Spray. In order to minimize the potential for radioactive release from containment while in the Suppression Chamber Spray mode the operator is required to:

✓A. place the RHRSW radiation monitor in service and continuously monitor for abnormal RHRSW radiation levels.

B. ensure Figure 4 Pressure Suppression Limit is in the un-shaded area.

C. throttle RHR flow to ensure RHR discharge pressure is less than RHRSW pressure so any leakage occurring is from RHRSW into RHR.

D. direct chemistry to sample suppression pool water to estimate a release rate should a leak develop within the heat exchanger.

"A" is correct because leakage in the heat exchanger would migrate to the RHRSW system which would be monitored.

"B" is incorrect because the shaded area is a determination for Rapid Depressurization, and does not prohibit spraying in that condition.
"C" is incorrect because RHR pressure is always > RHRSW pressure.
"D" is incorrect because this would only be performed if a leak is suspected or other mitigation required continuation of use in EOPs.

K/A 226001 K4.11 SRO Imp Fac 2.9 LOK F LOD 2

OP-100-049 OP-100-079 NEW

Yes, agree will work on distractors

T/F statement "C & D" Distractors appear to be obviously incorrect & Point the applicant towards wanting to pick "A"

26. Unit 1 Mode Switch is in REFUEL. The Refueling Platform is in the Spent Fuel Pool area raising a new fuel bundle for core placement. The Hoist Digital display indicates 1080 lbs.

How will the Unit 1 Refueling Platform respond if a control rod is withdrawn one notch?

✓A. Platform will not be allowed over the Reactor Cavity with this load.

B. The fuel grapple hoist interlock will automatically prevent raising or lowering the load.

C. Platform movement in X, Y, and Z direction will be prohibited.

D. Platform will be allowed over the core, but hoist cannot be raised or lowered.

"A" is correct since the Bridge Reverse interlock #1 prevents travel over the core with a load when any control rod is withdrawn (preventing multiple reactivity changes simultaneously).

"B" is incorrect because the platform is not over the core.
"C" is incorrect because the platform is not over the core.
"D" is incorrect because the platform is loaded and will not be allowed over the core.

K/A 234000 K4.01 SRO Imp Fac 4.1 LOK F LOD 2

SY017 M-2 SO-181-001 MOD EXAM BANK

27. Pressure control in a post-transient condition is being accomplished via SRVs. The G SRV control switch is taken to OPEN to maintain pressure between 800-1087 psig, but no response is observed using all available means. RPV pressure continues to rise and the SRV opens at approximately 1105 psig.

Which condition exists with the G SRV?

✓A. The G SRV control switch on 1C601 has failed.

B. The G SRV solenoid for manual operation has failed closed.

C. The internal bellows has failed.

D. CIG to the G SRV has been lost.

G SRV relief setpoint is 1106 psig, safety setpoint is 1205 psig.

"A" is correct since the valve opened in relief mode. (This is the same solenoid which is energized from the control room handswitch.)

"B" is incorrect; solenoid failure would inhibit operation of relief mode.
"C" is incorrect; bellows failure would make opening pressure higher in safety mode.
"D" is incorrect; valve opened on relief mode.

K/A 239002 A3.02 SRO Imp Fac 4.3 LOK H LOD 3

SY017 C-4 NEW

28. The "F" SRV tailpipe vacuum breaker is failed (stuck) in the position opposite its "normal" position. If the "F" SRV is used for pressure control, the vacuum breaker:

A. being in the OPEN position would result in pressurization of the suppression chamber airspace.

✓B. being in the OPEN position would result in pressurization of the drywell.

C. being in the CLOSED position may cause the SRV tailpipe to fail when the SRV is initially opened (never open before) because of excessive T quencher loading.

D. being in the CLOSED position may cause the SRV tailpipe to fail when the SRV is reopened several times because of excessive hydraulic loading.

"B" is correct because the vacuum breaker discharges to the Drywell.

"A" is incorrect because the SRV relieves to drywell airspace.
"C" and "D" are incorrect because the vacuum breaker is normally CLOSED.

K/A 239002 K6.05 SRO Imp Fac 3.2 LOK H LOD 3

SY017 C-4 NEW

29. Unit 1 is at 100% power. Control Rod Exercising is in progress. Upon selection of Control Rod 30-31, ROD OUT BLOCK and RBM INOP TRIP alarms are received.

Which condition could be ~~responsible for~~ the ROD OUT BLOCK?

A. All four (4) LPRM strings surrounding the control rod have the "A" level detectors bypassed.

B. APRM B has failed downscale.

C. The RBM meter function switch has been taken out of the"Average" position.

✓D. The RBM nulling sequence has not gone to completion.

"D" is correct by design (Failure to Null)

"A" is incorrect because there are still > 50% of available inputs.
"B" is incorrect because the RBM does not use APRM "B" as a reference.
"C" is incorrect because meter function switch can be in in any position.

K/A 215002 K4.01 SRO Imp Fac 3.5 LOK F LOD 2

SY017 K-5 NRC 91 SSES EXAM MOD

30. While in operation at 80% power, the PCO observes the following sequenced conditions:

- Reactor Pressure HIGH
- APRM High Flux
- Reactor scram
- SRV lift to control pressure
- Turbine trip

SELECT the condition responsible for this sequence of events.

A. Inadvertent MSIV "A" closure.

B. Extraction steam to #3C Feedwater Heater is isolated.

C. Master Recirculation Flow Controller fails upscale.

✓D. Maximum Combined Flow Limiter output is reduced to minimum.

"D" is correct because MCFL will gag flow to Bypass valves as well as Control Valves

"A" is incorrect because single MSIV closure will not cause SRV lift. Other steam lines and Main Turbine Control Valves will absorb the shift in steam flow.
"B" is incorrect because extraction steam to one heater will not raise pressure (BPVs open)
"C" is incorrect because master recirc flow controller will cause neutron flux scram, no high pressure (BPVs open)

K/A 241000 K3.02 SRO Imp Fac 4.3 LOK H LOD 3

SY017 A-8 NEW

31. While at 100% power, the Main Shaft Oil Pump (MSOP) discharge pressure slowly begins to decay from a normal operating pressure of approximately 240 psig. Assuming all automatic pump starts occur as a result of this event, if pressure continues to decay:

- What automatic action is expected first?
- What would be the main turbine's final status?

✓A. Turning Gear Oil Pump Auto Start. Main Turbine trip.

B. Lift Pumps Auto start. No Main Turbine trip.

C. Emergency Bearing Oil Pump Auto Start. Main Turbine trip.

D. Motor Suction Pump Auto Start. No Main Turbine trip.

"A" is correct because the TGOP will start first as MSOP discharge pressure decreases to 190# or bearing header low pressure of 15#. The Main Turbine will trip when MSOP pressure decays to < 105 psig with Turbine speed > 1300 RPM

"B" is incorrect because turbine will trip on low shaft driven oil pump discharge pressure.
"C" is incorrect because bearing header pressure will be maintained by the Turning Gear Oil Pump.
"D" is incorrect because the main turbine will trip even though MSP will eventually start.

K/A 245000 A3.06 SRO Imp Fac 2.6 LOK F LOD 2

SY017 A-2 NEW

32. With the unit at 100% power, control room annunciator, AR-106-001, C-05, STATOR COOLING WATER PANEL TRBL, is received. The NPO reports local annunciator, GENERATOR CASING LIQUID DETECTOR FULL, is sealed in.

The condition could be caused by all of the following EXCEPT:

A. the hydrogen seal oil pressure control valve fails OPEN.

B. the detraining float trap in the seal iol system fails CLOSED.

C. a leak develops in one of the main generator hydrogen cooler tubes.

✓D. water leakage from a generator field rectifier bank.

"D" is correct because, although it is cooled by stator water like the generator, it is totally separate from the generator casing and so would not go there.

"A", "B", and "C" are incorrect because they leak into the generator casing.

K/A 245000 K1.06 SRO Imp Fac 2.6 LOK F LOD 2

SY017 A-5 NEW

33.033R1 001

A dual seal failure on the "A" reactor recirculation pump seal has occurred. The Unit Supervisor has directed the Operator to trip and isolate the pump. A manual reactor scram has been initiated due to entry into Region I of the power to flow map. Level is -20" and slowly rising. Drywell pressure is rising.

Condensate and/or Feedwater can be used continuously for RPV level control:

A. until a high drywell pressure condition occurs. No restoration will be possible.

B. regardless of drywell pressure provided the UNDERVOLTAGE TRIP ENABLE switches on the local condensate pump breakers are in the ENABLE position.

C. if HPCI is controlled after its initiation on high drywell pressure to avoid reaching + 54" RPV water level.

✓D. if the main generator lockout is reset prior to receiving the high drywell pressure condition.

"D" is correct because with main generator lockouts reset, Plant Aux Loadshed logic will not occur and Condensate pumps will remain in service.

"A" is incorrect because restoration can occur once gen lockout is reset.
"B" is incorrect because this will trip the pumps, not disable the trip.
"C" is incorrect because without gen L/O reset, condensate pumps will trip when a 1.72 signal is received.

K/A 256000 A2.10 SRO Imp Fac 3.1 LOK H LOD 3

SY017 D-1 NEW

34. A Unit 1 startup is in progress. Automatic feedwater level control is being established per GO-100-002 using the A RFPT. The following conditions exist within the feedwater and feedwater level control systems:

A RFPT individual controller	AUTOMATIC
MASTER Feedwater Level controller	AUTOMATIC
1 Element	SELECTED
MASTER Controller Tapeset value	35"
Feedwater Lo Load Valve Demand Signal	38" ← Feedwater Lo Load Valve is in AUTOMATIC
RPV pressure	1005 psig
"A" RFP	
Discharge pressure	1065 psig
Discharge valve	CLOSED
Startup Isolation valve	OPEN

Actual level in this lineup is being maintained by:

A. varying the speed of A RFPT using the INCREASE and DECREASE pushbuttons on the MASTER CONTROLLER.

B. varying the speed of A RFPT using the INCREASE and DECREASE pushbuttons on the A RFPT INDIVIDUAL controller.

C. the FEEDWATER LEVEL CONTROL SYSTEM automatically controlling the LOW LOAD STARTUP valve position.

✓D. the FEEDWATER LEVEL CONTROL SYSTEM automatically controlling A RFPT speed.

"D" is Correct speed of RFP varied by level mismatch.

"A" is incorrect; Controller in AUTO renders PBs INOP.
"B" is incorrect; Controller in AUTO renders PBs INOP.
"C" is incorrect; LO LOAD VLV in 38" set makes valve FULL OPEN.

K/A 295002 K1.05 SRO Imp Fac 3.7 LOK H LOD 3

ON-118-001 NEW

NOT really a Discriminating Question

This is a Simplistic question ~~disguised~~ disguised to look Higher order

Question really only asking with Feedwater set to auto & Single element Control How level Maintained ?

Ans: By Varying Speed of Pump.

35. While performing a test of Control Room Annunciators on panel 0C653, the 125 VDC power supply breaker to alarm panels AR-015-001 and AR-016-001 tripped for unknown reasons. Attempts to transfer to the alternate source have been unsuccessful. All other control room annunciators were tested successfully.

While Electrical Maintenance was in the process of troubleshooting the problem, the Unit 1 Reactor scrammed on high pressure. Other than +13" RPV level, no other entry conditions existed for EO-100-102

Which action below would be required?

A. Enter the E plan and begin an orderly shutdown of Unit 2.

✓B. Enter the E plan and maintain current conditions on Unit 2.

C. Restore annunciators to OPERABLE within 4 hours or be in MODE 3 on Unit 2 within the next 6 hours.

D. Restore annunciators to OPERABLE within 24 hours or be in MODE 3 on Unit 2 within the following 6 hours.

"B" is correct because power maneuvering without annunciators is non-conservative.

"A" is incorrect because plant stability is desired.
"C" is incorrect because it is not a TS requirement.
"D" is incorrect because it is not a TS requirement.

K/A 263000 2.4.32 SRO Imp Fac 3.5 LOK H LOD 4

EP-PS-100 NEW

Please explain why distractors are plausible - Why would the applicants consider shutdown of Unit 2 with a problem on these 2 annunciators

- Common panels for both units 015 & 016 ECCS & ESW common electrical supply both units FPL

You agree that this [illegible] more conservative [illegible]

36. In accordance with Liquid Radwaste Release (OP-069-050), all of the following activities can be performed with additional requirements **EXCEPT**:

✓A. Laundry tank release with the Liquid Radwaste Radiation Monitor inoperable.

B. Liquid Radwaste Sample Tank release with both cooling tower blowdown flowrate instruments inoperable.

C. Any tank release if total site blowdown flow instrumentation inoperable.

D. Distillate tank release with Liquid Radwaste Radiation Monitor inoperable.

"A" is the only condition not allowed.

"B", "C", and "D" can be performed if contingencies are met.

K/A 268000 2.1.20 SRO Imp Fac 4.2 LOK F LOD 2

OP-069-050 MOD EXAM BANK

37. A work package is being put together to work on a leaking valve in Radwaste. The valve is in close proximity to the Radwaste Collection Tanks.

- Unshielded general radiation field: 100 mr/hr
- Shielded general radiation filed: 10 mr/hr

Which method below meets the requirements of NDAP-00-1191 ALARA PROGRAM AND POLICY?

A. One person does the job without shielding in 1 hour and 45 minutes.

B. One person installs shielding in 1 hour and 30 minutes; a different person does the job in 2 hours.

C. Two persons do the job without shielding in 45 minutes.

✓D. Two persons install shielding in 30 minutes; a different person does the job in 3 hours.

"D" is correct because this would result in a total person-rem of 130.

"A" is incorrect because this would result in an individual receiving 175 mr.
"B" is incorrect because this would result in total person-rem of 170.
"C" is incorrect because this would result in a total person-rem of 150.

** Calculator needed**

K/A 268000 K5.02 SRO Imp Fac 3.6 LOK H LOD 3

NDAP-OO-0626 MOD EXAM BANK

38. A small break in the RWCU system has occurred in the RWCU pump room.

- Power is 65%
- RWCU pump room area temperature is now 135°F
- RWCU area is now 36 mr/hr.
- Refuel Floor High Exhaust Radiation 14 mr/hr ✓

Assuming NO operator actions, Zone 1 reactor building pressure will be maintained by:

✓A. ventillation exhaust fan discharge damper position.

B. ventillation supply fan discharge damper position.

C. SBGT fan inlet and fresh air inlet damper positions.

D. the number of equipment compartment exhaust fans in operation.

"A" is correct because ventillation is still in normal alignment , since no isolation signal has been received.

"B" is incorrect because there is no function provided by supply fan damper position for pressure control
"C" is incorrect because no isolation signal exists, so SBGT is not running.
"D" is incorrect since only one fan is in operation at any time.

K/A 288000 K4.02 SRO Imp Fac 3.8 LOK H LOD 3

SY017 E-2 ON-158-001 NEW

39. Consider the following Reactor Building HVAC description. Assume normal operating conditions existed.

- Reactor Building Recirculation Fan A has started.
- Reactor Building recirculation to SBGT dampers have opened.
- SBGT Fans A and B have started.
- Zone I and Zone 2 Supply and Exhaust fans are in service.
- Zone 3 Supply, Exhaust and Filtered Exaust fans have stopped.
- Zone 3 Supply and Exhaust isolation dampers have closed.

The event most likely to have caused this ventilation alignment would be:

A. High Drywell Pressure on Unit 1

✓B. Refuel Floor Exhaust High Radiation

C. RPV low water level (-38") on Unit 2

D. Reactor Building Recirculation fan room high area radiation

"B" is correct because Zone 3 Isolation will only affect Zone 3 Ventilation.

"A" and "C" are incorrect because a LOCA signal on either unit will trip it's supply and exhaust fans, and will also affect Zone 3 ventilation. Zone 1 and 2 fans are still in service.

"D" is incorrect because no isolation signal is generated from this condition

K/A 290001 A3.01 SRO Imp Fac 4 LOK H LOD 3

SY017 L-5 NEW

40. A Fire in the Main Control Room has resulted in damage to the Control Structure HVAC wiring in the Control Room HVAC Panel 0C681. Control Room Evacuation was required. How is Control Structure HVAC re-established from outside the Control Room?

A. Transfer INSTRUMENT SET 1 to EMERG position at the Unit 1 Remote Shutdown Panel, then proceed with local breaker operations.

✓B. Place the "A" train of CS HVAC in service at panel 0C879, Area 21-783'.

C. Direct Electrical Maintenance to jumper the start relays at the Local Panel OC877A (B) for the train that was <u>not</u> in service.

D. Place both trains of CS HVAC in service by tripping the CREOASS Process Radiation Monitor in the Lower Relay Room.

"B" is correct as directed by procedure ON-013-001.

"A" is incorrect because Instrument Set 1 does not provide input to CS HVAC.
"C" is incorrect because no direction is given for this action.
"D" is incorrect because this is not directed, and also would not re-establish CS HVAC.

K/A 290003 2.4.34 SRO Imp Fac 3.6 LOK F LOD 2

SY017 L-11 NEW

41. All of the following require prompt verbal notification of Operations Management in accordance with OP-AD-001, Operations Policies and Work Practices **EXCEPT:**

✓A. Reactor power reduction initiated for Rod Sequence Exchange.

B. Evacuation of the Turbine Building due to main generator hydrogen leak.

C. A mispositioned control rod or unintended control rod motion.

D. Transporting a non-contaminated, injured person to the Berwick Hospital.

"A" is the only exception to OP-AD-001 Requirements.

"B", "C", and "D" are identified in OP-AD-001.

K/A 294001 2.1.14 SRO Imp Fac 3.3 LOK F LOD 2

AD044C OP-AD-001 MOD EXAM BANK

42. Unit 1 was at 100% power. Both Reactor Recirc Pumps were in Master Manual control. An inadvertent runback to the #1 Limiter of the "A" Reactor Recirc Pump has just occurred.

- Total Core flow indicates 71 Mlbm/hr.
- "A" Reactor Recirc Loop Jet pump flow indicates 3.6 Mlbm/hr.
- "B" Reactor Recirc Loop Jet pump flow indicates 67.4 Mlbm/hr.

Which of the following actions is required? underline

A. Immediately reduce the "B" Reactor Recirc Pump speed to ≤55 Mlbm/hr.

B. Correct flow mismatch within 24 hours or be in Mode 3 within the next 12 hours.

✓C. Declare the "A" Reactor Recirc Pump "not in operation" within 2 hours.

D. Immediately reduce power to below the 70% Rod Line of the Power/Flow Map.

"C" is correct per T.S. 3.4.1 action D.

"A" is incorrect because the RRP did not trip.
"B" is incorrect because time limits have not yet expired.
"D" is incorrect because this limit is for a pump restart.

Tech Spec and Power/Flow Map required

K/A 202002 2.1.12 SRO Imp Fac 4 LOK H LOD 3

TS 3.4.1 ON-164-002 NEW

Could "D" also be Considered Correct on appeal i.e. reduce Power

Licensee will underline required in the Stem - if they feel after review of proposed action Not required "D" would be incorrect

43. Unit 1 returned to 100% power 1 hour ago following Feedwater Heater maintenance. Reactor Engineering reports that due to a problem with the Heat Balance program, calculated thermal power has been 70 MW_{th} lower than actual thermal power for the previous 2 hours.

Which action(s) are required?

✓A. Reduce thermal power to ≤100% immediately. Notify NRC Operations Center within 24 hours.

B. Reduce thermal power immediately to restore the hourly average to ≤100%. Nuclear Fuels group must ensure reload analysis has not been violated. Notify NRC Operations Center within 4 hours.

C. Reduce thermal power to ≤80% within 15 minutes. Commence a controlled shutdown. Notify NRC Operations Center within 1 hour.

D. Reduce power to ≤25% within 2 hours. Notify NRC Operations Center within 1 hour.

Overshoot is > 102%. In accordance with NDAP-QA-0720 Reportability Requirements, this is a 24 hour reportable event regardless of how it occurred.

"A" is correct in accordance with ON-100-004 and Reportability Requirements.

"B" is incorrect because of notification time; Nuclears Fuels group analysis occurs if > 110%.
"C" is incorrect because of notification time; power reduction is too much.
"D" is incorrect because of notification time; thermal limits have not been exceeded.

K/A 294001 2.1.20 SRO Imp Fac 4.2 LOK H LOD 3

NDAP-QA-0720 ON-100-004 NEW

44. Unit 2 power ascension is in progress with reactor power currently at 18%. When Control Rod 18-19 is selected for motion from position 00 to 04, the Rod Sequence Control System locks up with WH BLK and INS BLK illuminated on the RSCS Display. Rod Worth Minimizer displays remain normal throughout however, no further Control Rod motion is allowed. When the Control Rod is de-selected, RSCS returns to normal status. No other abnormal alarms or indications are received.

Using the attached NDAP-QA-0338 attachment I, Reactivity Control System Bypass Authorization Form, determine the appropriate action.

A. Bypass RSCS in accordance with OP-156-002 using keylock switch on Control Room Panel 1C651 and apply appropriate Tech Specs. Unbypass RSCS when no longer selected to this rod.

✓B. Bypass the Control Rod in accordance with OP-156-002 using the Bypass Switch Card and apply appropriate Tech Specs. Unbypass the rod when condition corrected.

C. Bypass the Control Rod in accordance with OP-156-001 at the Rod Drive Control Cabinet and apply appropriate Tech Specs. Unbypass the rod when condition corrected.

D. Select substitute position and notify I&C.

"B" is correct because this will allow continuation

"A" is incorrect because direction is not given by an EOP, and it only bypasses INSERT blocks.
"C" is incorrect because this will bypass the control rod in Reactor Manual Control System. No rod motion is allowed.
"D" is incorrect because substitute position will not work.

** NDAP-QA-0338 attachment I ** required

K/A 294001 2.1.25 SRO Imp Fac 3.1 LOK H LOD 3

NDAP-QA-0338 SY017 K-4 NEW

45. Select the statement accurately describing why a significant difference exists between Unit 1 and Unit 2 Station Blackout coping strategies.

A. Unit 1 magenta colored instrumentation requires Blue Max for extended operation.

✓B. Unit 2 has a separate Non-Vital battery bank.

C. Unit 1 normally carries more Common Loads.

D. Unit 2 relies upon Unit 1 for ESW cooling.

"B" is correct because this does not require Unit 2 to manually shed loads in order to meet the 4 hour requirement.

"A" is incorrect because the same condition exists on Unit 2.
"C" is incorrect because although true, has no impact on long range coping strategy.
"D" is incorrect because without Diesels or other equipment running, the lack of ESW impacts both units in the same fashion

K/A 294001 2.2.4 SRO Imp Fac 3 LOK F LOD 2

EO-000-030 MOD EXAM BANK

46. Which activity can be authorized by the System Operating Representative (SO Rep) when it involves a Status Control or Red Tagged component?

A. Cycling of the breaker for a Red Tagged valve to ensure power leads have been re-terminated correctly.

B. Installation of a blank flange on a valve body flange to maintain boundary protection while permitting manual valve cycling.

C. Cycling of the Red Tagged valve to ensure no thermal binding of the valve stem has occurred.

✓D. Operation of a Status Control Tagged valve to drain a system prior to Active status of the permit.

"D" is correct because it is permitted by NDAP-QA-0302 System Status and Equipment Control. This allows work-group assisted draining without the administrative restrictions that would apply if the Permit was Active (other work groups'concurrence, notification, etc.)

"A" is incorrect because the permit will include that bkr as a part of the permit – not allowed.
"B" is incorrect because must be part of blocking boundary.
"C" is incorrect because alters the permit boundary – potential safety issue.

K/A 294001 2.2.17 SRO Imp Fac 3.5 LOK F LOD 2

NDAP-QA-0302 MOD EXAM BANK

47. While performing Core Alterations on Unit 1, a fuel assembly located in the core is engaged out of sequence. The error is identified just after the fuel assembly is raised above the Top Guide. Refueling activities are halted to notify the Unit Supervisor of the error.

SELECT the required response to this event.

A. Notify Reactor Engineer. If Shutdown Margin can be verified, obtain a FACCTAS Change Notice and return the fuel assembly to it's original core location.

✓B. Raise fuel assembly to full-up position and place the bundle into the Safe Setdown location in the Fuel Pool.

C. Note the error in the FACCTAS. With permission from Operations Manager and Reactor Engineer, return the fuel assembly to it's original core location.

D. Place the fuel assembly into the closest rodded cell. Notify Reactor Engineer to verify Shutdown Margin.

"B" is correct because the fuel assembly has been removed from the core region. If it had not been removed, it may have been re-seated into it's original spot. The probability of reactivity excursion is minor in that case. If the fuel assembly was re-inserted into the core and another error was made, the reactivity addition would be unanalyzed, criticality possible, depending...

"A", "C" and "D" are incorrect because the fuel assembly is returned to the core without being placed into the Safe Setdown location.

K/A 294001 2.2.28 SRO Imp Fac 3.5 LOK F LOD 2

ON-081-002 MOD EXAM BANK

48. Which statement accurately describes the control rod programming of the Rod Sequence Control System?

A. After Group 1 rods are fully withdrawn to position 48, the next rod to be withdrawn may come from either Group 2, Group 3, or Group 4. Notch restraint will be enforced between notch position 00 and 24 for insert and withdraw.

✓B. With RSCS Groups 1 and 2 fully withdrawn to position 48, either RSCS Group 3 or Group 4 control rods may be withdrawn. Notch restraint will be enforced between 00 and 12 for insert and withdraw.

C. With RSCS Group 1 withdrawn to position 48, the second group to be moved must be RSCS Group 2. Notch restraint will be enforced between notch position 00 and 24 for withdraw only.

D. With RSCS Groups 1 and 2 fully withdrawn to position 48, RSCS Group 3 or Group 4 may be withdrawn to position 48. Notch restraint will be enforced between 00 and 24 for insert and withdraw.

"B" is correct because this pattern will ensure a "Black and White" pattern is achieved through designed notch restraint limitations.

"A" is wrong because the next rod must be from group 2.
"C" is wrong because Notch Restraint is enforced in both directions.
"D" is wrong because Notch Restraint is between 00 and 12.

K/A 294001 2.2.33 SRO Imp Fac 2.9 LOK F LOD 3

SY017 K-4 MOD EXAM BANK

49. The Liquid Radiation Release Monitor is determined to be INOPERABLE. Prior to the planned release from a tank other than the Laundry Tank:

A. the liquid radiation monitor must be returned to OPERABLE status.

✓B. the expected dose projection for the tank to be released must be manually, independently calculated.

C. interlocks associated with low blowdown flow effluent valve isolation must be bypassed.

D. the cooling tower blowdown valves must be fully opened to provide maximum dilution flow.

"C" is correct because Ops is responsible for correct setting of the rad monitor for the setpoints calculated by Chemistry.

"A" is incorrect because the expected dose calculation is not performed independently
"B" is incorrect because the setpoint calculation is not performed independently
"D" is incorrect because this is performed by the Assistant Unit Supervisor

K/A 294001 2.3.6 SRO Imp Fac 3.1 LOK F LOD 2

OP-069-050 NEW

Too Similar to Question # 36 - revise/rep lace one of them.

50. Unit 1 is at 30% power. A shutdown is in progress with preparations being made to purge Primary Containment.

Using the attached figure, SELECT purge lineup and condition which is permitted by NDAP-QA-0309 Primary Containment Control.

A. With either SBGT System train inoperable, purge the Drywell or Suppression Chamber through the 18" / 24" Vent Isolation Valves provided lineup does not exceed 90 hours per 365 days.

B. With both SBGT System trains operable, purge the Drywell and Suppression Chamber concurrently through the 18" / 24" Vent Isolation Valves to either train.

✓C. With both SBGT System trains operable, purge the Drywell or Suppression Chamber through the 2" Bypass Valve to either train.

D. With both SBGT System trains operable, purge the Drywell or Suppression Chamber through the 2" Bypass Valve to both trains.

"C" is correct because both trains must be operable and purge through the 2" vent is per procedural lineup.

"A" is incorrect because both trains of SBGT must be operable whenever purge system is in use.
"B" is incorrect because this would cross-connect both spaces.
"D" is incorrect because only one SBGT system train may be used.

** Copy plaque from panel 1C601 "Containment Vent, Purge and Makeup" ** required

K/A 294001 2.3.9 SRO Imp Fac 3.4 LOK H LOD 3

NDAP-QA-0309 OP-173-001 NEW

51. An Alert has been declared due to a pipe break inside Secondary Containment. Elevated radiation levels exist. You, as Emergency Director, direct sending personnel into the area to attempt a valve closure that will terminate the event.

The individual assigned to the task has documented lifetime exposure. He has received 350 mREM Total Effective Dose Equivalent (TEDE) exposure this year and 1200 mREM lifetime TEDE. Assuming the exposure received during this evolution will also be whole body, the maximum dose in (mREM) this individual can receive **WITHOUT** a dose extension authorization is:

A. 23,800.

B. 8,500.

✓C. 1,650.

D. 800.

"C" is correct because 2000 mREM is the SSES occupational exposure limit for 1 year. All other limits require authorization

"A" is the EMERG DOSE AUTH for life-saving, protection of exposure – lifetime TEDE.
"B" is the EMERG DOSE AUTH to protect facilities – lifetime TEDE.
"D" just in case lifetime is confused with annual dose.

K/A 294001 2.3.4 SRO Imp Fac 3.1 LOK H LOD 3

EP-PS-100 HP002R MOD EXAM BANK

52. A Unit 2 Reactor Scram and MSIV isolation has occurred from a false high steam flow signal. Several SRVs were manually opened to maintain RPV pressure less than 1087 psig. Suppression Pool temperature has risen to 108°F. Drywell pressure has been slowly increasing in pressure and is currently at 1.3 psig. 1 hour has elapsed since the reactor scram. As unit Supervisor, you direct the PCO to vent Drywell using the "A" SBGT train in accordance with EO-100-103 step PC/P-1.

Which statement below meets the requirements for venting the Drywell?

A. If a valid SBGT System SPING HI HI alarm is received due to this evolution, vent release path must be terminated and execution of EO-100-104 is required.

✓B. Technical Requirements must be verified within 4 hours prior to establishing vent release path.

C. A Noble gas grab sample must be obtained and analyzed prior to vent release because SRV lifts have occurred.

D. Suppression Chamber to Drywell Vacuum Breakers must be successfully tested prior to vent release because SRV lifts have occurred.

"B" is correct because it complies with OP-173-003

"A" is incorrect because EO-100-104 entry is not required if venting primary containment.
"C" is incorrect because this is not a requirement.
"D" is incorrect because this is a requirement for venting the suppression chamber.

K/A 294001 2.3.11 SRO Imp Fac 3.2 LOK H LOD 3

OP-173-003 TS 3.3.6.1 NEW

53. With Unit 1 at rated power a valving error resulted in an introduction of water from a source external to primary containment. The suppression pool level rise was terminated at 24' 4".

Technical Specifications / Technical Requirements require:

A. declaring RHR and Core Spray subsystems inoperable. Enter LCO 3.0.3 immediately.

B. restoring suppression pool level to within limits within the next four hours or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

C. declaring primary containment inoperable. Restore suppression pool water level to within limits within one hour or be in MODE 3 in twelve hours and MODE 4 in 36 hours.

✓D. restoring suppression pool water level to within limits within the next two hours or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

"D" is the only correct Tech Spec

"A" is incorrect because SP Level does not inop LP ECCS.
"B" is incorrect because of the four hour time limit.
"C" is incorrect because of the one hour time limit and does not inop PC.

K/A 294001 2.2.23 SRO Imp Fac 3.8 LOK F LOD 2

TS 3.6.2.2 NEW

54. Which condition below requires a change in mitigation strategy with regard to adequate core cooling?

A. With RPV level at –185" on the fuel zone level indication, the Unit Supervisor enters EO-100-112 to perform rapid depressurization.

T/F

B. RPV level cannot be restored and maintained above –161" with the RPV depressurized during execution of EO-100-102, RPV Control. Entry into EP-DS-002, Primary Containment and RPV Flooding; is recommended.

C. With four control rods not fully inserted into the core, a coincident condition where two areas inside secondary containment have exceeded their maximum safe operating temperature and a primary system is discharging into Secondary Containment.

✓D. A loss of RPV level inventory and inability to supply makeup results in RPV level dropping below -200" on the Fuel Zone level indication.

"D" is correct because without injection ACC strategy shifts to Steam Cooling

"A", "B", and "C" are incorrect because they still require ACC to be accomplished by raising level above top of active fuel.

K/A 294001 2.4.6 SRO Imp Fac 4 LOK H LOD 4

EO-100-102 EO-100-104 NEW

EO-113 / EO-104?

What Strategy are you implementing here? Doesn't seem Consistent. Doesn't "C" require a change in Strategy?

55. EO-100-103, Primary Containment Control ensures the start of HPCI and RCIC if Suppression Pool level reaches 26'. What is the potential danger with such a high suppression pool level?

A. If level continues to rise, the HPCI and RCIC turbine exhaust vacuum breaker suppression chamber penetrations will be covered. Filling these lines will result in HPCI and RCIC exhaust line rupture diaphragms becoming flooded.

B. The HPCI and RCIC barometric condenser vacuum pump discharge lines will fill with water and provide a potential release path to the reactor building as the discharge will travel out the pump seals rather than the discharge line.

✓C. The elevated suppression chamber water level provides excessive exhaust backpressure. If either is started, exhaust pipe damage may result.

D. The increased suppression pool water volume will place undesirable loading on the suppression chamber walls resulting from HPCI and RCIC exhaust forces if either starts. This force may exceed suppression chamber hydrodynamic design pressures.

"C" is correct since this may result in premature high exhaust pressure trips and exhaust pipe damage.

"A" is incorrect because this is not a concern.
"B" is incorrect because this has no effect, (goes to SBGT, not primary containment.)
"D" is incorrect because this is not a basis for starting the systems.

K/A 294001 2.4.18 SRO Imp Fac 3.6 LOK H LOD 3

EO-100-103 NEW

56. During a station blackout, the PCO reports the following:

- A Diesel is not running. There is less than 20 psig in the air receivers.
- C Diesel is running with no voltage. Electrical can fix the problem in 20 minutes.
- B Diesel tripped on a generator differential. Electrical is investigating.
- D Diesel tripped on low lube oil pressure due to a large leak.

Based on this information, which of the following actions is the highest priority?

✓A. Shutdown "C" Diesel.

B. Substitute "E" Diesel for "B" Diesel.

C. Reset the "B" Diesel Generator Differential Relay.

D. Substitute "E" Diesel for "A" Diesel.

"A" is correct because "C" DG has no cooling. Limits for running unloaded is 8 minutes; loaded 4.5 minutes.

"B", "C", and "D" are actions which are time consuming, and would eventually be undertaken, but not at the expense of destroying the "C" DG.

K/A 294001 2.4.7 SRO Imp Fac 3.8 LOK H LOD 3

EO-000-030 MOD EXAM BANK

Why doesn't the "C" have cooling? What is the Nexus between running with no Voltage & no cooling?

Ans: No Voltage to Supply power to Pump primarily "C" Cooling water & the diesel - This is more limiting than Starting & Substituting "E" diesel which would take ~45 minutes

57. Given the following plant parameters:

Rx Mode Swith Position:	SHUTDOWN
RPV pressure:	125 psig
Narrow Range level	+25"
Drywell Presure	0.08 psig

All of the following alarms are consistent with these plant parameters EXCEPT:

A. RECIRC LOOP B
DISCHARGE VLVS AUTO CLS
LO PRESS PERMISIVE

✓B. RHR LOOP A
DISCH/SHTDN SUCT HDR
HI PRESS

C. PRIMARY CONTAINMENT
HI-LO PRESS

D. MSIV CLOSURE
BYPASS

"B" is inconsistent because alarm is at 136/381 psig respectively.

"A" is consistent because RPV pressure is < 236 psig.
"C" is consistent because Drywell Pressure is below 0.1 psig.
"D" is consistent because the Mode Switch is in Shutdown.

K/A 294001 2.4.46 SRO Imp Fac 3.6 LOK F LOD 2

AR-109-F03 NEW

58. Which condition constitutes a thermal limit violation?

A. THERMAL POWER at 10% with reactor pressure at 650 psig.

B. Peak transient reactor pressure reached 1275 psig.

✓C. THERMAL POWER at 30% with core flow at 6 mblm/hr.

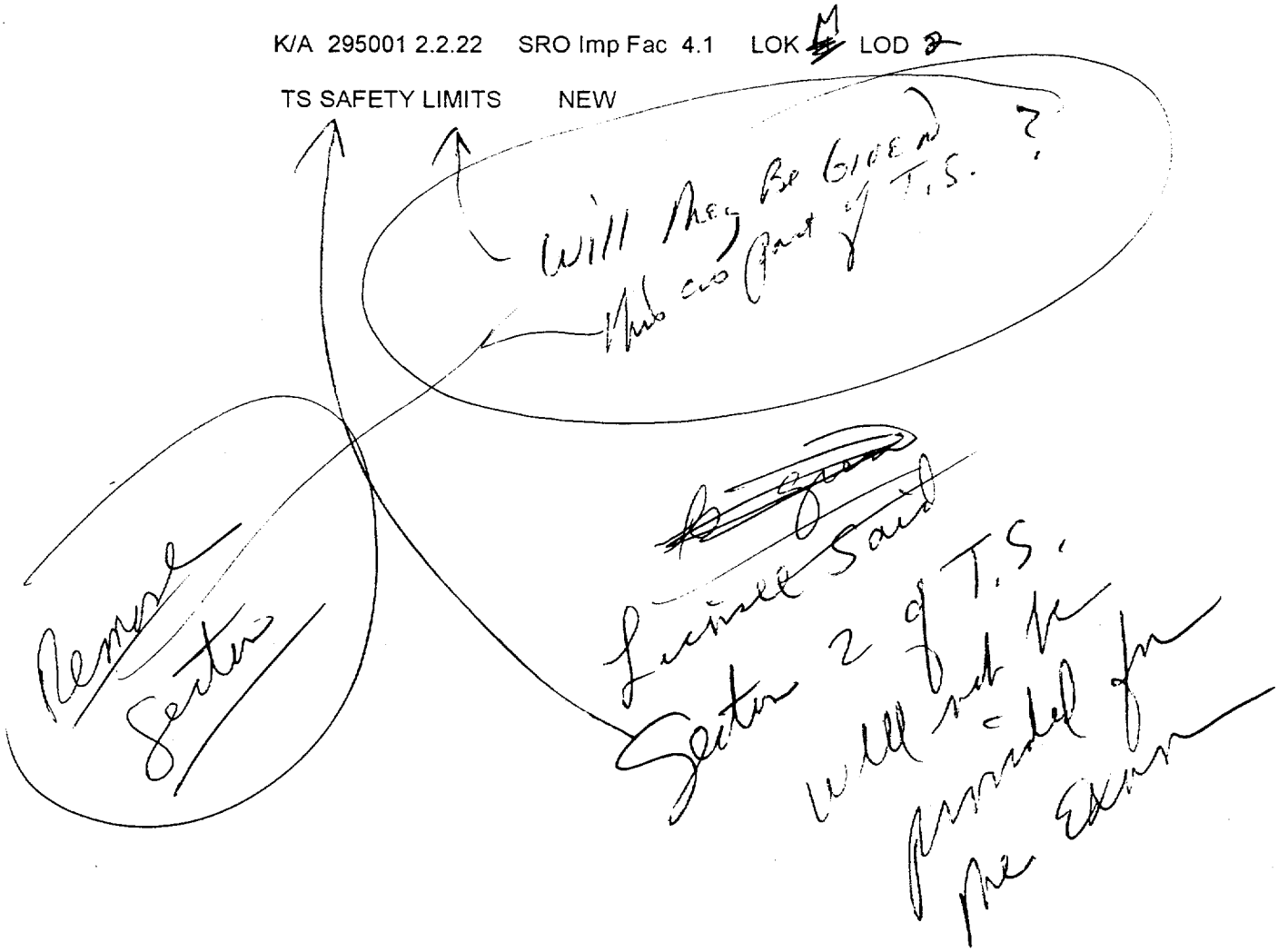
D. MCPR at a value greater than the applicable limit for the current power to flow conditions.
$MCPR_{actual} > MCPR_{limit}$

"C" is correct as defined by TS

"A" limit is 25% in this condition.
"B" limit is 1325 psig.
"D" this is conservative.

K/A 295001 2.2.22 SRO Imp Fac 4.1 LOK M LOD 2

TS SAFETY LIMITS NEW



59. While at 100% power, a recirculation transient caused by a short in the control circuitry occurs. Immediately following the transient, the plant stabilizes with the following parameters:

- Reactor Power 50%
- "A" Recirc pump tripped
- "B" Recirc pump at 45% speed
- Loop "A" total jet pump flow is 20 Mlbm/hr
- Loop "B" total jet pump flow is 56 Mlbm/hr
- Total indicated core flow 36 Mlbm/hr

What is actual core flow, and how will this affect the APRM Scram setpoint?

✓A. 36 Mlbm/hr. Setpoint needs to be adjusted to 0.58W + 57%.

B. 36 Mlbm/hr. Setpoint is correct.

C. 76 Mlbm/hr. Setpoint needs to be adjusted to 0.58W + 57%.

D. 76 Mlbm/hr. Setpoint is correct.

"A" is correct because bypass flow through inoperable loop requires lowering setpoint .

"B" is incorrect because setpoint is not adjusted
"C" is incorrect because the loops have been added instead of subtracted.
"D" is incorrect because the loops have been added instead of subtracted, and setpoint is not adjusted

K/A 295001 AA1.06 SRO Imp Fac 2.9 LOK H LOD 3

AD046 NEW

60. Unit 2 is operating at 100% power. The following annunciators are received:

- CONDENSER LO VACUUM
- OFF-GAS HI/LO FLOW
- STEAM SEAL HDR HI/LO PRESS — Loss of Seal
- GEN VOLT REG AUTO TO MAN
  SETPOINT UNBALANCE

SELECT the initiating cause and the action(s) required.

✓A. Loss of steam seals. Break condenser vacuum if seals cannot be restored **because steam seal / turbine damage may result.**

B. Vacuum bellows failure. Reduce power to 70% and isolate affected condenser. If condenser vacuum continues to decay, perform Scram Imminent actions.

C. SJAE failure. Reduce power to restore condenser vacuum and reduce off gas steam dilution flow to prevent choking of the SJAE nozzle.

D. Steam Packing Exhauster failure. Place standby Steam Packing Exhauster in service. If condenser vacuum continues to decay, make preparations to remove Main Turbine from service.

"A" is correct because steam seal pressure is normally 4 psig.

"B" "C" and "D" are incorrect since each involves an incorrect diagnostic.

K/A 295002 AK1.04 SRO Imp Fac 3.4 LOK H LOD 4

ON-143-001 AR-121-001 MOD EXAM BANK

61. A Station Blackout has been in progress for forty minutes. All actions and Emergency Support procedures required to be accomplished based upon the time requirements and systems required for safe shutdown during blackout are complete.

Plant conditions:

RPV	
Pressure	1005 psig rising slowly
Level	+25" steady
Containment	
Air temperature	185 °F rising slowly
Suppression pool water temperature	105 °F rising slowly
Drywell pressure	1.6 psig rising slowly
Suppression pool level	24' rising slowly

If operation of HPCI is being performed in accordance with EO-100-032, HPCI Operating Guidelines During Blackout and EO-100-030, Unit 1 Response to Station Blackout, the control room operator should:

A. alternate operation between Injection and Pressure Control modes control as required.

B. ensure HPCI realigns to the injection mode when drywell pressure exceeds 1.72 psig and then secure HPCI to avoid RPV overfill.

C. ensure HPCI suction realigns to the suppression pool when suppression pool level reaches 23.75 '.

D. prevent HPCI injection and subsequent operation. HPCI will not be required for continued operation during Station Blackout.

"A" is correct as this will ensure continued operation.

"B" and "C" are incorrect because jumpers are installed to defeat these realignments.
"D" is incorrect because HPCI is required per procedure.

K/A 295003 AA1.03 SRO Imp Fac 3.3 LOK H LOD 2

EO-000-030 NEW

62. The Emergency 4160 VAC busses have Degraded Bus Voltage Load Shed protection. When actuated, the logic:

A. transfers power for that bus to the alternate transformer to prevent an overload of that power transformer.

B. permits sequential restart of loads supplied from that same power source following the load shed.

C. blocks any additional loads on that bus from starting until the degraded voltage condition clears.

✓D. ensures loads are not damaged from high current flow in the event of a Design Basis Accident.

"D" is correct because with low voltage conditions, currents run high. Starting currents and sequencing of emergency equipment could be affected.

"A" is incorrect because this doesn't protect the xfmr, it protects loads supplied by it.
"B" is incorrect because an alternate power source will repower the bus.
"C" is incorrect because this doesn't block loads, it trips them and "looks" for a better power supply.

K/A 295003 AK3.03 SRO Imp Fac 4.4 LOK H LOD 2

AR-150-001 SY017 G-5C NEW

63. Units 1 and 2 are in MODE 1. Electrcial Distribution is in a normal lineup when Electrical Maintenance reports one 0D595 battery terminal appears to have been damaged. Resistance taken on the terminal indicates $70.0 \times E^{-6}$ ohms.

SELECT the corrrect Technical Specification action.

A. Restore battery bank 0D595 to OPERABLE status within 2 hours or be in MODE 3 in 12 hours and MODE 4 in 36 hours.

✓B. Verify all ESW valves associated with "E" Diesel Generator are closed within 2 hours.

C. Restore battery bank 0D595 to OPERABLE status within 2 hours or declare "E" Diesel Generator INOPERABLE.

D. Declare "E" Diesel Generator INOPERABLE; perform of site circuit breaker alignment surveillance within 1 hour and once per 8 hours thereafter until the battery bank is OPERABLE.

"B" is the only correct Technical Specification answer. Since the E DG is not substututing for one of the "required" DG, less stringent requirements are imposed. The ESW valves have to be closed so that adequate ESW flow will be directed to the other DGs.

K/A 295004 2.1.12 SRO Imp Fac 4.0 LOK H LOD 4

TS.3.8.7 NEW

64.064 001

While in operation at power, the Control Room Operator acknowledges the following Core Spray Division A BIS annunciator:

AR-154-001 PUMP C BKR POWER LOSS

Consequently, the amber "STOP" indication lamp for the "C" Core Spray pump is extinguished on panel 1C601. What is a consequence of this condition?

A. This Core Spray loop will not meet the criteria of ~~"an injection subsystem"~~ "a table # subsystem".

B. Power has to be restored to this circuit by eliminating the malfunction and restoring power from that same circuit to restore pump operation.

C. The "C" Core Spray pump will not automatically start but can be manually started via control room control switch.

✓D. The "C" Core Spray pump can be returned to operation by manually transferring its control power supply to Unit 2 Division I DC power.

"D" is correct because an alternate power source is available.

"A" is incorrect because one pump satisfies criteria.
"B" is incorrect because the capability to transfer to other unit exists.
"C" is incorrect because a DC loss renders pump not useable.

K/A 295004 AA1.02 SRO Imp Fac 4.1 LOK H LOD 3

EO-100-102 ON-102-630 NEW

65. A Unit 1 shutdown is in progress. The crew is ready to remove the Main Turbine from the grid. The LOAD SELECTOR DECREASE pushbutton is depressed to reduce generator load to 5% but it sticks in the depressed position and all load from the main generator is removed. The synchronizing breaker opens on reverse power.

Assuming the main generator trip FAILS TO CAUSE A TURBINE TRIP

A. the Power / Load Unbalance circuit will trip the turbine.

B. the Control Valve Fast Closure logic will trip the turbine and scram the reactor.

C. the Overspeed Protection circuit will trip the turbine and the reactor will scram on high flux or pressure.

✓D. the Speed Regulation circuit will allow turbine speed to rise and then be controlled by the Control and Intercept valves.

"D" is correct because the speed reulation circuit will take control to stay within the 5% speed regulation band.

"A" is incorrect because this is enforced at a 40% mismatch which doesn't exist.
"B" is incorrect because this is bypassed <30%.
"C" is incorrect because speed control will regulate.

K/A 295005 AA2.01 SRO Imp Fac 2.9 LOK H LOD 3

SY017 A-8 OP-193-001 NEW

66. Unit 2 shutdown is in progress because the #2 turbine stop valve would not close during testing. At 40% power high vibrations are experienced which exceed the trip setpoint. The plant responds as expected with the exception that the #2 Stop Valve remains open.

What is the condition of the main turbine and the reactor?

A. The main turbine is not tripped, and the reactor did not scram

B. The main turbine is not tripped and the reactor is scrammed.

C. The main turbine is tripped, and the reactor did not scram

✓D. The main turbine is tripped, and the reactor is scrammed.

"D" is correct because sufficient inputs exist from stop valve positions when > 30% power

"A" is incorrect because the turbine will trip, 3 SVs are sufficient for logic.
"B" is incorrect because the turbine will trip
"C" is incorrect because the reactor will scram

K/A 295005 AK2.01 SRO Imp Fac 2.7 LOK H LOD 2

SY017 E-5 NEW

67. A manual scram from 100% power has been initiated by placing the Mode Switch to SHUTDOWN. Which of the following would be a direct response to the change in RPS logic?

A. Full Core Display has swapped to Full In-Full Out.

B. Alternate Rod Insertion block and vent valves have repositioned.

C. The turbine stop valve and control valve scram signals are bypassed.

D. Scram Group Solenoids indicating lamps in the relay rooms (1C609 and 1C611) have illuminated.

"A" is correct because one design of the RPS logic (K34 relay) is to give the control room operator the ability to assess control rod positions immediately following a full scram signal.

"B" is incorrect because ARI is a seperate system.
"C" is incorrect because bypass condition relies upon turb 1st stage pressure.
"D" is incorrect because deenergized to actuate.

K/A 295006 AA2.05 SRO Imp Fac 4.6 LOK F LOD 2

SY017 L-5 AR 104 001 NEW

68. The Immediate Operator Actions of SCRAM procedure ON-100-101 accomplish all of the following actions EXCEPT:

A. Insertion of a manual RPS trip signal.

B. Verification as to whether or not the reactor will remain shutdown under all conditions without boron.

C. Verification of the system status to prevent potential radioactivity release.

✓D. Prevention of excessive RPV cooldown from steam usage by the main turbine.

"D" is correct because isolation of the MSIVs (if turbine speed is increasing) is directed from ON-193-002 Main Turbine Trip

"A" is incorrect because this is accomplished when placing the MODE SWITCH to SHUTDOWN.
"B" is incorrect because this is accomplished by verifying all rods in.
"C" is incorrect because this is accomplished by verifying group isolations.

K/A 295006 AK3.05 SRO Imp Fac 4.3 LOK F LOD 2

ON-100-101 NEW

69. Unit 1 is operating at 100% power. If the "INCREASE" Pressure Set pushbutton is maintained depressed, predict the response of the Main Turbine Bypass valves, RPV level and Reactor power.

	Bypass Valves	RPV Level	Reactor power
A.	Remain closed	Increase	Increase
B.	Valves open	Increase	Decrease
C.	Valves open	Decrease	Decrease
✓D.	Remain closed	Decrease	Increase

"D" is correct because for pressure to increase, bypass valves must stay closed. The initial effects of a higher pressure will result in a slight lowering of level...the subsequent rise in pressure will also cause power to go up.

"A" is incorrect because RPV level will decrease.
"B" is incorrect because power will increase, BPV remain closed, RPV level will decrease.
"C" is incorrect because power will increase.

K/A 295007 AK1.03 SRO Imp Fac 3.9 LOK H LOD 4

EHC LOGIC MOD EXAM BANK

70. With Unit 2 at 45% power a Load Reject Without Bypass Valves occurred. A reactor scram has occurred. Plant conditions are listed below.

Highest RPV pressure	1130 psig
Lowest RPV level	-24"

SELECT the automatic protective functions that have occurred.

✓A. Reactor Recirculation pumps trip, ARI initiates, only 10 SRVs open.

B. Reactor Recirculation pumps trip, ARI initiates, only 6 SRVs open.

C. ARI initiates, RCIC initiates, only 8 SRVs open.

D. Reactor Recirculation pumps trip, only 2 SRVs open.

"A" is correct because 1126 psig opens 10 SRVs.

"B" is incorrect because number of SRVs.
"C" is incorrect because RCIC initiates @ -30".
"D" is incorrect because number of SRVs.

K/A 295007 AK3.04 SRO Imp Fac 3.2 LOK H LOD 4

SY017 C-5 SY017 L-5 (NEW)

71. During a plant transient RCIC auto initiated on Lo RPV level. A fault in the 1C601 Alarm Window for RCIC has caused those alarms to be inoperable. Addressing RCIC status, the operator reports the following conditions:

RCIC speed	0 RPM
Steam Admission Valve F045:	CLOSED
RCIC T&TV Valve HV-15012	OPEN
Injection Valve F013:	CLOSED
Steam Isolation valves F007 and F008:	OPEN

CHOOSE the parameter(s) responsible for RCIC status. Assume RCIC responded properly.

A. RCIC Pump suction pressure

B. RPV pressure

C. RPV pressure and Drywell pressure.

✓D. RPV water level.

"D" is correct because this is a high water level shutdown signal.

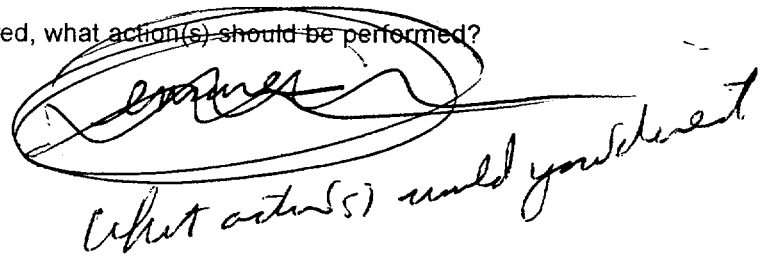
"A" is incorrect because low suction pressure is a trip (TTV closes)
"B" is incorrect because this will close the inboard and outboard steam isolation valves as well.
"C" is incorrect because, in this case, the exhaust vacuum breakers will also close.

K/A 295008 AK2.06 SRO Imp Fac 3.6 LOK H LOD 3

SY017 C-5 NRC SSES 91 EXAM

72. With Unit 1 at 90% power in a normal lineup and no equipment out of service, the B Condensate pump trips. RPV level drops to the low level alarm setpoint.

Assuming no automatic plant response occurred, what ~~action(s) should be performed~~?



A. Attempt to restart the Condensate pump.

B. Perform scram imminent.

✓C. Reduce recirculation pump speeds to 45%.

D. Reduce reactor power to 80% via recirculation flow reduction.

"C" is correct because +30" (Lo RPV level alarm setpoint) and <100 psig condensate pump discharge pressure is a Recirc Runback signal.

"A" is incorrect since a pump restart prohibited without determination of cause, pump discharge valve is still cycling closed.
"B" not required. Power reduction would be excessive.
"D" no direction to perform this action via any procedure.

K/A 259009 AK2.03 SRO Imp Fac 3.2 LOK H LOD 3

AR-101-001 NEW

73. With Unit 1 at 40% power, makeup to the drywell is in progress from the 1" nitrogen makeup line. A small steam leak develops within containment.

Assuming drywell pressure continues to rise, the first plant condition requiring automatic closure of the nitrogen makeup valves (SV 1537 and SV 1538) is:

A. RPV level +13".

✓B. drywell pressure of 1.0 psig.

C. RPV level -38".

D. drywell pressure of 1.72 psig.

"B" is correct. The valves isolate to preclude a High Drywell pressure trip if left unattended.

"A" is incorrect because they close at -38".
"C" is incorrect because 1.0 psig occurs first.
"D" is incorrect because this is not an isolation signal to valves.

K/A 295010 AA1.03 SRO Imp Fac 2.6 LOK F LOD 2

SY017 E-6 ON-159-002 NEW

74. EO-100-104, Secondary Containment Control, provides a table of radiation levels to be used to determine decision paths. A MAXIMUM SAFE radiation level is based on:

A. receipt of AR-100-001, A04, Refuel Floor Wall Exhaust High Radiation annunciator.

B. radiation levels which would exceed 10CFR20 limits for one hour exposure.

✓C. radiation levels which would exceed emergency exposure limits.

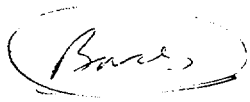
D. receipt of AR-100-001, B05, Rx Bldg Hi Rad , from any input to that annunciator.

"C" is correct according to EOP guidelines

"A" is incorrect because this alarm gives no indication of general radiation levels. The exposure limits are not a basis for alarm setpoint.
"B" is incorrect because these limits are not criteria for max safe.
"D" is incorrect because the alarms are set based on expected normal limits.

K/A 295033 EK2.02 SRO Imp Fac 4.1 LOK F LOD 2

EO-100-104 NEW



75.075R1 001

A reactor scram and MSIV closure has occurred as a result of a Unit 1 transient. Plant conditions:

- HPCI is in pressure control mode
- RCIC is being used to maintain RPV level +13" to +54"
- Suppression pool temperature 132°F rising
- Drywell pressure 0.1 psig steady
- Suppression pool level 23.6' rising

Assuming the systems maintain their current modes, extended operation in this condition without performing any Emergency Support Procedure actions would result in:

✓A. loss of HPCI and RCIC from high lube oil temperatures.

B. loss of HPCI as a pressure control system from high suppression pool level.

C. high radioactivity in the reactor building resulting from radioactivity release from the barometric condenser of the HPCI and RCIC systems.

D. cavitation of the HPCI and RCIC from elevated suppression pool temperature.

With conditions continuing as described, HPCI and RCIC will swap suctions to the suppression pool at 23' 9" which is 23.75'.

"A" is correct because high lube oil temperatures will result in unstable operation.

"B" is incorrect because injection valve F006 is CLOSED in pressure control mode.
"C" is incorrect because suction from CST is cool water, no condensation problems present.
"D" is incorrect because level will continue to rise adding NPSH, offsetting temp rise.

K/A 295013 AA1.02 SRO Imp Fac 3.9 LOK H LOD 3

OP-AD-001 ON-183-001 MOD EXAM BANK

76. A reactor Startup was in progress following a 7 day forced outage. Criticality was achieved and heatup in progress. Problems with EHC delayed the rod withdrawals for approximately 1.5 hours. RPV pressure decreased from 360 psig to 325 psig during this delay. Control rod 14-19 was withdrawn one notch from 10 to 12 in order to re-establish a heatup rate. Reactor period continued to shorten and the operator re-inserted the rod to determine why period indication did not return to infinity just as the rods pulled prior to the delay.

Which condition below ~~could be responsible for~~ would be the cause this reactor period indication?

A. A positive Moderator Temperature Coefficient exists.

B. The Void fraction had decreased due to the lower pressure.

C. Moderator temperature had decreased.

D. Xenon burnout in the high flux region had begun.

"C" is correct because of positive reactivity due to cooldown. (This condition is similar to a SSES specific event)

"A" is incorrect because temperature has decreased.
"B" is incorrect because void fraction does not decrease with pressure reduction.
"D" is incorrect because core should be xenon free.

K/A 295014 AA2.02 SRO Imp Fac 3.9 LOK H LOD 3

GO-100-002 NEW

77. A reactor shutdown has been initiated following a report from the Reactor Engineer that a recent reactivity evaluation determined that the actual core value is 1.05% Δk/k greater than the predicted value. Just after the shutdown was initiated, a loss of feedwater heating was experienced.

Why is there a concern about the above situation?

A. The effects of the transient on the fuel will be less severe than had been analyzed.

✓B. The effects of the transient on the fuel will be more severe than had been analyzed.

C. The reactivity addition rate for the core will be slower than analyzed.

D. The reactivity addition rate for the core will be faster than analyzed.

Having actual reactivity greater than predicted means that there is more reactivity in the core than is supposed to be. The fuel limits are at risk when a transient occurs and there may not be the proper shutdown margin. With an actual reactivity less than the predicted, there may not be enough reactivity to produce power for the entire cycle.

"B" is correct because the fuel limits are at risk.

"A" is incorrect because there is more reactivity than predicted.
"C" and "D" are incorrect because the rates of addition depend upon how this transient develops, not how much excess reactivity there is. For a Control Rod Drop accident, the rate of addition would be faster, but not for a loss of feedwater heating.

K/A 295014 AK1.02 SRO Imp Fac 3.7 LOK H LOD 3

SY017 K-1 NEW

78 Refer to the attached prints.

~~While~~ While operating at full power a power excursion to 125% occurs and the following annunciators are received:

104-001A01 RPS CHANNEL B1/B2 AUTO SCRAM
104-001A04 NEUTRON MONITORING CHAN B SYSTEM TRIP

If the immediate operator actions ~~are~~ executed per ON-100-101, Reactor Scram, and NO control rods move, the MINIMUM action that will result in control rod insertion is:

A. arming and depressing the "A1" **OR** "B1" manual scram pushbutton.

B. arming and depressing the "A1" **AND** "B1" manual scram pushbuttons.

✓C. pulling fuse F14A **OR** F14C.

D. pulling fuses F14A **AND** F14C.

"C" is the correct answer. A1 or A2 channel will satisfy "one out of two taken twice" logic.

"A" and "B" are incorrect since they have already been performed as immediate operator actions.
"D" is incorrect because we only need to pull one of the fuses.

RPS Trip System figures M1-C72-22 Sheets 3, 10, and 11 required.

K/A 295015 AK2.04 SRO Imp Fac 4.1 LOK H LOD 4

SY017 L-5 M1-C72-22 NEW

79. One hour has elapsed since a steam line break occured in the Turbine Building pipe tunnel. The transient has caused fuel damage, a reactor scram and MSIV isolation.

There is indication of flow on the "C" Main Steam Line flow instrument
RPV level is 45" steady
RPV pressure is 760 psig dropping slowly
OSCAR informs you steam is issuing from the Turbine Building blowout panels
U1 SPING readings
Noble Gas 9.2 E6 micro Curies / min
Iodine 3 E-4 micro Curies / min
Particulate 5 E2 micro Curies / min
Chemistry is sampling reactor coolant. No results are yet available.
30 minutes ago HP informed you the dose rate on Township Roadway 700 mRem / hr TEDE.

The currently declared emergency declaration is a SITE AREA EMERGENCY. Upgrading to a GENERAL EMERGENCY will be required if:

✓A. coolant iodine activity sample indicates greater than 1000 microCurie/ ml.

B. rapid depressurization is executed based upon the decision steps in EO-100-105.

C. TEDE reaches 750 mRem / hr.

D. containment high range radiation level exceeds 2000 Rem.

"A" is correct as described in the E-Plan.

"B" is incorrect because upgrade condition is not available for this action.
"C" is incorrect because it requires 1000.
"D" is incorrect because requires containment high pressure.

Students allowed to use E-Plan Classification.

K/A 295017 2.4.41 SRO Imp Fac 4.1 LOK H LOD 3

EO-100-105 E PLAN NEW

80. A Unit 1 startup is in progress. The following conditions exist:

RPV

Temperature (coolant)	235°F
Pressure	5 psig
Power	IRM Range 8

Vacuum is being established using the mechanical vacuum pump.

A rod drop accident occurs causing fuel element failure. The resulting radiation release may produce automatically initiated protective functions. What action would be the direct result of this event?

A. Off-gas Isolation and Mechanical Vacuum Pump trip.

B. Turbine building HVAC trip and fan damper closure.

C. MSIV closure and Off-gas isolation.

✓D. Reactor scram, MSIV closure and Mechanical Vacuum Pump trip.

"D" is correct because MSL High Radiation is a direct input to system logic.

"A" is incorrect because Off Gas does not isolate
"B" is incorrect because TB HVAC has no high Radiation Trip circuit
"C" is incorrect because Off Gas does not isolate

K/A 295017 AA1.10 SRO Imp Fac 3.7 LOK F LOD 2

SY017 H-2 P&ID M-107 NEW

81. A leak in the Reactor Building Chilled Water (RBCW) System within the Reactor Building required its shutdown and isolation. What are the proper operator actions for this condition?

✓A. Verify Reactor Building Closed Cooling Water (RBCCW) automatically aligns to replace RBCW as the cooling water supply to the drywell coolers.

B. Reduce power in preparation for removing the unit from service due to loss of cooling water to the Reactor Recirculation pump seal and motor bearings.

C. Reduce power to reduce heat input to the primary containment. Cooling water flow has been lost to the drywell cooling units.

D. Place Emergency Service Water in service to supply RBCCW Heat Exchangers.

"A" is correct because system design is for automatic swap.

"B" is incorrect because that cooling is supplied by RBCCW.
"C" is incorrect because that cooling will swap over to RBCCW.
"D" is incorrect because ESW is not required, SW is sufficient heat sink.

K/A 295018 AK 3.07 SRO Imp Fac 3.2 LOK F LOD 2

SY017 L-16 ON-134-001 NEW

82. A loss of instrument air occurred on Unit 1. Its effects on the Reactor building HVAC System will be:

A. RB HVAC will continue to operate in the same condition as prior to the instrument air loss. No isolation will occur if an initiation condition is received.

B. Supply and exhaust fans will trip. Recirculation system dampers fail open. Zone I pressure will be maintained negative as SBGT starts on equipment compartment low flow. Zone III will fluctuate with atmospheric and building conditions.

C. All dampers associated with RB HVAC components will close. Zone III pressure will remain negative as SBGT starts on equipment compartment low flow. Zone I will fluctuate with atmospheric and building internal conditions.

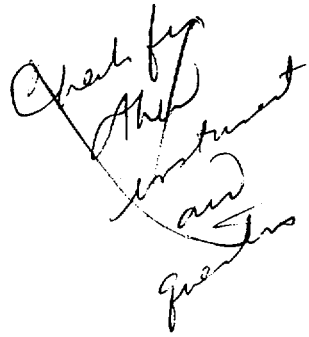
✓D. Supply and exhaust fans will trip. Recirculation system dampers fail open. SBGT will remain idle. Reactor building pressure will rise to ambient pressure.

"D" is correct because fans will trip when respective dampers fail closed/open. No signal to SBGT to start has occurred, and Reactor Building differential pressure will decay.

"A" is incorrect because the dampers fail in the closed position for supply and exh fans, recirc dampers fail open.
"B" is incorrect because SBGT does not start on low RB HVAC flow.
"C" is incorrect because recirc dampers will open and connect zone I and III, SBTG does not start on low flow.

K/A 295019 AK2.08 SRO Imp Fac 2.9 LOK H LOD 3

ON-134-001 ON-118-001 NEW



83. While operating at rated power, an I&C technician inadvertently causes a Drywell Cooling Isolation. The PCO confirms Drywell Cooling header isolation valves are closed. Troubleshooting is in progress.

Shortly after the isolation the following annunciator is received:

CONTAINMENT DRWL CLG LOOP A HI TEMP

Assuming these valves cannot be immediately re-opened, predict the expected plant response to this event.

A. RBCW and RBCCW systems will swap and RBCCW will supply drywell cooling fan coils.

✓B. Drywell cooling fans in AUTO HIGH will auto start on high air temperature exiting the fan coil.

C. A power reduction will be required because of rising Reactor Recirculation Pump motor temperatures.

D. The standby RBCW chiller will start to supply additional cooling to the RBCW system.

"B" is correct by design

"A" is incorrect because isolation valves isolate RBCCW flow as well.
"C" is incorrect because different loop / isolation valves.
"D" is incorrect because high temp chiller start is on exit of chiller, not drywell cooling loop.

K/A 295020 AA1.02 SRO Imp Fac 3.2 LOK F LOD 2

ON-134-001 AR-112-001 NEW

84. During a plant startup RPV pressure is 850 psig when a loss of suction causes the "A" CRD pump to trip. The "B" CRD pump is out-of-service for maintenance.

If a reactor scram occurs, control rods will:

A. fully insert at normal speed.

✓B. fully insert at slower than normal speed.

C. partially insert at normal speed.

D. partially insert at slower than normal speed.

(Lost CRD provides lower driving head for rod but rods will fully insert)

"B" is correct because of reduced reactor pressure.

"A" is incorrect because of reduced Reactor pressure.
"C" is incorrect because full insertion will occur
"D" is incorrect because rods will fully insert

K/A 295022 AK1.02 SRO Imp Fac 3.7 LOK F LOD 2

ON-155-007 NEW

85. Unit 2 is in Shutdown Cooling using 2A RHR pump. Temperature control is being accomplished by throttling RHRSW flowrate via the RHRSW heat exchanger inlet valve and the RHR HX bypass valve.

An inadvertent high drywell pressure signal occurs. How will 2A RHR pump respond?

A. Trip and remain secured.

B. Trip, then restart when Shutdown Cooling suction valves are fully closed.

C. Remain running with no change in flowrate.

✓D. Remain running, with increase in flowrate

"D" is correct because injection valves are already open and a suction source is available without an isolation signal. The HX bypass valve will open to increase flow to maximum.

"A" is incorrect because no trip / isolation signal present
"B" is incorrect because no trip / isolation (high drywell pressure non impacting)
"C" is incorrect because flowrate will increase when bypass valve opens.

K/A 295024 EA1.04 SRO Imp Fac 3.9 LOK H LOD 3

SY017 C-1 NEW

86. Unit 1 was operating at 100% power when the unit scrammed on High Drywell pressure. Immediate Operator Actions have been completed. The leak has been confined to the Drywell. ESW is supplying cooling water to the TBCCW system.

Which of the following is a correct statement, for this situation?

A. If no MSIVs are closed, it is due to a failure in the NSSSS logic.

B. If all MSIVs are closed, it is due to a loss of 90# nitrogen header to the MSIVs.

✓C. If all MSIVs are closed, it is due to a loss of condenser vacuum.

D. If all MSIVs are closed, it is due to leak detection isolation.

"C" is correct because circ water pumps trip with plant aux load shed.

"A" is incorrect because no isolation signal exists.
"B" is incorrect because MSIVs have accumulators for reserve and outboard MSIV's use Instrument Air.
"D" is incorrect because no isolation signal from these detectors exists.

K/A 295024 EK2.07 SRO Imp Fac 3.9 LOK H LOD 3

ON-143-001 ON-158-002 MOD EXAM BANK

87. A Unit 2 transient has resulted in a loss of normal feedwater and a full reactor scram. EO-200-102 is being executed.

Plant conditions are:

RPV pressure	1000 psig rising at 10 psi / minute
RPV level	-20" rising approx. 3" / minute
MSIVs closed	
SRVs for pressure control	

HPCI has been placed into service in the injection mode to restore RPV level + 13 to + 54". Which of the conditions below related to the HPCI operation could result in the failure to restore RPV level to the normal band with HPCI.

A. "C" SRV sticks open.

✓B. The operator has placed the HPCI controller to MANUAL.

C. A suppression pool high level occurs.

D. Loss of Division I DC to the HPCI isolation circuitry.

"B" is correct because the controller is set to where it is just keeping ahead of the loss rate at this pressure. When pressure increases, flow will decrease and HPCI will not be able to keep up with inventory loss, especially when the SRVs open and increase the loss. Since SRVs are being used for pressure control, the vessel pressure will not get this low again, so water level will not be maintained.

"A" is incorrect the SRV open will depressurize the RPV and HPCI will overcome the inventory loss.
"C" is incorrect because a suction path is still available.
"D" is incorrect because this has no effect on HPCI while in operation.

K/A 295025 EK2.11 SRO Imp Fac 3.6 LOK H LOD 3

SY017 C-6 NEW

pretty obvious

88. Which of the following conditions would **first** require a reactor scram?

A. 100% Reactor Power
HPCI inadvertent initiation causes power to increase to 106%.
SPOTMOS reaches 105°F before overridden off.

B. Reactor Startup RPV pressure at 160 psig
HPCI 24 Month Flow Verification testing in progress
SPOTMOS reaches106°F when test is terminated.

✓C. Reactor Startup, RPV pressure at 150 psig
ADS 24 Month Valve Manual Actuation surveillance in progress.
1 SRV sticks open for ~~1.5~~ minutes
SPOTMOS reaches 110°F maximum after the valve is closed.

D. 100% Power100% Power
SRV Inadvertant opening
SRV closes after 1 minute.
SPOTMOS reaches 106°F maximum while the valve is open.

"C" is correct because 110°F is a TS requirement, even if the SRV is closed. The Stuck Open SRV Off Normal stipulates 2 minutes open, 110°F pool temperature or evidence that it will not close. The other distractors have possible scram conditions based upon time and temperature

"A" is incorrect because temperature limit has not been exceeded.
"B" is incorrect because this only requires reduction in pool temperature over specified time when performing testing
"D" is incorrect because SRV has closed and temperature limit has not been exceeded

NOTE Section 3.6 of the Tech Spec will be not be available for the student.

K/A 295026 2.4.11 SRO Imp Fac 3.6 LOK H LOD 3

ON-183-001 TS 3.6.2.1 NEW

Too Simplistic - Not discriminating
110F SP - requires Scram
Simple Setpoint question

89. A turbine trip and hydraulic ATWS occur. EO-100-113 and EO-100-103 are currently being executed. Current plant conditions:

RPV Parameters

Initial ATWS power	65%
Pressure	950 with BPVs
Level	-80" with RCIC, CRD
Power	IRM Range 8 50 / 125 (3% power) decreasing
SLC injecting	

Containment Parameters

Suppression pool water temp.	192°F steady
Suppression pool level	25' rising slowly

SELECT the appropriate action ~~for current plant conditions~~.

A. Align RHR to reject water from the suppression pool to radwaste.

B. Lower pressure set to open additional bypass valves and reduce RPV pressure to restore Operation within the HCTL. Cease pressure reduction if power starts to rise.

C. Reduce suppression pool water temperature using available RHR loops.

D. Rapidly depressurize the RPV.

"C" is correct because this will allow improvement in containment parameters without violating EOP strategy.

"A" is incorrect because lowering pool level is not required at this time and moves toward a non-conservative direction initially.
"B" is incorrect because lowering pressure is not permitted until all control rods are inserted.
"D" is incorrect because rapid depressurization is not permitted until all control rods are inserted.

EOP FLOWCHART required

K/A 295026 EA2.03 SRO Imp Fac 4 LOK H LOD 3

EO-100-103 NEW

90. Which transient would be the most likely cause of a Pressure Suppression Pressure Limit violation?

✓A. A LOCA results in the breaking of one downcomer leg within the Suppression Chamber airspace above the water level in the suppression pool.

B. Full power ATWS with MSIV closure and inability to drive rods within the first fifteen minutes.

C. A rapid depressurization manually initiated as a result of EO-100-103 execution resulting from loss of Suppression Chamber inventory into the "B" Core Spray room.

D. When SRVs are opened for rapid depressurization, a vacuum relief valve on one of the SRV tailpipes fails open.

"A" is correct because this would be a direct discharge to the Supp Chamber airspace

"B" is incorrect because this transient violates HCTL.
"C" is incorrect since level will equalize at 19' which is not a concern for PSP.
"D" is incorrect because the pressure suppression capability remains intact.

K/A 295024 EK3.04 SRO Imp Fac 3.8 LOK H LOD 4

E-PLAN GUIDELINES NEW

91 A LOCA has occurred on Unit 1. Actions have been taken in accordance with all applicable Emergency Operating Procedures. Present plant conditions are:

All control rods are fully inserted
Lowest RPV level was -135"
RHR "C" is the ONLY injection source available and is being used to maintain level.

RPV water level instrumentation is	OPERABLE
RPV Level	110 inches rising ten (10) inches per minute
RHR flow rate	8500 gpm (maximum available)
Supression chamber pressure	4 psig
Suppression Pool water temperature	185°F
Suppression Pool level	17 feet

Which one of the following describes how RHR should be operated?

A. Secure the RHR pump.

B. Reduce and maintain RHR flowrate at 6000 gpm.

C. Reduce RHR flow and attempt to control RHR flow less than 6000 gpm unless RPV level cannot be maintained >-129".

✓D. Maintain RHR flow at 8500 gpm and restore RPV level +13" to +54".

"D" is correct because Adequate Core Cooling is more important than the Vortex limits. The question also requires correct application of vortex limit curve.

"A" is incorrect because it is the only means of Adequate Core Cooling.
"B" is incorrect because Vortex Limit does not apply if needed for ACC.
"C" is incorrect because ≥-129" is still ACC, and Vortex Limit is secondary to ACC.

also 102 req'd

EO-100-103 Primary Containment Control Flowchart required

K/A 295030 EK2.04 SRO Imp Fac 3.8 LOK H LOD 4

EO-100-103 NEW

& 102

92. Unit 2 is at 100% power when a faulty relay causes a lockout on 13.8 KV Auxiliary Bus 12B.

ON-103-003, 13.8 KV BUS 12A and 12B LOSS OF BUS LOAD SHEDDING ON BUS UNDERVOLTAGE has been entered.

What is the expected plant response, and which operator actions would be the highest priority?

A. Loss of 2 Circ Water Pumps. Enter ON-243-001 Loss of Main Condenser Vacuum and reduce reactor power to maintain Main Condenser available.

✓B. Low RPV water level from loss of 2 Condensate Pumps. Enter EO-200-102 RPV Control and initiate HPCI and/or RCIC as needed.

C. Loss of 2 Service Water Pumps. Enter ON-211-001 Loss of Service Water and place ESW in service to supply RBCCW and TBCCW Heat Exchangers.

D. 2A Reactor Recirculation Pump trip. Enter ON-264-002 Loss Of Recirc Flow and begin an orderly shutdown because Single Loop Operation is not allowed.

"B" is correct because the loss of 2 Condensate pumps at 100% power will result in RFP Low Suction Pressure trips. This event is an SSES specific event.

"A" is incorrect because 2 Circ Water Pumps will be insufficient to maintain Condenser Vacuum.
"C" is incorrect because only one Service water pump will be lost.
"D" is incorrect because restoration of the Recirc Pump may be possible if Bus restored.

K/A 295031 2.4.1 SRO Imp Fac 4.6 LOK H LOD 4

ON-103-003 ON-211-001 NEW

93. Unit 2 has sustained a total loss of normal feedwater. Prior to the transient, RCIC was out of service. HPCI has received a low RPV water Level 2 start signal. HPCI initiates but subsequently trips. Review of the HPCI panel reveals the following HPCI System status:

HPCI LOW FLOW	In alarm
HPCI TURBINE TRIP SOL ENER	NOT in alarm
HPCI TURB BRG LO OIL PRESS	In alarm
HPCI OUT OF SERVICE	In alarm

RPV Parameters	
RPV Level	-20 lowering
RPV pressure	950 psig
HPCI Turbine speed	3200 rpm lowering

Assuming RPV level continues to lower, what actions must be taken to restore HPCI to the injection mode?

A. Nothing. HPCI will auto start at the low RPV level initiation signal (-38").

✓B. Investigate the low lube oil pressure condition. The auxiliary oil pump and oil system must be verified to operate before HPCI can be used again.

C. Wait until HPCI rpm is below 2200 rpm. Shut down the system and manually reinitiate it with the speed controller in MANUAL.

D. When low RPV level initiation signal (-38") is received again, restart HPCI component by component.

"B" is correct because proper operation of HPCI reqiures oil pressure. Low lube oil pressure is an unexpected annunciator.

"A" is incorrect because HPCI cannot be re-initiated without oil pressure.
"C" is incorrect because HPCI cannot be re-initiated without oil pressure.
"D" is incorrect because a component by component start will not be successful without oil pressure.

K/A 295031 EA1.02 SRO Imp Fac 4.5 LOK H LOD 3

SY017 C-6 AR-114-001 NEW

94. I&C has placed the Leak Detection Bypass Switch "HPCI DIV 1 ISOLATION TEST BYPASS" keylock switch on Control Room Panel 1C614 to the "BYPASS" position in order to perform required quarterly surveillances. The following alarm is received on Panel 1C601:

HPCI / RHR / RWCU LEAK DETECTION LOGIC "B" IN TEST BYPASS

With this configuration, how will a valid high HPCI ROOM area temperature affect the HPCI system?

A. Steam Isolation Valve F003 and Suppression Pool Suction Valve F042 will close and HPCI Turbine will trip

B. Steam Isolation Valve F003 and Suppression Pool Suction Valve F042 will stay open and HPCI Turbine will not trip.

✓C. Steam Isolation Valve F002 and Warmup Valve F100 will close. HPCI Turbine will trip.

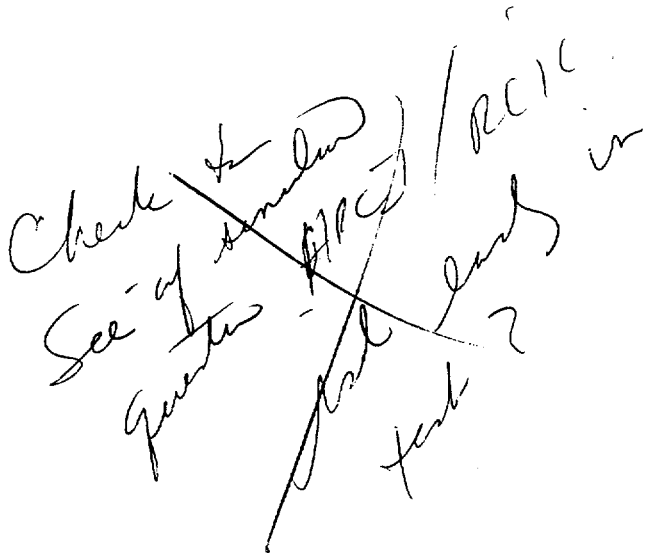
D. Steam Isolation Valvel F002 and Warmup Valve F100 stay open. HPCI Turbine will not trip.

"C" is correct because Division 1 (Logic A) isolation logic is still operable and either division isolation signal will trip HPCI. Question requires knowledge of divisionalization assignment of valves and relationship to test bypass surveillance

"A" is incorrect because the division 2 valve logic is bypassed. valves will stay open.
"B" is incorrect because HPCI will trip
"D" is incorrect because the division 1 logic is still operable. The valves will close and HPCI will trip

K/A 295032 2.2.12 SRO Imp Fac 3.4 LOK F LOD 2

AR-113-001 NEW



95. **Which condition will most likely result in the damage of equipment necessary for safe shutdown of the reactor?**

✓A. CS pump room water level at 4 feet.

B. HPCI pipe routing area temperature 195°F.

C. RHR B loop flow at 7200 gpm to maintain RPV level >TAF with suppression pool level 19'.

D. CRD area radiation level 15R /HR.

"A" is correct because ADS permissive switches and HPC Turbine Trip pressure switches will be covered, depending upon which room is flooded.

"B" is incorrect because this is below the max safe temp.
"C" is incorrect because this is above the vortex limit for RHR.
"D" is incorrect because a max safe rad level has no impact on equipment capability.

K/A 295036 EK1.02 SRO Imp Fac 2.8 LOK F LOD 3

EO-100-104 NEW

96. EO-100-104 Secondary Containment Control ~~and EO-100-102 RPV Control~~ are being executed due to a primary system discharging into the HPCI Room. RPV level never went less than -25", and RPV parameters are within the desired bands.

HPCI Room is verified to ~~be at 33"~~ are MAX-R
Core Spray A Room is at 15" and rising approximately 1" per minute. (24") 9 more minutes

How should RPV pressure be controlled?

A. Cool down less than 100°F/hr.

✓B. Open all Bypass valves.

C. Rapidly Depressurize the RPV.

D. Maintain RPV pressure between 800 psig and 1087 psig.

and area 9 more minutes

"B" is correct because conditions justifying Anticipation of Rapid Depressurization are present.

"A" is incorrect because cooldown > 100°F is authorized RC/P-3.
"C" is incorrect because only ~~one area~~ has exceeded Max Safe Water Level.
"D" is incorrect because ~~depressurization~~ is directed per EO-100-102.

EO-100-104 flowchart ~~required~~ & EO-100-102

K/A 295036 EK3.01 SRO Imp Fac 2.8 LOK H LOD 4

EO-100-104 NEW

RC/P-3 EO-100-102. also reqd. reference

97. Plant conditions:

ATWS	12 rods not full in
Reactor power	IRMs R4 and lowering
Reactor pressure	800 psig
SLC	not injected
Suppression pool temperature	93°F

Subsequent to establishing these conditions, a steam break with failure to isolate develops in the RWCU pump room. Temperature in the room is 145°F rising slowly. No other EO-100-104 conditions are present. The STA recommends beginning a depressurization to lower RPV pressure and RWCU leak rate.

Which of the following statements is the correct response to the STA's recommendation?

A. Depressurization is not permitted. All rods must be full-in before a cooldown can begin.

B. Depressurization is not permitted. SLC should be initiated immediately to provide Cold Shutdown Boron Weight. A cooldown of < 100°F/hr is not commenced until CSBW has been injected

C. Depressurization is permitted. Rising temperatures in the RWCU pump room warrant anticipation of Rapid Depressurization. Open all BPVs and cooldown in excess of 100°F / hr.

✓D. Depressurization is permitted. Depressurization and cooldown will be at <100°F/hr unless the reactor goes critical again.

"D" is correct because:
~~Per the EPG depressurization~~ can be commenced and will only be terminated if the reactor reestablishes criticality EO-100(200-113) LQ/P-7 and EO-100(200)-104 SC/T-9 (102 override).

"A" is incorrect because cooldown is allowed.
"B" is incorrect because cooldown must be terminated if reactor goes critical again.
"C" is incorrect because and RWCU pump room is only one area (requires two areas).

K/A 295037 EK1.06 SRO Imp Fac 4.2 LOK F LOD 2

EO-100-113 NEW

Reference

Remove

98. With Unit 1 in a hydraulic ATWS condition, EO-100-113 is in progress. As part of the actions, the Unit Supervisor has directed implementation of ES-158-002, RPS and ARI Trip Bypass. Performing the actions related to Alternate Rod Insertion (ARI) in this procedure will:

A. prevent any scram signal being generated by the ATWS circuitry from affecting the position of the ARI and backup scram valves.

B. deenergize the ARI scram circuitry and seal-in the ARI trip signal to maintain the ARI valves in their present condition.

✓C. remove power (if any existed) from the ARI solenoid valves. This will realign the block and vent valves to permit repressurization of the scram air header when RPS is bypassed.

D. permit reset of the ARI logic circuits regardless of trip conditions (high pressure / low level), permitting repressurization of the scram air header when RPS is bypassed.

"C" is correct because this must be done to reset and re-scram the reactor

"A" is incorrect because this only affects ARI, not the backup scram valves.
"B" is incorrect since this does not affect the scram circuit, only power to ARI valves. These valves are normally de-energized.
"D" is incorrect because this does not affect ARI circuitry.

K/A 295037 EK3.08 SRO Imp Fac 3.9 LOK F LOD 2

ES-158-002 NEW

99. Specific guidelines are provided within the Emergency Operating Procedure EO-100(200)-105, Radioactivity Release Control. Among these is the requirement to " Rapidly Depressurize the RPV BEFORE EPB projected dose / dose rate reaches the General Emergency declaration criteria."

A release in excess of the limits specified as General Emergency declaration criteria would result in exposure of:

A. occupationally exposed personnel within the plume in excess of the Emergency Exposure limits set within 10CFR100 (25 R / 75 R for equipment manipulation and lifesaving actions, respectively).

B. occupationally exposed personnel within the site boundary to levels in excess of their annual NRC permissible whole body and thyroid exposure listed in 10CFR20.

C. members of the general public within or outside of the Site Boundary to radiation levels in excess of Technical Requirements Manual limits on annual total release (500 mr whole body / 3000 mr skin).

✓D. the general public to radiation levels in excess of those set by 10CFR100.

"D" is correct because it is not restricted to the conditions proposed in other distractors.

"A" is incorrect because it is not based on occupational exposure.
"B" is incorrect because it is not based on annual exposure limits to occupationally exposed persons.
"C" is incorrect because it is not based on annual normal gaseous effluent release limits.

K/A 295038 EK1.02 SRO Imp Fac 4.4 LOK F LOD 2

EO-100-105 NEW

Definitely ?

100. A plant transient has occurred resulting in fuel failure. The expected MSIV isolation on high main steam line radiation did NOT occur and could NOT be manually accomplished by any means.

A steam leak has developed in the turbine building. RPV parameters are being maintained within the allowable bands per the Emergency Operating Procedures.

The dose assessment team reports the following DOSE RATES at the EPB:

800 mrem / hr TEDE and 4300 mrem / hr CDE.
No projected dose is yet available.

SELECT the correct statement for the given condition and the discussed plant situation.

✓A. Rapid depressurization may be delayed until the limits on EO-100-105 have been reached if low-pressure injection systems are not available for inventory control.

B. Rapid depressurization is required regardless of whether or not inventory makeup systems will be available when the RPV is depressurized.

C. Anticipation of rapid depressurization is not permitted. Fuel damage precludes the use of bypass valves to lower the radioactive release rate.

D. Anticipation of rapid depressurization is permitted even if the reactor is not shutdown under all conditions without boron, but cooldown must be terminated if the reactor returns to critical.

"A" is correct because this is allowed. Rapidly Depressurization without injection systems would produce undesireable results.

"B" is incorrect because EO-100-105 permits delay without a LP injection system available until General Emergency limits reached.
"C" is incorrect because you can anticipate Rapid Depressurization with the MSIVs open, until offsite General Emergency limit level reached.
"D" is not permitted because rapid depressurization is not permitted in this case per EO-100-113.

K/A 295038 EK3.04 SRO Imp Fac 3.9 LOK F LOD 2

EO-100-105 NEW

1.100R1 001

A plant transient has occurred resulting in fuel failure. An unisolable Main Steamline break exists in the Turbine Building. EO-100-102 is being executed. Based upon OSCAR Field data, EO-100-105 Radioactive Release Control is also being executed.

The dose assessment team reports the following DOSE RATES at the EPB:

Replacement Question - also modified

800 mrem / hr TEDE and 4300 mrem / hr CDE.
No projected dose is yet available.

RPV water level is -45" slowly lowering, and no injection sources are available.
Rapid Depressurization Should be delayed until:
~~What is the correct strategy regarding Rapid Depressurization?~~

✓A. ~~Delay until~~ the limits on EO-100-105 have been reached.

B. ~~Delay until~~ an injection source becomes available irrespective of projected off-site dose/dose rates.

C. ~~Delay until~~ -205" RPV level is reached irrespective of projected off-site dose/dose rates.
Offsite Dose ~~Rates~~ have been exceeded.

D. ~~Perform Rapid Depressurization immediately.~~

"A" is correct because this is allowed per EOP bases step RR-6. Rapid Depressurization without injection systems would produce undesirable results.

"B" is incorrect because EO-100-105 permits delay without a LP injection system available until General Emergency limits reached.
"C" is incorrect because Rapid Depressurization is allowed for reasons other than RPV level per EO-100-102 RC/L-22
"D" is not permitted because Rapid Depressurization without injection systems would produce less favorable results.

K/A 295038 EK3.04 SRO Imp Fac 3.9 LOK H LOD 2

EO-100-105, EO-100-102 NEW