

VOGTLE

INITIAL LICENSE EXAM

2005-301

REACTOR OPERATOR QUESTIONS

Exam Date: May 2005

Draft

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VOGTLE MAY 2005 EXAM
50-424, 425/2005-301

MAY 17 - 25, 2005
MAY 27, 2005 (WRITTEN)

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws			4. Job Content Flaws			5. Other Q= K/A Only	6. LJ/E/S	7. Explanation
			Stem Focus	Cues T/F	Cred. Dist.	Partial	Job- Link	Minutia #/ units			
1	F	2-3									
<p>Instructions</p> <p>[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]</p> <ol style="list-style-type: none"> Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level. Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable). Check the appropriate box if a psychometric flaw is identified: <ul style="list-style-type: none"> 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. The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable. One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem). Check the appropriate box if a job content error is identified: <ul style="list-style-type: none"> 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. Check questions that are sampled for conformance with the approved K/A and those that are designated SRO-only (K/A and license level mismatches are unacceptable). Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory? At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met). 											
											001K2.01 Modified Easy question, however, it meets the KA To answer your question Mark I believe it is ok the way you asked it. April 27, 2005 LICENSEE COMMENT NO COMMENTS

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws			5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	# units	Backward	Q= K/A			SRO Only
2	F	2													<p>G2.4.31, New</p> <p>1. Question appears to be ok. KA matches.</p> <p>2. Not sure if the licensee expects the applicants to know this from memory, even though we think it may be. Will allow the licensee to have a cut to see if they will have a problem with asking this. The reference will NOT be provided.</p> <p>3. Disagree that distractor is plausible. What information in the stem would make this a choice? Discuss with Mark.</p> <p>April 27, 2005</p> <p>COMMENT TERMINOLOGY, NOT THE SAME AS STATED, RCP #1 VICE WHAT WE HAVE, ADD FRAME BEFORE VIBRATION MAKE A B AND C THE SAM</p> <p>ALREADY DISPATCHED SOME ONE SO ALARM IS ALREADY VALID BECAUSE OF BOTH CHANNELS,</p> <p>MARK WILL LOOK AT THIS TO SEE IF CHANGE IS OK</p>
3	H	3													<p>003K5.03, Modified</p> <p>1. Are these RCP numbers required to be memorized by the applicants. The licensee may think this is beyond the requirements. Will discuss with the licensee. Will NOT provide a reference.</p> <p>2. KA discusses the unreliability of the Tave reading in the shutdown loop. Discussed with Mark.</p> <p>3. Otherwise the question appears to be ok.</p> <p>April 27, 2005</p> <p>COMMENT -WANT THE STEM TO BE CHANGED TO EFFECTED LOOP, WILL CHANGE TO THE REQUESTED EACH CHOICE HAS INITIALLY, THEY SEE IT STAYING THERE. THEY WANT THE INITIALLY REMOVED, BUT AFTER DISCUSSION THEY STATE IT IS THERE.</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward			Q=K/A
4	H	3												<p>004A2.07, New,</p> <p>1. In the stem of the question, underline or bold the words fails low, to ensure it is read correctly.</p> <p>2. Should we put in the stem the EXPECTED response?</p> <p>April 27, 2005</p> <p>COMMENT - TERMINOLOGY, LISTED NUMBERS SHOULD BE HV, VICE FC SHOULD BE HV,</p>
5	H	3												<p>004K6.13, New,</p> <p>1. Matches KA</p> <p>2. Question appears to be ok.</p> <p>April 27, 2005</p> <p>COMMENT,</p> <p>THE CORRECT ANSWER IS</p> <p>WILL GET BORATION FIRST, SO TEMP WILL LOWER. XE IS BUILDING IN FOR THE TIME FRAME GIVEN</p> <p>FV 0110 FAILS OPEN NOT CLOSED LIKE THE OTHER ANSWERS WANT TO REWORD DISTRACTORS, AND NOT USE THE BA FLOW DEVIATION.</p> <p>WANT THE TEMP CHANG TO BE AT END SINCE THIS IS A RESULT OF</p> <p>BA APPEARS IN ALL THE DISTRACTORS AND MOVE TO THE STEM.</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A		
6	H	3												<p>005A1.01: New</p> <p>1. Would change stem from "has been" to "was" collected...</p> <p>2. What TS items are you going to supply? It really depends how much you provide.</p> <p>3. Not sure the licensee will allow this for the RO applicants. It would be ok by me, however, I don't think they will like it for that reason, interpreting TS's. Need to see how the licensee reacts to this level of question for the RO.</p> <p>4. Otherwise it appears to be ok.</p> <p>April 27, 2005</p> <p>RE WORD THE STEM TO HAVE IT STATE THAT UNIT 1 HAS JUST COMPLETED A COOL DOWN. OK</p> <p>PLOT TEMP AND PRESS AND ADD PRESSURE OF 350 PSIG ANOTHER COLUMN. OK</p> <p>WILL REMOVE IF ANY. OK</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units				Backward
7	H													<p>006A2.11, Modified</p> <ol style="list-style-type: none"> Line space between the first sentence and first bulleted item. Suggest to change unavailable to not available. Would put the 3rd bullet as the first one. The procedure they are in would be better as being first. There are several parameters that are described with "slowly", this is not defined, may need to address the rate at which is moving. Distractor B, pressurizer is misspelled. Would change distractor B to read something like A. For example, Depressurize the RCS by opening available pressurizer PORVs to the.... Also need to find the correct terminology the plant uses for increasing or decreasing or rising or lowering. Matched the KA, otherwise it looks ok. <p>April 27, 2005</p> <p>COMMENT</p> <p>WITH RCS PRESSURE GIVEN, WILL NOT HAVE SI FLOW. WANT TO CHANGE TO 1400 PSIG. SI SHUT OFF IS 1520. WANT B AT 200 GPM</p> <p>LICENSEE READ THE QUESTION DIFFERENTLY, DID NOT REALIZE THERE WAS A LEAK DOWN STREAM OF THE FLOW TRANSMITTER. Will leave it as is.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws			5. Other Q= SRO K/A Only	6. U/E/S	7. Explanation
			Stem Focus	Cues T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units			
8	H	3									007A3.01, Modified, 1. Appears to be ok. 2. Matches the KA April 27, 2005 COMMENT RE WORD STEM TO KNOW IT IS HAPPENING OVER A PERIOD OF TIME. ...HAS FAILED OFF SCALE HI. ADD NO OPERATOR ACTIONS HAVE BEEN TAKEN. REWORD THE STEM. REMOVE THE CHANGE TO 216 DEGREES.	
9	F	2						X		E	006A4.01, Bank 1. The wording of the stem is not clear. This is sort of a backwards logic question. Which annunciator will indicate a pump trip. Discuss with Mark. 2. Matches the KA ok. 3. The licensee may not like this because it is knowing the annunciators from memory. But maybe not since it was a bank question. April 27, 2005 COMMENT - MINOR DELETE IF IN ALARM, OK OK AS CHANGED.	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A			SRO Only
10	H	2-3												E	00BAK3.05, Modified. 1. Matches the KA 2. The reference material states that 9% is adequate for heat removal, however, the containment is in adverse numbers, will this change the answer? Maybe we need to make the S/G levels 32% or higher. Discuss with Mark. April 27, 2005 COMMENT - NO COMMENTS.
11	H	3												S*	00BAK3.05, Mark. 1. The first sentence in the second paragraph is confusing and should be corrected to something like, A turbine control failure results in a rapid fuel reduction. Nothing more. 2. Improve the KA. 3. Agree to see it, with the change. April 27, 2005 COMMENT - NO COMMENTS.

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward				Q=K/A
12	H	3													<p>THINK: BE, mistakes</p> <p>1. Matches the KA</p> <p>2. Why is it necessary to add to the start the PIZZA PRESS REC SEL Switch is attached to P-1007 IS this necessary or without breaking?</p> <p>3. Appears to be ok.</p> <p>APR 27, 2005</p> <p>COMMENT -</p> <p>RECOMMEND 3" BULLET, THE MESSURIZER ALK SPRAY VALVE HAS STARTED LEAKING</p> <p>ANNUN REMOVE 101 AND REPLACE WITH ALB 12.</p> <p>WILL CHANGE AS REQUESTED.</p> <p>INITIALLY OK LEAVE AS IS.</p> <p>SECOND HALF DOES NOT APPLY TO VISBLE, NONE OF THE PROCSALVES DIRECTS THEM TO THE MASTER MESSURIZER CONTROLLER AT ALL.</p> <p>PROPOSAL A AND C BOTH PUMP BLOCK VALVES SHUT, AND FOR B AND D, PUMP BLOCK VALVE HY BOOT A SHUTS, AND C BOOT REMAINS OPEN.</p>
13	H	2-3												<p>011EA2.07, New,</p> <p>1. Matches the KA</p> <p>2. Appears to be ok.</p> <p>April 27, 2005</p> <p>COMMENT -</p> <p>3RD BULLET, CHANGE</p>	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
14	H	3														01K1.07, Modified, 1. Matches the KA 2. Question appears to be ok. April 27, 2005 COMMENT -
15	H	3													S	012K2.01, Bank, 1. In the stem you use ESFAS, however, you do not use the word "system" for the S in the abbreviation. A minor point, but do we need to add the word system to the stem? 2. You provided reference material for the 1AY1A instrument bus, does the 2AY1A bus power the same stuff? 3. Otherwise the question appears to be ok. 4. Matches the KA. April 27, 2005 COMMENT - NO COMMENTS
16	H	3									X					013A1.04, New 1. Matches the KA 2. This question while ok for an SRO, may not be good for the RO applicant. Will see what the licensee's comment, may have to change to make it more of an RO level. April 27, 2005 COMMENT - IN THE STEM, IN A AND B CHANGE 10% TO 9%. HOT DRY SG RESTRICTED, BELOW 9%.

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17	H	3													<p>013K3.03, New.</p> <p>1. Would like to have double underline main steam line break and loss of offsite power, underlined or bolded.</p> <p>2. There is a question that concerns itself with the other bus, that only one train will actuate. In fact, question, 012K2.01 concerns itself with the same idea. Need to discuss with Mark if this needs to be changed.</p> <p>April 27, 2005</p> <p>COMMENT -</p> <p>PROPOSE TO [REDACTED]</p> <p>3RD BULLET [REDACTED]</p> <p>[REDACTED]</p> <p>REMOVE UNDERLINES.</p>
18	H	3													<p>014A1.03, New,</p> <p>1. Matches the KA</p> <p>2. Question appears to be ok.</p> <p>April 27, 2005</p> <p>COMMENT -</p> <p>No alarm that states that!</p> <p>NO DRPI STEPS, ONLY EVERY 6 STEPS. 1/2 ACCURACY +10 - 4,</p> <p>PROPOSED RE WRITE,</p> <p>[REDACTED]</p> <p>[REDACTED]</p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	# units				Backward
19	H	3-4											S	015G2.4.10; New. 1. Spell out MFRVs. 2. Matches KA, however, the licensee may think it is too hard with out the procedure. 3. Appears to be ok. April 27, 2005 COMMENT -
20	H	3											S	017K3.01, Bank 1. Matches KA 2. Question appears to be ok. April 27, 2005 COMMENT - [REDACTED]
21	M	2-3											S	022K2.01, Bank 1. Matches KA 2. Why would 50.5 seconds be an answer?? 3. Otherwise appears to be ok. April 27, 2005 COMMENT - THE SYSTEM DOES NOT WORK THIS WAY. [REDACTED]

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	# units	Backward				Q= K/A
22	M	2-3													022K4.01, Bank 1. Matches KA 2. Appears to be ok. April 27, 2005 COMMENT - Propose to [REDACTED]
23	M	3													024AK2.01, Modified 1. In the stem of the question, underline the words emergency boration. This will key the applicants when reading the stem. 2. Not sure how or why from the stem you would go to this section? Please explain! Need to ensure the we are asking the correct question. 3. Matches KA April 27, 2005 LICENSEE COMMENT - CHANGE STEM TO [REDACTED] IN FRONT OF COOLED BY "A" do not have containment normal cooler, but do have [REDACTED] "C" REMOVE [REDACTED] "D" EDG, LUBE OIL HX, THIS IS IN A ROUND ABOUT WAY TO [REDACTED]
24	H	3													025AK1.01, Modified; 1. The material states this is modified, not sure it is. Discuss with Mark. 2. What references are you providing? If providing just the graphs to calculate time to boil, then ok, but not the procedure. 3. Why don't we change the stem to use a different temperature curve, ie 125, and a different number of days. That would really modify the question. Find the correct set of numbers that would do the same type of miscalculation. 4. Otherwise appears to be ok. 5. Matches KA April 27, 2005 LICENSEE COMMENT - CHANGE TO "C" CHANGE FROM TO 100 GPM TO GREATER THAN CHANGE TO "C" LAST BULLET. (6-13 GPM PER PUMP) AFTER 40 GPM. [REDACTED]

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			Stem Focus	Cues T/F	Cred. Dist.	Partial	Job-Link	Minutiae	#/units	Backward	Q=K/A	SRO Only			
25	H	3													<p>EXPLANATION: This item is a content flaw. The stem is a question about the number of units in a batch. The answer choices are 1, 2, 3, and 4. The correct answer is 3. The item is a content flaw because the stem is a question about the number of units in a batch, which is not a typical question for a psychometric test. The item is also a content flaw because the answer choices are not clearly defined. The item is a content flaw because the stem is a question about the number of units in a batch, which is not a typical question for a psychometric test. The item is also a content flaw because the answer choices are not clearly defined.</p> <p>LICENSEE COMMENT: This item is a content flaw. The stem is a question about the number of units in a batch. The answer choices are 1, 2, 3, and 4. The correct answer is 3. The item is a content flaw because the stem is a question about the number of units in a batch, which is not a typical question for a psychometric test. The item is also a content flaw because the answer choices are not clearly defined.</p>
26	M	3											S	<p>026K4.09, New</p> <p>1. Matches the KA</p> <p>2. Appears to be ok, after some thought</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENT</p>	
27	M	2-3											X	<p>EXPLANATION: This item is a content flaw. The stem is a question about the number of units in a batch. The answer choices are 1, 2, 3, and 4. The correct answer is 3. The item is a content flaw because the stem is a question about the number of units in a batch, which is not a typical question for a psychometric test. The item is also a content flaw because the answer choices are not clearly defined.</p> <p>LICENSEE COMMENT: This item is a content flaw. The stem is a question about the number of units in a batch. The answer choices are 1, 2, 3, and 4. The correct answer is 3. The item is a content flaw because the stem is a question about the number of units in a batch, which is not a typical question for a psychometric test. The item is also a content flaw because the answer choices are not clearly defined.</p>	

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28	H	3											032AK2.01. Bank 1. Matches KA 2. Question appears to be ok. April 27, 2005 LICENSEE COMMENT - [REDACTED]
29	H	3											034K4.03. New 1. Matches KA 2. Question appears to be ok. April 27, 2005 LICENSEE COMMENT - LOOKING AT RO TEST, [REDACTED] ON THE CORE. REWORD QUESTION AND KEEP ON THE KA [REDACTED] LICENSEE [REDACTED]

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30	F	3														<p>036AK1.02, New</p> <p>The K in k-effective should be in caps. No information for the ICRR plot are provided, need to understand from Mark how this effects the plot. Need to have Mark explain to me.</p> <p>Matches KA</p> <p>Not sure this is RO knowledge, will leave on the exam and see what the licensee says about it.</p> <p>Otherwise, question appears to be ok.</p> <p>May be more than memory.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>██████████ in all answer choices,</p> <p>CHANGE B AND D PROPOSE, SAY EMERGENCY BORATION WOULD BE REQUIRED FOR LOSS OF SHUT DOWN MARGIN, VICE LESS THAN 0.95 WITH ALL CONTROL RODS WITHDRAWN. RATHER THAN CHANGING IT WE CAN UNDER LINE EXCEPT</p>
31	H	3														<p>037AK1.02, Bank</p> <p>Matches the KA</p> <p>The first three distractors uses "because the" "d" uses due to make them consistent.</p> <p>Otherwise appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>AT VOGTLE, CHEMISTRY LEAK RATE NOT THEIR TERMINOLOGY.</p> <p>██████████</p> <p>CALCULATED AND LEAKAGE, AND CHANGE TO LEAK RATE, AND AS POWER IS LOWERED.</p> <p>██████████ CHANGES LOOK OK</p>

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32	F													<p>038EA2.17, New</p> <p>1. Provide containment number that is not an adverse number. I don't like telling the applicants it this way.</p> <p>2. I think the licensee will argue that these numbers are not required to know from memory. Was there a learning objective in their training material that stated they need to know this? Will leave in and see what the licensee has to say.</p> <p>3. Matches KA</p> <p>4. Otherwise it appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>RVLIS NOT AVAILABLE GET RID OF THIS.</p> <p>WOULD EXPECT THAT THE OPERATORS SHOULD KNOW FROM THE ATTACHMENT, NOT NECESSARILY BY THE PROCEDURE.</p>
33	H	3											E	<p>039A4.07, Modified</p> <p>1. Matches KA</p> <p>2. The answer, distractor a, has teaching in it. Take out "due to the loss of turbine load." This is the only distractor that has a "due to" statement.</p> <p>3. Otherwise it appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS</p>

O#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other			6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minuta	#/units	Backward	Q=K/A	SRO Only		
40	H	2	X												<p>057AA1.04, Modified Matches KA</p> <ol style="list-style-type: none"> The time line in the stem should be in order. If LT-112 failed before the power decrease it should be put there. It confuses the order in which the events occurred. It may appear that the decrease in power and LT failure are window dressing and not necessary for answering the question. The real question is what happens to the CVCS and RWST valves if this power supply is lost. I guess it is ok, minimally <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>ON 7300 PROCESS INSTRUMENTATION, TWO DIFFERENT POWER FEEDS. GO THRU 2 POWER SUPPLIES, 24 V AND 26 V. NOT CERTAIN IF 2NY, FEEDS THIS, EVEN THOUGH WOULD NOT LOOSE POWER.</p> <p>KA</p> <p>LICENSEE WILL REVIEW TO SEE HOW TO FIX IT. DO NOT HAVE AUTO OUTWARD ROD MOTION.</p>
41	H	3													<p>058AA2.02, Modified Matches KA</p> <ol style="list-style-type: none"> Appears to be ok. <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>PROPOSE TO CHANGE DISTRACTORS, FIRST HAVE OF THE QUESTION EITHER TRIPS OR NOT. IT COULD BE EITHER WAY. THERE IS A RACE FOR HI PRESSURE OR LO LO LEVEL.</p> <p>WILL LOOK AT AGAIN.</p>

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42	F	2-3												<p>059A4.12, Bank Matches KA</p> <p>1. Only comment is would loops 1 and 4 be associated with Train A? If so, then the question appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>HAVE A DESIGN CHANGE, REQUIRES BOTH TRAINS FOR FEED WATER TO GO CLOSED. 2/2 TO REMOVE AIR FROM MFRVS.</p> <p>ON B, CHANGE TO TWO FWI VALVES.</p> <p>ON C ALL FOUR FWI VALVES.</p> <p>LICENSEE WILL PROVIDE DISTRACTOR ANALYSIS, AND THE DESIGN CHANGE INFORMATION.</p>
43	H	3												<p>059K3.03, Modified Matches KA</p> <p>1. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>DO NOT USE AUTOMATIC ROD CONTROL AT 100% POWER.</p> <p>COULD NOT TELL WHAT HAPPENS TO THE OTHER FRVS DUE TO LEVEL AND MAIN FEED PUMP SPEED.</p> <p>MAIN FEED PUMP SPEED INCREASES, FOR A AND C</p> <p>MAIN FEED PUMP SPEED DECREASES, FOR B AND D.</p> <p>ADD NO OPERATOR ACTION</p> <p>LICENSEE WILL PROVIDE DISTRACTOR ANALYSIS</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Backward	Q=K/A	SRO Only				
44	H	3													<p>062A1.01, Bank</p> <p>1. Inconsistent with the... 2. ... 3. ... 4. ... 5. ... 6. ... 7. ... 8. ... 9. ... 10. ... 11. ... 12. ... 13. ... 14. ... 15. ... 16. ... 17. ... 18. ... 19. ... 20. ... 21. ... 22. ... 23. ... 24. ... 25. ... 26. ... 27. ... 28. ... 29. ... 30. ... 31. ... 32. ... 33. ... 34. ... 35. ... 36. ... 37. ... 38. ... 39. ... 40. ... 41. ... 42. ... 43. ... 44. ... 45. ... 46. ... 47. ... 48. ... 49. ... 50. ... 51. ... 52. ... 53. ... 54. ... 55. ... 56. ... 57. ... 58. ... 59. ... 60. ... 61. ... 62. ... 63. ... 64. ... 65. ... 66. ... 67. ... 68. ... 69. ... 70. ... 71. ... 72. ... 73. ... 74. ... 75. ... 76. ... 77. ... 78. ... 79. ... 80. ... 81. ... 82. ... 83. ... 84. ... 85. ... 86. ... 87. ... 88. ... 89. ... 90. ... 91. ... 92. ... 93. ... 94. ... 95. ... 96. ... 97. ... 98. ... 99. ... 100. ...</p>
45	F	1-2												<p>062A1.01, Bank</p> <p>1. Matches KA</p> <p>2. Simple, Trivial, however ok</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>PROPOSE.</p>	
46	H	3												<p>062A3.05, Modified</p> <p>1. Matches KA</p> <p>2. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS.</p>	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws			5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward		
47	F	3											<p>062032.132, New</p> <ol style="list-style-type: none"> The second bullet could be clearer, such as: The pump that was started tripped on overcurrent. Maintenance has cleared the fault and released the pump for operation. Each of the distractors has the statement "The 186M electrical lockout relay for the pump to be started..." This could be placed in the stem, thus making the distractors clearer. The KA does not fully match, the KA is to explain or apply system limits and precautions. This question hits the apply part but I do not think it addresses the explain part. Discuss with Mark. Is there a learning objective that requires the applicants to know this? Will see what the licensee says. Otherwise it appears to be ok. April 27, 2005 <p>LICENSEE COMMENT -</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>IS THE LOCKOUT RELAY RESET.</p> <p>OK AS REQUESTED. SEE HARD COPY.</p> <p>[REDACTED]</p>
48	H	3											<p>06204431, Blank</p> <ol style="list-style-type: none"> Watch for KA Appears to be ok. Agree with adding Licensee to help with the analysis of the distractors and possibly help with wording of the distractors to ensure they are correct. <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Backward				O=K/A
49	F	3											E	<p>064G2.2.23. New</p> <p>Matches KA</p> <p>1. Are the RO applicants responsible for knowing less than 1 hour TS's? Will ask the licensee. Is there a learning objective that requires them to know them?</p> <p>3. Otherwise appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS.</p>
50	H	3											E	<p>DISPARITY. Error</p> <p>Matches KA</p> <p>1. Add noun name to value H1A-3378</p> <p>2. Take the wording out of the first bullet, remove the words "thereby testing instrument as to contentment." They should have the information</p> <p>3. Why was answer C correct in the first part as it is? Make it symmetrical like the others. Change the "or a direct result" to "this is"</p> <p>4. Corrected it. However, changes it to a C/A question. If you don't have the answer memorized and what does what you can not write out the answer.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Backward	Q= K/A				SRO Only
51	H	3												<p>GENERAL: New Matches (S)</p> <p>Agrees with Match comment for ability to review and provide information about the system.</p> <p>CHARACTER: ok</p> <p>APRIL 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>PROPOSE</p> <p>COULD NOT FIND DATA TO PROVE EITHER ONE. IN REGULATOR MAY OR MAY NOT SET A ISOLATION.</p> <p>MARK CAUTIONED THE LICENSEE TO MAKE SURE THE PREVIOUS EXAM DO NOT COVER THIS QUESTION.</p>
52	F	2-3												<p>073K1:01, New Matches, KA</p> <p>Would change the stem to read "WOOTF would cause a CVI if it received a valid trip signal" or words to that effect. As the question sits, those Rad Monitors would not cause a CVI because there is NO initiation signal</p> <p>Otherwise OK</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>NO COMMENTS.</p>
53	F	3												<p>GENERAL: New Matches (S)</p> <p>Disagrees with majority of comments. The stem is not clear and the stem is incorrect as to the stem of the system being monitored and the need for their system. The stem is not clear and the stem is not clear. The stem is not clear and the stem is not clear.</p> <p>LICENSEE COMMENT -</p> <p>APRIL 27, 2005</p> <p>NO COMMENTS.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws			5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward		
54	H	3											<p>07/26/11:01, New</p> <p>1. KA matches</p> <p>2. Agree with the need for help from licensees. Was correct and was what they can tell us.</p> <p>APR 27, 2015</p> <p>LICENSEE COMMENT -</p> <p>LICENSEE LOOKED BUT COULD NOT TELL EITHER LOCKED AT PWD</p> <p>SUPERVISORY AGENTS HAVE SOMETHING LIKE THAT CONCERNING FIRE ACTION FIRE PROTECTION SYSTEM. GIVE IT A TRY</p>
55	H	3											<p>07/26/11:01, Modified</p> <p>1. KA matches</p> <p>2. Depends the last sentence of the stem to ensure the applicants read this is a 1 but 2 question then is the Link 2 alarm. This will be clearer.</p> <p>3. This response is correct but for the RD applicants as it may not be RD knowledge, will default to that response to better track items.</p> <p>4. Otherwise appears to be ok.</p> <p>APR 27, 2015</p> <p>LICENSEE COMMENT -</p> <p>CHANGE TEXTS HAS BEEN IMPLEMENTED. OK</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws						4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A				SRO Only
56	H	3														<p>1. [REDACTED]</p> <p>2. [REDACTED]</p> <p>3. [REDACTED]</p> <p>4. [REDACTED]</p> <p>5. [REDACTED]</p> <p>6. [REDACTED]</p> <p>7. [REDACTED]</p> <p>8. [REDACTED]</p> <p>9. [REDACTED]</p> <p>10. [REDACTED]</p> <p>11. [REDACTED]</p> <p>12. [REDACTED]</p> <p>13. [REDACTED]</p> <p>14. [REDACTED]</p> <p>15. [REDACTED]</p> <p>16. [REDACTED]</p> <p>17. [REDACTED]</p> <p>18. [REDACTED]</p> <p>19. [REDACTED]</p> <p>20. [REDACTED]</p> <p>21. [REDACTED]</p> <p>22. [REDACTED]</p> <p>23. [REDACTED]</p> <p>24. [REDACTED]</p> <p>25. [REDACTED]</p> <p>26. [REDACTED]</p> <p>27. [REDACTED]</p> <p>28. [REDACTED]</p> <p>29. [REDACTED]</p> <p>30. [REDACTED]</p> <p>31. [REDACTED]</p> <p>32. [REDACTED]</p> <p>33. [REDACTED]</p> <p>34. [REDACTED]</p> <p>35. [REDACTED]</p> <p>36. [REDACTED]</p> <p>37. [REDACTED]</p> <p>38. [REDACTED]</p> <p>39. [REDACTED]</p> <p>40. [REDACTED]</p> <p>41. [REDACTED]</p> <p>42. [REDACTED]</p> <p>43. [REDACTED]</p> <p>44. [REDACTED]</p> <p>45. [REDACTED]</p> <p>46. [REDACTED]</p> <p>47. [REDACTED]</p> <p>48. [REDACTED]</p> <p>49. [REDACTED]</p> <p>50. [REDACTED]</p> <p>51. [REDACTED]</p> <p>52. [REDACTED]</p> <p>53. [REDACTED]</p> <p>54. [REDACTED]</p> <p>55. [REDACTED]</p>
57	F	2-3														<p>103K4.06, Bank</p> <p>1. Matches KA</p> <p>2. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>WORDING? REWORDING IT AS</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>
58	F	2-3														<p>G.2.1.1, New</p> <p>1. Matches KA</p> <p>2. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>SEE AS A NON OPERATIONS DUTY, MORE OF AN SRO KNOWLEDGE REQUIREMENT.</p> <p>[REDACTED]</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Backward	Q=K/A				SRO Only
59	F	2-3													<p>G.2.1.23, New 1. Matches KA 2. Appears to be ok. April 27, 2005 LICENSEE COMMENT - WOULD EXPECT, NO CONTROL ROOM SYMPTOMS, ONLY A REPORT, THINKS THAT THE ROS DON'T HAVE TO KNOW THAT. WILL ASK JIM, IF THIS IS OK OR NOT.</p>
60	H	3											S		<p>G.2.1.7, Bank 1. Matches KA 2. Appears to be ok. April 27, 2005 LICENSEE COMMENT - NO COMMENTS</p>
61	F	2-3													<p>G.2.2.13, New 1. Matches KA 2. Appears to be ok. April 27, 2005 LICENSEE COMMENT - SRO TYPE KNOWLEDGE, NEED APPROVALS PRIOR TO GETTING THIS DONE. WILL PROPOSE ANOTHER QUESTION.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units				Backward
62	H	3												<p>G.2.24, New Matches KA 1. Test user PO's are required to be able to do this. If the licensee agrees with this restriction, ok. May need to change this if PO's are not required to know this information.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT: REFERENCE PROVIDED, PAGE 1 OF LEO. EXPECT NOS TO KNOW TIMES BUT NOT COMPLETION TIME EXTENSION</p>
63	F	2-3										S	<p>G.2.28, New 1. Matches KA 2. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT - NO COMMENT</p>	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward				Q=K/A
64	H	3													<p>G.2.3.1, New</p> <p>1. Matches KA</p> <p>2. Appears to be ok, however will take some time to calculate the answer. The only memory part of this is at what level and who. Could not change to memory level based on the calculation.</p> <p>3. Ok as it is.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>HP VERIFIED, WHEN ENTER RCA DONT GET QUARTER IT IS DONE ANNUALLY, WOULD PROVIDE THIS ANNUALLY.</p> <p>HOW DOES THAT AFFECT PLAUSIBILITY IF WE REMOVE THE QUARTERLY DOSES.</p> <p>ONLY GET YEARLY DOSE. NO QUARTERLY DOES NOW.</p> <p>[REDACTED]</p>
65	F	3													<p>G2.3.11, New</p> <p>1. Matches KA</p> <p>2. Appears to be ok.</p> <p>April 27, 2005</p> <p>LICENSEE COMMENT -</p> <p>C AND D, ALL THESE ACTIONS THAT ARE REQUIRED, FROM THE PROCEDURE, WANTED TO REPLACE THE SECOND PART.</p> <p>[REDACTED]</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=	SRO Only			
66	F	2-3													E	G.2.4.12, New 1. Do not think that distractor D is plausible. There is never a case that this is allowed. It can be written as: the USS is required to state the high level step. The RO and BOP are required to repeat only the high level step and be able to perform all substeps. 2. All other distractors appear to be ok. April 27, 2005 LICENSEE COMMENT - NO COMMENTS
67	H	3													S	G.2.4.4, Modified 1. Matches KA 2. Appears to be ok. April 27, 2005 LICENSEE COMMENT - NO COMMENTS
68	F	3											X		D	WE03EK3.3.01, Bank 1. This item appears to measure the skill. The skill is ability to draw inferences, which is needed for correct answer. This question asks candidate what procedure to use for. Not about how the results should correlate with other. LICENSEE COMMENT - NO COMMENTS
69	F	3													E	WE03EK3.3.01, Bank 1. Matches KA 2. Appears to be ok. April 27, 2005 LICENSEE COMMENT - WILL CHANGE.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cucs	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Backward	Q=K/A				SRO Only
70	F	3												S	WE04EK1.1, Bank Matches KA 1. Appears to be ok. 2. April 27, 2005 LICENSEE COMMENT - NO COMMENTS
71	F	2-3												E?	WE08G2.4.20, New Matches KA 1. Need to have Mark explain this to me. Maybe ok as is 2. April 27, 2005 LICENSEE COMMENT - NO COMMENTS
72	F	3													WE09EK2.2, New Matches KA 1. Appears to be ok 2. April 27, 2005 LICENSEE COMMENT - MINOR, COMMENT RE ARRANGE THE STEM. ████████████████████ ████████████████████
73	H	3												S	WE11EK2.2, Bank Matches KA 1. Appears to be ok. 2. April 27, 2005 LICENSEE COMMENT - NO COMMENTS.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial Link	Job-Link	Minutia	#/units	Back-ward	Q=K/A			SRO Only
2	H	3											X	S	005AA2.03, New, UNIT 1 1. Matches KA 2. Appears to be ok. 3. What references will be provided?
3	H	3											X	E S	008AA2.22, New, UNIT 1 1. The KA speaks to pressurizer vapor space accident and the consequences of loss of RCS pressure, methods for evaluating pressure loss. Question sort of matches KA, will ask G. Laska 2. Appears to be ok.
4	F	2-3											X	S	010G2.2.22, New, UNIT 1 1. Matches KA 2. Appears to be ok
5	H	2-3											X	S	011EA 2.08, Modified, GENERIC UNIT 1. Matches the KA 2. Add the learning objective from the lesson plan Obj. #9 3. Appears to be ok.
6	H	3												EU	005AA2.03, New, UNIT 1 1. Matches KA 2. The content of this KA is not SPECIFIC enough. I think an EQ needs to cover this area. Discuss with G. Laska.
7	H	3											X	EU	005AA2.03, New, UNIT 1 1. Matches KA 2. In the context of the scenario, did the second KA or between the two KA's appear? 3. Are they going to be provided? If they were there would be a link. 4. What does the requirement for drawing the 75 hour EQ require for assessment? Therefore, does there need to be a link to the assessment? 5. Correcting questions required to be ok.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units				Backward
8	H	3										X	S	026G2.4.28, New, UNIT 1 1. Matches KA 2. Appears to be ok.
9	H	2-3											S	029EA2.05, NEW, UNIT 1 1. Matches KA 2. Appears to be ok
10	H	3	X									X	S	026G2.4.28, New, UNIT 1 1. Matches KA 2. Appears to be ok. 3. The stem is a bit tricky. The stem says "What you need to know is..." and then lists several items. The stem is a bit tricky because it says "What you need to know is..." and then lists several items. The stem is a bit tricky because it says "What you need to know is..." and then lists several items.
11	H	3				X						X	S	026G2.4.28, New, UNIT 1 1. Matches KA 2. Appears to be ok. 3. The stem is a bit tricky. The stem says "What you need to know is..." and then lists several items. The stem is a bit tricky because it says "What you need to know is..." and then lists several items.
12	F	2-3										X	E	061G2.4.18, New, UNIT 1 1. Matches KA 2. I do not understand what you are trying to say in the first sentence. This could be worded better. 3. The quote, used by the SRO, is more than the step says. Did you intend for the additional info, i.e., "to minimize the chances of core un-covery." 4. Could use the word "with" vice "when" in each of the distractors. 5. Otherwise OK
13	H	3										X	S	064A2.05, New, UNIT 1 1. Matches KA 2. Appears to be ok.
14	H	2										X	S	067G2.4.28, New, UNIT 2 1. Matches KA 2. Appears to be ok, but it is kind of trivial 3. More of a memory level question, but can stay as a low level C/A

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other	6. U/E/S	7. Explanation		
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward				Q=K/A	SRO Only
15	H	2												X	E	069G2.1.33, New, UNIT 1 Matches KA 1. Appears to be ok, however, more of a F because there is no information in the stem that will help you figure out the answer. Either you know it or you do not. Discuss with Mark. 2.
16	H	3													E	072A2.02, New, UNIT 1 Matches KA 1. The question concerns itself with RE-003, however, the KA explanation talks about RE-02. Is this correct or a typo? 2. Correct answer is not marked on the question. 3. Is this question going to have a reference? If not they are going to have a problem 4.
17	F	3													S	074G2.4.6, Modified, GENERIC UNIT Matches KA 1. Question appears to be ok. I would suggest to indent the two steps you are asking about. It is kind of hard to read when it aligned with the left margin. 2.
18	F	2-3								X				X	E	076G2.4.11, New, GENERIC UNIT Matches KA 1. I read the procedure and see the answer but, what happens when the DG is placed in the "Maintenance Mode?" 2. The answers are misleading because they are steps in the DG procedure, and you are asking the question about the loss of nuclear service water. This maybe a minuta problem. 3. Will see what the licensee has to say about it. 4.
19	H	2-3												X	E?	G2.1.14, New, UNIT 1 Matches KA 1. Not sure the SRO's are required to know this from memory, and if you give them the procedures, then it will be a direct look up. Will see what the licensee says. 2. Seems like it would be more of a memory question. 3.
20	H	3												X	S	G2.2.21, New, GENERIC UNIT Matches KA 1. This is more a memorization, there is nothing in the stem that can be used to determine the answer. Discuss with Mark 2. Question appears to be ok as a fundamental question. 3.

QUESTIONS REPORT
for Voglte 2005-301 Draft

51.068K6.10 001

Prior to liquid radwaste release, all associated equipment is verified to be operable and all normal sample and approval processes have been completed.

Waste Monitor Tank 009 is in the process of being released on Unit 1 when power to the DPM for RE-018 (Liquid Waste Monitor) is lost due to an error made by an electrician.

Which ONE of the following correctly explains the affect on the liquid radwaste release?

- A. Liquid Radwaste Isolation Valve RV-018 closes. RV-018 may be immediately re-opened to allow the release to continue.
- B. Liquid Radwaste Isolation Valve RV-018 closes. RV-018 may not be immediately re-opened to allow the release to continue.
- C. Liquid Radwaste Isolation Valve RV-018 remains open. Immediately close the valve from the control room to stop the release.
- D. Liquid Radwaste Isolation Valve RV-018 remains open. The valve can not be controlled from the control room, therefore, immediately instruct an operator in the field to close the valve to stop the release.

QUESTIONS REPORT
for Voglte 2005-301 Draft

Utility needs to verify that the power failure has the effect of not closing the valve (or closing the valve). Some detectors are designed to send a close signal if they lose power, and I am not seeing any info that says that this detector will perform like this.

Utility has now verified that if power is lost to the panel that RV-018 closes. (5/11/05)
Loss of power to the DPM results in de-energizing the relay causing the valve to close.

K/A

068 Liquid Radwaste

K6.10 Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System: Radiation monitors.

K/A MATCH ANALYSIS

The malfunction is that the monitor has lost power. The effect of that malfunction is that RV-018 will remain open and the operator must take action to close the valve in the field to stop the release. The release must be stopped until a second independent sample can be drawn and analyzed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. 2 independent samples must be analyzed prior to restarting. Plausible because Valve does close.
- B. Correct. Valve does close. 2 independent samples must be analyzed prior to restarting.
- C. Incorrect. Valve closes and even if it did not, it cannot be closed from the control room. Plausible because applicant's may not be familiar with control of the valve or failure mechanism.
- D. Correct. Valve closes. Plausible because if the valve did not close, then the valve must be closed in the field because two independent samples have not yet been drawn and analyzed.

REFERENCES

1. V-LO-TX-32101, Digital Radiation Monitoring System.
2. V-LO-TX-47101, Liquid Waste Processing System, Rev. 1.0.
3. 13216-1, Liquid Waste Release, Rev. 32, 08/05/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C B B D C B C A C	Scramble Range: A - D
Tier:		2			Group:		2
Key Word:		LIQUID GAS RADIATION			Cog Level:		C/A 2.5
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. 068K6.10 001

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- D. Liquid Radwaste Isolation Valve RV-018 remains open. The valve can not be controlled from the control room, therefore, immediately instruct an operator in the field to close the valve to stop the release.

QUESTIONS REPORT
for Voglte 2005-301 Draft

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K/A

068 Liquid Radwaste

K6.10 Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System: Radiation monitors.

K/A MATCH ANALYSIS

The malfunction is that the monitor has lost power. The effect of that malfunction is that RV-018 will remain open and the operator must take action to close the valve in the field to stop the release. The release must be stopped until a second independent sample can be drawn and analyzed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. 2 independent samples must be analyzed prior to restarting. Plausible because Valve does close.
- B. Correct. Valve does close. 2 independent samples must be analyzed prior to restarting.
- C. Incorrect. Valve closes and even if it did not, it cannot be closed from the control room. Plausible because applicant's may not be familiar with control of the valve or failure mechanism.
- D. Correct. Valve closes. Plausible because if the valve did not close, then the valve must be closed in the field because two independent samples have not yet been drawn and analyzed.

REFERENCES

1. V-LO-TX-32101, Digital Radiation Monitoring System.
2. V-LO-TX-47101, Liquid Waste Processing System, Rev. 1.0.
3. 13216-1, Liquid Waste Release, Rev. 32, 08/05/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C B B D C B C A C	Scramble Range: A - D
Tier:		2			Group:		2
Key Word:		LIQUID GAS RADIATION			Cog Level:		C/A 2.5
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

51. 068K6.10 001

Prior to liquid radwaste release, all associated equipment is verified to be operable.

Waste Monitor Tank 009 is in the process of being released on Unit 1 when power to RE-018 (Liquid Waste Monitor) is lost due to an error made by an electrician.

Which ONE of the following correctly explains the affect on the liquid radwaste release?

- A. Liquid Radwaste Isolation Valve RV-018 closes. RV-018 may be immediately re-opened to allow the release to continue.
- B. Liquid Radwaste Isolation Valve RV-018 closes. RV-018 may not be immediately re-opened to allow the release to continue.
- C. Liquid Radwaste Isolation Valve RV-018 remains open. Immediately close the vaive from the control room to stop the release.
- D Liquid Radwaste Isolation Valve RV-018 remains open. The valve can not be controlled from the control room, therefore, immediately instruct an operator in the field to close the valve to stop the release.

QUESTIONS REPORT
for Voglte 2005-301 Draft

Utility needs to verify that the power failure has the effect of not closing the valve. Some detectors are designed to send a close signal if they lose power, and I am not seeing any info that says that this detector will perform like this.

K/A

068 Liquid Radwaste

K6.10 Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System: Radiation monitors.

K/A MATCH ANALYSIS

The malfunction is that the monitor has lost power. The effect of that malfunction is that RV-018 will remain open and the operator must take action to close the valve in the field to stop the release. The release must be stopped until a second independent sample can be drawn and analyzed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Valve does not close. Plausible because some detectors close a valve when they lose power. This is a logical misconception.
- B. Incorrect. Valve does not close. Plausible because some detectors close a valve when they lose power. This is a logical misconception.
- C. Incorrect. Valve cannot be closed from the control room. Plausible because applicant's may not be familiar with control of the valve.
- D. Correct. Power supply failure will not close RV-018. The valve must be closed in the field because two independent samples have not yet been drawn and analyzed.

REFERENCES

- 1. V-LO-TX-32101, Digital Radiation Monitoring System.
- 2. V-LO-TX-47101, Liquid Waste Processing System, Rev. 1.0.
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for Voglte 2005-301 Draft

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QUESTIONS REPORT
for Voglte 2005-301 Draft

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- B. Incorrect. Valve does not close. Plausible because some detectors close a valve when they lose power. This is a logical misconception.
- C. Incorrect. Valve cannot be closed from the control room. Plausible because applicant's may not be familiar with control of the valve.
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Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

Approved By T. E. Tynan	Vogtle Electric Generating Plant 	Procedure Number 13216-1	Rev 32
Date Approved 8-5-2004	LIQUID WASTE RELEASE	Page Number	1 of 52

PRB REVIEW REQUIRED

LIQUID WASTE RELEASE

PROCEDURE USAGE REQUIREMENTS-		SECTIONS
Continuous Use:	Procedure must be open and readily available at the work location. Follow procedure step by step unless otherwise directed.	ALL
Reference Use:	Procedure or applicable section(s) available at the work location for ready reference by person performing steps.	NONE
Information Use:	Available on plant site for reference as needed.	NONE

Approved By T. E. Tynan	Vogtle Electric Generating Plant 	Procedure Number 13216-1	Rev 32
Date Approved 8-5-2004	LIQUID WASTE RELEASE	Page Number 3 of 52	

0 **PRECAUTIONS AND LIMITATIONS**

2.1 **PRECAUTIONS**

- 2.1.1 The Liquid Waste Processing System is potentially radioactive. Caution should be exercised to avoid spillage and to minimize exposure.
- 2.1.2 Once a Waste Monitor Tank (WMT) has been placed on recirculation for sampling, the tank shall remain isolated to prevent introduction of liquids that could alter the concentration of the contained volume.
- 2.1.3 Radiation Monitor 1-RE-0018 reading should be observed at least once every 2 hours during the release to assure that the activity does not exceed the setpoint on the "Batch Liquid Release Permit".
- 2.1.4 If a high alarm is received from 1-RE-0018 while releasing a tank, the release shall be stopped immediately and the Unit Shift Supervisor and Chemistry notified.
- 2.1.5 If 1-RE-0018 reads less than expected, release can continue provided Chemistry is notified and 1-RX-0018 does not show a trouble condition.
- 2.1.6 DO NOT release more than one Waste Monitor Tank per plant site at the same time, unless authorized by the Chemistry Superintendent.
- 2.1.7 If a high alarm is received from 1-RE-0018 while flushing with tank water, flush with demin water per Section 4.8.

Deleted: 9

2.2 **LIMITATIONS**

- 2.2.1 Refer to the ODCM, Chapter 2, Table 2-1, for 1-RE-0018 or 1-FI-0018 and 1-FI-1G85A(B) inoperability.
- 2.2.2 CONCURRENT verification is required when valving in a Waste Monitor Tank for release. Independent verification is required for restoration of the release path.

Deleted: Section 1.5.4

Approved By T. E. Tynan	Vogtle Electric Generating Plant 	Procedure Number 13216-1	Rev 32
Date Approved 8-5-2004	LIQUID WASTE RELEASE	Page Number 7 of 52	

NOTE

The following steps will verify the setpoints on the release permit agree with the 1-RI-0018 readings.

c. FLUSH Tank water thru 1-RE-0018 as follows:

- (1) THROTTLE OPEN LWPS LIQUID WASTE DISCH RAD MON DRAIN, 1-1901-X4-145, (RD60)
- (2) CLOSE LWPS CLEAN WASTE DISCH RE-0018 INBOARD RT, 1-1901-X4-144, (RD59)
- (3) UNLOCK and OPEN LWPS WST MON TANK PUMP 09 TO CLN WST DISCH, 1-1901-U4-238, (RD59)
- (4) OPEN LWPS WST MON TANK PUMPS TO CLN WASTE DISCH, 1-1901-U4-175, (RD59)
- (5) THROTTLE OPEN LWPS WASTE MONITOR TANK PUMP 09 DISCHARGE, 1-1901-U4-229, (RD58)
- (6) After 5 minutes or when 1-RE-0018 is reading below the trip setpoint set by the "Batch Liquid Release Permit", CLOSE LWPS WASTE MONITOR TANK PUMP 09 DISCHARGE, 1-1901-U4-229, (RD58)
- (7) OPEN LWPS CLEAN WASTE DISCH RE-0018 INBOARD ROOT, 1-1901-X4-144, (RD59)
- (8) CLOSE LWPS LIQUID WASTE DISCH RAD MON DRAIN, 1-1901-X4-145, (RD60) IV required,

Deleted: c. FLUSH Tank water thru 1-RR-0018 as follows:¶
 ¶ (1) CLOSE LWPS CLEAN WASTE DISCH RE-0018 INBOARD RT, 1-1901-X4-144, (RD59) ¶
 ¶ (2) UNLOCK and OPEN LWPS WST MON TANK PUMP 09 TO CLN WST DISCH, 1-1901-U4-238, (RD59) ¶
 ¶ (3) OPEN LWPS WST MON TANK PUMPS TO CLN WASTE DISCH, 1-1901-U4-175, (RD59) ¶
 ¶ (4) OPEN LWPS WASTE MONITOR TANK PUMP 09 DISCHARGE, 1-1901-U4-229, (RD58) ¶
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 ¶ (7) CLOSE LWPS WASTE MONITOR TANK PUMP 09 DISCHARGE, 1-1901-U4-229, (RD58) ¶
 ¶ (8) OPEN LWPS CLEAN WASTE DISCH RE-0018 INBOARD ROOT, 1-1901-X4-144, (RD59)

- 1.11 If 1-RE-0018 is **INOPERABLE**, VERIFY that two independent samples have been taken and analyzed by Chemistry "Action Statement 37 Sheet" attached to the release permit or by contacting the Unit Shift Supervisor (USS). DOCUMENT verification and method in the PSO Logbook.
- 4.1.12 REQUEST the Control Room adjust Blowdown Sump dilution flow to at least 12,000 gpm and/or greater than flow required by the "Batch Liquid Release Permit" per procedure 13727-C.
- 4.1.13 If 1-RE-0018 is **INOPERABLE**, PERFORM the following:
 - a. OPEN LWPS WST MON TANK PUMPS TO CLN WASTE DISCH, 1-1901-U4-175, (RD59) IV REQUIRED,
 - b. UNLOCK and OPEN LWPS WST MON TANK PUMP 09 TO CLN WST DISCH, 1-1901-U4-238, (RD59) IV REQUIRED,

6.4 LIQUID WASTE RELEASE Procedure 13216-1/2

After a collection tank is processed to a WMT, the PSO will isolate all inputs to the tank and put it on recirculation for Chemistry to sample. The PSO will inform the Chemistry Technician which tank is on re-circ and whether the waste is from Unit 1 or Unit 2 (Permit must be assigned to a specific Unit). After the tank sample is obtained, the PSO will be notified to STOP the WMT pump. *The time that a WMT is on recirculation should be minimized as much as possible in consideration for pump life. The Sample analysis and Permit preparation generally takes several hours.* If the sample indicates activity less than the limit (Total activity < 2.5E-5uCi/ml), Chemistry will proceed to prepare a Release Permit for Operations.

Noteworthy parameters on the permit include

- The Rad Monitor set point
- Expected Rad monitor Response
- Maximum Effluent Flow rate
- Minimum Dilution Flow rate

The Permit must be reviewed and authorized by Chemistry and the Unit USS.

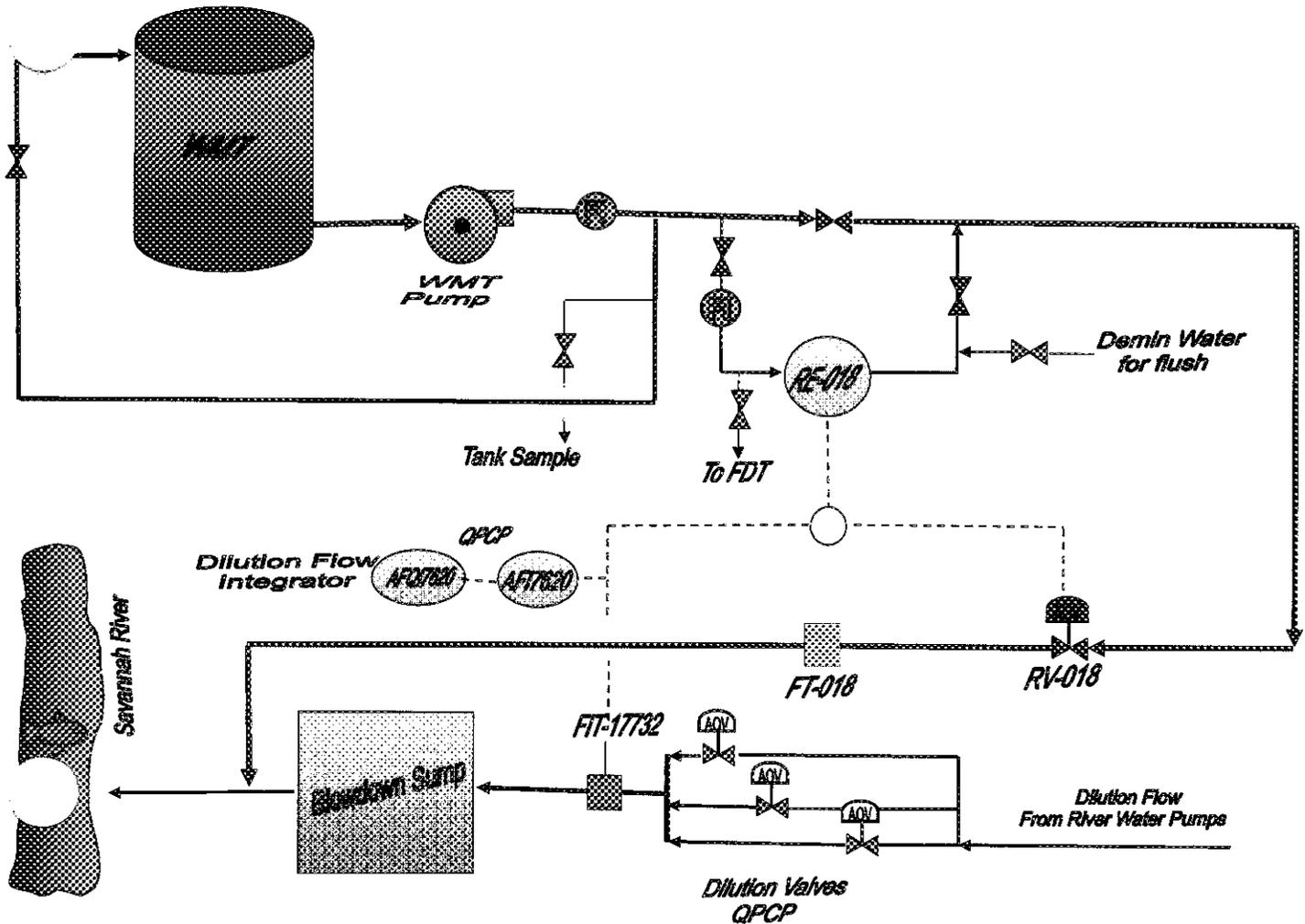
IV. RADIATION MONITOR(S)				
NUMBER	SETPOINT	EFFECTIVE GAIN	EXPECTED RESPONSE	ACTUAL RESPONSE
	2.00E-06 $\mu\text{Ci}/\text{ml}$	1.00E-00 $\mu\text{Ci}/\text{cpm}$	10.00E-06 $\mu\text{Ci}/\text{Mf}$	$\mu\text{Ci}/\text{ml}$
V. AUTHORIZATION				
MAXIMUM VOLUME	MAXIMUM EFFLUENT FLOW RATE	MINIMUM DILUTION FLOW		
3.57000E+07 GALLONS	200 GPM	12,000 GPM		
The above-named source has been sampled and analyzed and is in compliance with applicable ODCM requirements. Release is authorized for the volume and flow rates specified.				

TECHNICAL REVIEW: _____ USS/SS AUTHORIZATION: _____

VI.	RELEASE DATA				
	TIME	DATE	TANK LEVEL %	EFFLUENT FLOW RATE	DILUTION TOTALIZER
START					
STOP				XXXXXXXXXXXX	

RELEASE PERFORMED BY: _____

Release Flow Path



Operator Actions for a WMT release Procedure 13216-1/2

Prior to starting the release, it may be necessary for the U1 Control Room to start an additional River Water pump in order for the plant to maintain adequate Circ Tower makeup and basin level. This is primarily an issue with the release of the 20000 gal tanks (WMT #12, 13) during hot weather conditions. The pre-job briefing should include the necessity for an additional pump start. Experience has shown that an additional River Water pump should NOT be started during the release, as the perturbation in system flow rate has caused RV-018 to isolate.

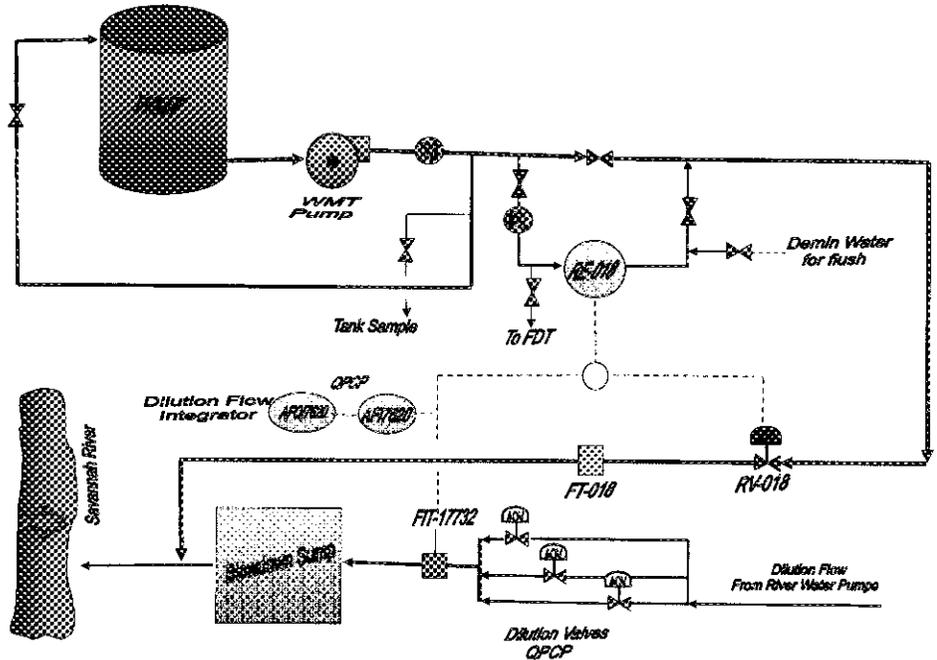
- o Start WMT pump (D level Aux Bldg)
- o Perform Pulse Check of 1(2)RE-018 to verify Operability
The PSO will OPEN RV-018 and have Chemistry input a test Rad pulse. The PSO will verify RV-018 automatically closes and can not be manually reopened with the test pulse active

- o Flush RE-018 with Demin water if Chemistry requests to lower background (generally not required)

- o Flush RE-018 with TANK water to FDT to verify the Permit set points agree closely with the RI-018 reading

- o Call Unit 1, ensure a minimum of 12,000 gpm dilution flow
- o Open 1(2)RV-018 from LWPS panel (Level "D" Aux Bldg)
- o Record AFQI-7620 (dilution totalizer gals) value from UI QPCP (usually reset to zero for simplicity) and initial WMT level on Permit
- o **SLOWLY** throttle OPEN WMT pump discharge valve to get as close as possible to but not exceed the maximum release flow specified on the permit (Concurrent Verification is required when valving in effluent flow)
- o Throttle the 1(2)RE-018 divert valve to obtain 3-6 gpm through the 1(2)RE-018 monitor
- o On permit, record Release start time, flow rate, and 1(2)RI-018 activity
- o Perform a WMT Volume Vs time calculation to check validity of the pump discharge flow rate

Release Flow Path



- o PSO should check 1(2) RE-018 approximately every 2 hours during the release to assure the activity does not exceed the Rad set point on the Release Permit.

When the release is complete,

- o PSO records Stop time/date, AFQI-7620 value, and final WMT level from LWPS panel.
- o Flush the Rad monitor and discharge flow path with Demin water.
- o Finally RV-018 is closed and RE-018 divert valve reopened

What Ifs???

If RE-018 is inoperable, a tank release can *still* be done BUT Chemistry will be required to pull and analyze two INDEPENDENT tank samples. (Reference ODCM)

If a HIGH RADIATION alarm is received or if radiation level (RE-018) exceeds the Release Permit Set point, the PSO should ensure IMMEDIATE closure of RV-018 to terminate the release and notify Chemistry.

If at anytime during the release, RV-018 isolates, the operator will need to record Start/Stop information and either put tank BACK on re-circ for another permit or go ahead and close out the procedure. A Condition Report should be submitted for the release isolation.

IF RE-018 reads LESS than expected, the release can continue provided Chemistry is notified and RI-018 does NOT show a trouble condition.

POWER SUPPLIES

Power Supply	Detectors
AY2A	SRDC, RE-002, RE-12116, RE-13119, RE-13120, RE-2532, RE-005
BY2B	SRDC, RE-003, RE-12117, RE-13121, RE-13122, RE-2533, RE-006
NYC2	RE-12444 Sample Skid
NY4N	RE-12444 DPM
NY2N	RE-12839
NYR	RE-004, RE-008, RE-0848, RE-12442, RE-001
NYS	RE-011, RE-2565, RE-007
NYJ	RE-017, RE-018, RE-020, RE-021, RE-039, RE-1950, RE-48000, ARE-14
NYB1	RE-0724
NYN1	RE-0810
ANBR01P	ARE-16971, ARE-16972, ARE-16973, ARE-16980

Liquid

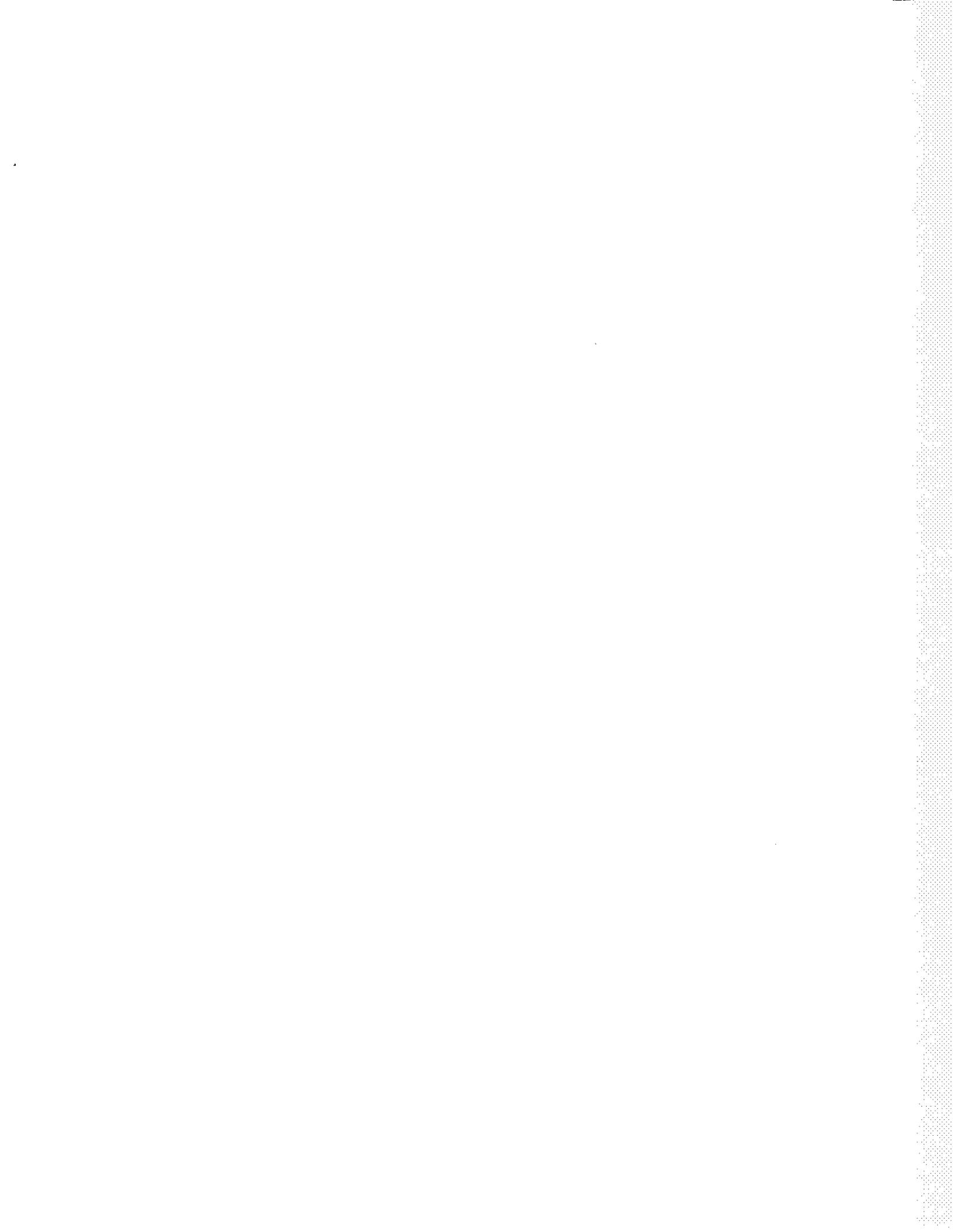
Power Supply (Pg 27)

Monitor	Type	Effluent Monitor	Auto Actions
CCW RE-017A/B	Na I Liquid		
Liquid Waste RE-0018	Na I Liquid	X	Auto close RV-018 to isolate liquid waste release
SGBD RE-0019	Na I Liquid		
NSCW RE-0020A/B	Na I Liquid	X	
SGBD RE-021	Na I Liquid	X	Auto close RV-021 to isolate SGBD effluent to WWRB
TB Drain RE-0848	Na I Liquid	X	Re-aligns TB effluent to the TB Drain Tank
ACCW RE-1950	Na I Liquid		
CVCS RE-48000	Na I Liquid		

NYS

NYS

NYS



QUESTIONS REPORT
for Voglte 2005-301 Draft

52. 073K1.01 001

Which ONE of the following will cause a CVI when reading full scale high?

- A. RE-2565A (Cnmt Vent)
- B. RE-004 (Cnmt Access Hatch)
- C. RE-2562A (Cnmt Atmos)
- D. RE-005 (Cnmt - High Range)

K/A

073 Process Radiation Monitoring

K1.01 Knowledge of the physical connections and / or cause-effect relationships between the PRM system and the following systems: Those systems served by PRMs.

K/A MATCH ANALYSIS

Correct answer contains a Cnmt Vent Monitor, which is a Process Rad Monitor. When RE-2565A alarms, it causes a CVI. Therefore, the cause-effect relationship between the Process Rad Monitor and a system served by it is being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Reference material makes this obvious. Memory level question.
- B. Incorrect. RE-004 does not cause CVI.
- C. Incorrect. RE-2562A does not cause CVI.
- D. Incorrect. RE-005 does not cause CVI.

All distractors are plausible due to being installed plant radiation monitors.

REFERENCES

1. Lesson Plan V-LO-TX-32101, Digital Radiation Monitoring System, Rev. 0.

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					Answer:	A D A D D B B A C B	Scramble Range: A - D
Tier:		2			Group:		1
Key Word:		RADIATION MONITOR			Cog Level:		MEM 3.6
Source:		N			Exam:		VG05301
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					Answer:	ADADDBBACB	Scramble Range: A - D
Tier:		2			Group:		1
Key Word:		RADIATION MONITOR			Cog Level:		MEM 3.6
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

PERMS MONITORS

Gas

Monitor	Type	Effluent Monitor	Auto Actions
Plant Vent RE-12442A	BC-400 Airborne Particulate	X	
Plant Vent RE-12442B	Na I Airborne Iodine	X	
Plant Vent RE-12442C	BC-400 Airborne Gas	X	
Cnmt Vent RE-2565A	BC-400 Airborne Particulate	X	CVI
Cnmt Vent RE-2565B	Na I Airborne Iodine	X	CVI
Cnmt Vent RE-2565C	BC-400 Airborne Gas	X	CVI
Cnmt Atmos RE-2562A	BC-400 Airborne Particulate		
Cnmt Atmos RE-2562B	Passive (filter)		
Cnmt Atmos RE-2562C	BC-400 Airborne Gas		
CR Intake RE-12116	GM Inline Vent		CRI
CR Intake RE-12117	GM Inline Vent		CRI
Waste Gas ARE-013	GM Inline Gas		
Waste Gas ARE-014	GM Inline Gas	X	Auto closes RV-14 to isolate Waste Gas release
WG Decay Tank exh RE-39A/B	GM Inline Vent Gas	X	
FHB Vent RE-2532A/B	GM Inline Vent Gas	X	FHB Isolation
FHB Vent RE-2533A/B	GM Inline Vent Gas	X	FHB Isolation
RPF Vent ARE-16980	Beta Scint.	X	
Steamline RE-0724	N16		
SJAE RE-0810	Noble Gas		

Liquid

Monitor	Type	Effluent Monitor	Auto Actions
CCW RE-017A/B	Na I Liquid		
Liquid Waste RE-0018	Na I Liquid	X	Auto close RV-018 to isolate liquid waste release
SGBD RE-0019	Na I Liquid		
NSCW RE-0020A/B	Na I Liquid	X	
SGBD RE-021	Na I Liquid	X	Auto close RV-021 to isolate SGBD effluent to WWRB
TB Drain RE-0848	Na I Liquid	X	Re-aligns TB effluent to the TB Drain Tank
ACCW RE-1950	Na I Liquid		
CVCS RE-48000	Na I Liquid		

ARMS MONITORS

Monitor	Type	Safety Related	Auto Actions
Control Room RE-0001	GM - Area		
Cnmt - Low Range RE-002	GM - Area	X	CVI
Cnmt - Low Range RE-003	GM - Area	X	CVI
Cnmt Access Hatch RE-004	GM - Area		
Cnmt - High Range RE-005	Ion Chamber	X	
Cnmt - High Range RE-006	Ion Chamber	X	
Sampling Room ARE-007	GM - Area		
FHB RE-008	GM - Area		
Seal Table RE-0011	GM - Area		
RPF HIC ARE-16971	GM - Area		
RPF Demin ARE-16972	GM - Area		
RPF Dress-out ARE-16973	GM - Area		

POWER SUPPLIES

Power Supply	Detectors
AY2A	SRDC, RE-002, RE-12116, RE-13119, RE-13120, RE-2532, RE-005
BY2B	SRDC, RE-003, RE-12117, RE-13121, RE-13122, RE-2533, RE-006
NYC2	RE-12444 Sample Skid
NY4N	RE-12444 DPM
NY2N	RE-12839
NYR	RE-004, RE-008, RE-0848, RE-12442, RE-001
NYS	RE-011, RE-2566, RE-007
NYJ	RE-017, RE-018, RE-020, RE-021, RE-039, RE-1950, RE-48000, ARE-14
NYB1	RE-0724
NYN1	RE-0810
ANBR01P	ARE-16971, ARE-16972, ARE-16973, ARE-16980

QUESTIONS REPORT
for Voglte 2005-301 Draft

53. 076K2.08 001

The following conditions existed on Unit 1 prior to a simultaneous loss of offsite power (LOSP) and safety injection (SI):

- Unit operating at 100% rated thermal power
- Nuclear Service Cooling Water (NSCW) was in its normal configuration

Following the LOSP/SI, the electrical busses supplying the NSCW pumps energize from the Emergency Diesel Generators.

Which ONE of the following is correct with respect to restoration of NSCW?

- A. Due to the NSCW pump supply breakers remaining closed on the LOSP, the NSCW pumps immediately start and begin to deliver full flow upon energization of the respective electrical busses.
- B. The NSCW pumps immediately begin to deliver full flow after being started via the undervoltage load sequencer.
- C. The NSCW pumps begin to deliver full flow approximately 15 seconds after being started via the undervoltage load sequencer.
- D. The NSCW pumps begin to deliver full flow approximately 60 seconds after being started via the undervoltage load sequencer.

QUESTIONS REPORT

for Voglte 2005-301 Draft

IS IT POSSIBLE TO COME UP WITH A BETTER DISTRACTOR THAN "A"?

K/A

076 Service Water

K2.08 Knowledge of bus power supplies to the following: ESF-actuated MOVs.

K/A MATCH ANALYSIS

The K/A is met because the applicant must have knowledge of whether the NSCW pump discharge MOVs on the running pumps will immediately regain power upon start of the EDG, regain power via the UV sequencer, or perhaps never regain power (but the valves were open when the LOSP and SI occurred so flow would immediately begin when the pump starts). The discharge MOVs are actuated with a LOSP and SI.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. The supply breakers are opened and sequenced on. Plausible because applicant may not realize that NSCW pumps are load shed and the system was just in operation, so assuming that the discharge valve does not need to be closed (full system flow) is logical, but wrong.
- B. Incorrect. Full flow is not immediately obtained due to the discharge MOVs being closed. Plausible because if the applicant were to think that the valves never regained power after the LOSP occurred, then full flow would occur upon pump start.
- C. Incorrect. The discharge MOVs will remain closed for 45 seconds after the pump is started. Plausible because the valve stroke time is 15 seconds. The applicant may have a memory lapse and correlate a 15 second valve stroke time with a full flow condition.
- D. Correct. The discharge MOV will remain closed for 45 seconds, followed by a 15 second valve stroke time. Therefore, full flow will be established about 60 seconds after pump start.

REFERENCES

1. V-LO-TX-06101, Nuclear Service Cooling Water System.
2. P&ID, 1X4DB133-1, Rev. 23.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D A C B B D A A A C	Scramble Range: A - D
Tier:		2			Group:		1
Key Word:		SERVICE WATER NSCW			Cog Level:		MEM 3.1
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

53. 076K2.08 001

The following conditions existed on Unit 1 prior to a simultaneous loss of offsite power (LOSP) and safety injection (SI):

- Unit operating at 100% rated thermal power
- Nuclear Service Cooling Water (NSCW) was in its normal configuration

Following the LOSP/SI, the electrical busses supplying the NSCW pumps energize from the Emergency Diesel Generators.

Which ONE of the following is correct with respect to restoration of NSCW?

- A. Due to the NSCW pump supply breakers remaining closed on the LOSP, the NSCW pumps immediately start and begin to deliver full flow upon energization of the respective electrical busses.
- B. The NSCW pumps immediately begin to deliver full flow after being started via the undervoltage load sequencer.
- C. The NSCW pumps begin to deliver full flow approximately 15 seconds after being started via the undervoltage load sequencer.
- D. The NSCW pumps begin to deliver full flow approximately 60 seconds after being started via the undervoltage load sequencer.

QUESTIONS REPORT

for Voglite 2005-301 Draft

IS IT POSSIBLE TO COME UP WITH A BETTER DISTRACTOR THAN "A"?

K/A

076 Service Water

K2.08 Knowledge of bus power supplies to the following: ESF-actuated MOVs.

K/A MATCH ANALYSIS

The K/A is met because the applicant must have knowledge of whether the NSCW pump discharge MOVs on the running pumps will immediately regain power upon start of the EDG, regain power via the UV sequencer, or perhaps never regain power (but the valves were open when the LOSP and SI occurred so flow would immediately begin when the pump starts). The discharge MOVs are actuated with a LOSP and SI.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. The supply breakers are opened and sequenced on. Plausible because applicant may not realize that NSCW pumps are load shed and the system was just in operation, so assuming that the discharge valve does not need to be closed (full system flow) is logical, but wrong.
- B. Incorrect. Full flow is not immediately obtained due to the discharge MOVs being closed. Plausible because if the applicant were to think that the valves never regained power after the LOSP occurred, then full flow would occur upon pump start.
- C. Incorrect. The discharge MOVs will remain closed for 45 seconds after the pump is started. Plausible because the valve stroke time is 15 seconds. The applicant may have a memory lapse and correlate a 15 second valve stroke time with a full flow condition.
- D. Correct. The discharge MOV will remain closed for 45 seconds, followed by a 15 second valve stroke time. Therefore, full flow will be established about 60 seconds after pump start.

REFERENCES

1. V-LO-TX-06101, Nuclear Service Cooling Water System.
2. P&ID, 1X4DB133-1, Rev. 23.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A C B B D A A A C Scramble Range: A - D
Tier: 2 Group: 1
Key Word: SERVICE WATER NSCW Cog Level: MEM 3.1
Source: N Exam: VG05301
Test: R Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

2. 076K2.08 001

The following conditions existed on Unit 1 prior to a simultaneous loss of offsite power (LOSP) and safety injection (SI):

- Unit operating at 100% rated thermal power
- Nuclear Service Cooling Water (NSCW) was in its normal configuration

Following the LOSP/SI, the electrical busses supplying the NSCW pumps energize from the Emergency Diesel Generators.

Which ONE of the following is correct with respect to restoration of NSCW?

- A. Due to the NSCW pump supply breakers remaining closed on the LOSP, the NSCW pumps immediately start and begin to deliver full flow upon energization of the respective electrical busses.
- B. The NSCW pumps immediately begin to deliver full flow after being started via the undervoltage load sequencer.
- C. The NSCW pumps begin to deliver full flow ^{approximately} 15 seconds after being started via the undervoltage load sequencer.
- D✓ The NSCW pumps begin to deliver full flow ^{approximately} 60 seconds after being started via the undervoltage load sequencer.

QUESTIONS REPORT

for Voglte 2005-301 Draft

IS IT POSSIBLE TO COME UP WITH A BETTER DISTRACTOR THAN "A"?

K/A

076 Service Water

K2.08 Knowledge of bus power supplies to the following: ESF-actuated MOVs.

K/A MATCH ANALYSIS

The K/A is met because the applicant must have knowledge of whether the NSCW pump discharge MOVs on the running pumps will immediately regain power upon start of the EDG, regain power via the UV sequencer, or perhaps never regain power (but the valves were open when the LOSP and SI occurred so flow would immediately begin when the pump starts). The discharge MOVs are actuated with a LOSP and SI.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. The supply breakers are opened and sequenced on. Plausible because applicant may not realize that NSCW pumps are load shed and the system was just in operation, so assuming that the discharge valve does not need to be closed (full system flow) is logical, but wrong.
- B. Incorrect. Full flow is not immediately obtained due to the discharge MOVs being closed. Plausible because if the applicant were to think that the valves never regained power after the LOSP occurred, then full flow would occur upon pump start.
- C. Incorrect. The discharge MOVs will remain closed for 45 seconds after the pump is started. Plausible because the valve stroke time is 15 seconds. The applicant may have a memory lapse and correlate a 15 second valve stroke time with a full flow condition.
- D. Correct. The discharge MOV will remain closed for 45 seconds, followed by a 15 second valve stroke time. Therefore, full flow will be established about 60 seconds after pump start.

REFERENCES

1. V-LO-TX-06101, Nuclear Service Cooling Water System.
2. P&ID, 1X4DB133-1, Rev. 23.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A C B B D A A A C Scramble Range: A - D
Tier: 2 Group: 1
Key Word: SERVICE WATER NSCW Cog Level: MEM 3.1
Source: N Exam: VG05301
Test: R Author/Reviewer: MAB/RSB

pressure after a design basis loss of reactor coolant accident.

One scenario could be in-leakage from one of these sources with NSCW shutdown and depressurized followed by a subsequent startup of NSCW.

The other potential source that might be overlooked is an ongoing release from another path to the environment (plant stack, steamline break, TDAFW pump discharge, etc.) being carried into the NSCW system via the cooling towers and fans drawing in outside air.

6.4.4 SYSTEM RESPONSE TO SI & LOSP

A. SI

When a SI signal is generated the NSCW system responds by starting 2 pumps in each train (1 & 3 in train A, 2 & 4 in Train B), opening the containment cooler isolation valves, shutting the auxiliary and reactor cavity cooler isolation valves, and shutting the NSCW tower blow down valve.

NSCW is normally in service with 2 pumps running, all containment cooler isolation valves open, and tower blow down in service as needed for chemistry control.

The NSCW pumps receive their start signal via sequencer contacts that close at a specified time to prevent overloading the electrical power source supplying AA02/BA03. NSCW pumps are one of the last loads to be sequenced on.

If the normal standby pump (5 or 6) is in service prior to the SI then after load sequencing is complete, you will have all 3 pumps running. This will require the operator to secure the standby pump (5 or 6) to return NSCW back to its design configuration.

The normal pump startup interlocks (discharge valve fully shut) is still active during the SI sequence.

B. LOSP

When a UV condition occurs on AA02 or BA03 all load feeder breakers for pumps are opened, then after the bus is re-energized from the emergency diesel generator, the UV load sequence is run. Immediately after the bus is re-energized the NSCW pump discharge valves for the 2 pumps that were in service prior to the UV start to close. After the discharge valves are closed, the NSCW pumps (1 & 3 and 2 & 4) receive a start signal from the sequencer and the normal NSCW pump startup process occurs. Since NSCW provides the cooling for the emergency diesel generators in addition to most of the other loads started ahead of the NSCW pumps, waiting for the normal NSCW startup sequence will seem to take forever to

occur. Remember, the pumps will run with the discharge valves closed for 45 seconds to slowly pressurize the NSCW piping and the stroke time on these valves is 15 seconds, so it will take about 1 minute to obtain full NSCW flow after the pumps receive their start signal.

Some students forget this and report that NSCW is not responding properly and start a chain of events that result in emergency tripping the DG because they believe there will be no cooling available to the DG from NSCW.

C. SI & LOSP

If a loss of power occurs with a SI signal active, the loads will be shed from the bus and then after the bus is re-energized from the emergency DG, the SI sequence described in paragraph A above will occur.

6.5 TECHNICAL SPECIFICATIONS/ODCM

There are 2 technical specifications associated with this system. LCO 3.7.8 "Nuclear Service Cooling Water System", requires 2 trains of NSCW be operable in modes 1 through 4, with 2 pumps per train. LCO 3.7.9 "Ultimate Heat Sink", requires both trains of NSCW tower basin be operable with specified minimum required water levels and maximum allowed water temperatures in modes 1 through 4. Refer to the latest Tech Specs for these values.

ODCM Table 2-1 "Radioactive Liquid Effluent Monitoring Instrumentation" requires that the effluent radiation monitors (RE-0020A and RE-0020B) be operable at all times. If one these radiation monitors becomes inoperable, periodic grab samples will be required. Refer the latest copy of the VEGP ODCM chapter 2 for the details.

6.6 OPERATING EXPERIENCE

6.6.1 Vogtle Operating Experience

The NSCW system has a number of equipment reliability issues since VEGP started operating. Some of these are directly related to operation of the system and some are purely material aging issues or design issues. The NSCW has had a history of foreign material entering the system via the tower basins resulting in partially blocked flow in ESF related motor coolers. Corrective actions included searching for foreign materials from the basin that had accumulated from construction and establishment of barriers to prevent intrusion of any additional materials.

Other issues that have resulted in reduced NSCW reliability include partially voiding of ESF pump motor coolers due to incomplete venting and improper reassembly. Due to the design of the NSCW system with flow limiting orifices in the supply

QUESTIONS REPORT
for Voglte 2005-301 Draft

54. 078K1.01 001

A fuseable link in a Preaction Fire Protection system with supervisory air has developed a leak. A loss of supervisory air is occurring.

Which ONE of the following is the correct system response?

- A. The clapper valve will trip open making the system wet. Full sprinkler flow will not occur (except for leakage).
- B. The clapper valve will trip open and full sprinkler flow through the fuseable link occurs.
- C. An alarm will alert the control room operators of the problem. No sprinkler flow occurs and the system remains dry.
- D. An alarm will alert the control room operators of the problem. The leaking fuseable link will allow the system to become wet, but sprinkler flow will not occur.

K/A

078 Instrument Air

K1.01 Knowledge of the physical connections and / or cause-effect relationships between the IAS and the following systems: Sensor air.

K/A MATCH ANALYSIS

The K/A is met because the question requires knowledge of the loss of supervisor air, which is supplied by the IAS. Instrument air is being lost via the supervisory air.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since low air pressure could be linked with actuation of the clapper valve which would make the system wet.
- B. Incorrect. Plausible, since low air pressure could be linked with actuation of the clapper valve which would make the system wet and water would flow through the open fuseable link.
- C. Correct. The low air pressure will result in a trouble alarm. This will not affect the position of the clapper.
- D. Incorrect. Plausible since the control room alarm will be generated and the applicant may not know the flowpath is via the clapper valve then the link, vice the link then the clapper valve.

REFERENCES

1. V-LO-TX-43101, Fire Protection System, Pages 11 and 12.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C B A C B A A C D A Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier: 2
Key Word: SUPERVISORY SENSOR
Source: N
Test: R

Group: 1
Cog Level: C/A 2.8
Exam: VG05301
Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. 078K1.01 001

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- A. The clapper valve will trip open making the system wet. Full sprinkler flow will not occur (except for leakage).
- B. The clapper valve will trip open and full sprinkler flow through the fuseable link occurs.
- C. An alarm will alert the control room operators of the problem. No sprinkler flow occurs and the system remains dry.
- D. An alarm will alert the control room operators of the problem. The leaking fuseable link will allow the system to become wet, but sprinkler flow will not occur.

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078 Instrument Air

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K/A MATCH ANALYSIS

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ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since low air pressure could be linked with actuation of the clapper valve which would make the system wet.
- B. Incorrect. Plausible, since low air pressure could be linked with actuation of the clapper valve which would make the system wet and water would flow through the open fuseable link.
- C. Correct. The low air pressure will result in a trouble alarm. This will not affect the position of the clapper.
- D. Incorrect. Plausible since the control room alarm will be generated and the applicant may not know the flowpath is via the clapper valve then the link, vice the link then the clapper valve.

REFERENCES

- 1. V-LO-TX-43101, Fire Protection System, Pages 11 and 12.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C B A C B A A C D A Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	2	Group:	1
Key Word:	SUPERVISORY SENSOR	Cog Level:	C/A 2.8
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. 078K1.01 001

A fuseable link in a Preaction Fire Protection system with supervisory air has developed a leak. A loss of supervisory air is occurring.

Which ONE of the following is the correct system response?

- A. The clapper valve will trip open making the system wet. No ~~spray~~ ^{Sprinkler} flow will occur.
- B. The clapper valve will trip open and ~~the~~ ^{Sprinkler} sprinkler flow through the failed fuseable link occurs.
- C. An alarm will alert the control room operators of the problem. No sprinkler flow occurs and the system remains dry.
- D. An alarm will alert the control room operators of the problem. The clapper valve will trip open making the system wet. ~~No flow through the fuseable link occurs.~~ _{Sprinkler}

K/A

078 Instrument Air

K1.01 Knowledge of the physical connections and / or cause-effect relationships between the IAS and the following systems: Sensor air.

K/A MATCH ANALYSIS

The K/A is met because the question requires knowledge of the loss of supervisor air, which is supplied by the IAS. Instrument air is being lost via the supervisory air.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since low air pressure could be linked with actuation of the clapper valve which would make the system wet.
- B. Incorrect. Plausible, since low air pressure could be linked with actuation of the clapper valve which would make the system wet and water would flow through the open fuseable link.
- C. Correct. The low air pressure will result in a trouble alarm. This will not affect the position of the clapper.
- D. Incorrect. Plausible since the control room alarm will be generated and the system would become "wet" if the clapper actually tripped open.

REFERENCES

1. V-LO-TX-43101, Fire Protection System, Pages 11 and 12.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B A C B A A C D A Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	2	Group:	1
Key Word:	SUPERVISORY SENSOR	Cog Level:	C/A 2.8
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

54. 078K1.01 001

The following Unit 1 conditions exist:

- Reactor is at 100% rated thermal power
- Traveling screens are in their normal configuration (auto programmed timing mode)
- No debris or icing issues are present
- The air supply to the level sensor tube on the upstream side of the traveling screen develops a hole that immediately equalizes tube pressure with the atmosphere

Which ONE of the following correctly states the rotational characteristics of the traveling screen?

- A✓ The screen will not rotate until its 8 hour rotation interval is reached and no alarms will be present at the QPCP.
- B. The screen will rotate at low speed due to a 6 inch screen differential level being sensed, but no alarm will be received at the QPCP.
- C. The screen will rotate at low speed due to a 6 inch screen differential level being sensed and an alarm will be received at the QPCP.
- D. The screen will immediately rotate at high speed due to a 12 inch screen differential level being sensed and an alarm will be received at the QPCP.

QUESTIONS REPORT
for Voglte 2005-301 Draft

UTILITY NEEDS TO HELP VERIFY CORRECT ANSWER / PROVIDE REFERENCES.

I NEED UTILITY TO HELP VERIFY THE CORRECT ANSWER. THE CORRECT ANSWER MAY CHANGE DEPENDING ON HOW THEIR LEVEL DETECTION SYSTEM IS CONFIGURED.

K/A

078 Instrument Air

K1.01 Knowledge of the physical connections and / or cause-effect relationships between the IAS and the following systems: Sensor air.

K/A MATCH ANALYSIS

The K/A is met because the question requires knowledge of the instrument air supply to the traveling screen differential level indication instruments. The failure in the air supply has an effect on the sensor air pressure, thus knowledge of the cause-effect relationship on the pressure sensors in the level indication system is required.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. The dP will indicate zero preventing the traveling screen from rotating on differential level. The screens will rotate at an 8 hour interval when in auto, as this is the normal configuration of the timer.
- B. Incorrect. A 6 inch dL will not be sensed. Plausible because if a 6 inch level dL is sensed, the screen will actually rotate at low speed and no alarm will be received.
- C. Incorrect. A 6 inch dL will not be sensed and an alarm will not be received due to a 6 inch dL. Plausible because if a 6 inch dL is sensed, then screens will rotate in low speed.
- D. Incorrect. The screens will sense a dL of zero, thus precluding rotation. Plausible because screens will rotate at high speed if a 12 inch dL is sensed. Highly plausible because if the dL detection only detects magnitude (not calculating positive or negative dL), then this would be a correct answer. HAVE UTILITY ENSURE THAT THIS IS NOT ACTUALLY CORRECT.

REFERENCES

- 1. V-LO-TX-03101, River Water System

UTILITY NEEDS TO PROVIDE REFERENCES TO VALIDATE CORRECT ANSWER.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B A D D C A D D D	Scramble Range: A - D
Tier:		2			Group:		1
Key Word:		TRAVELING SCREEN AIR			Cog Level:		C/A 2.8
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

3. 078K1.01 001

The following Unit 1 conditions exist:

- Reactor is at 100% rated thermal power
- Traveling screens are in their normal configuration (auto programmed timing mode)
- No debris or icing issues are present
- The air supply to the level sensor tube on the upstream side of the traveling screen develops a hole that immediately equalizes tube pressure with the atmosphere

Which ONE of the following correctly states the rotational characteristics of the traveling screen?

- A. The screen will not rotate until its 8 hour rotation interval is reached and no alarms will be present at the QPCP.
- B. The screen will rotate at low speed due to a 6 inch screen differential level being sensed, but no alarm will be received at the QPCP.
- C. The screen will rotate at low speed due to a 6 inch screen differential level being sensed and an alarm will be received at the QPCP.
- D. The screen will immediately rotate at high speed due to a 12 inch screen differential level being sensed and an alarm will be received at the QPCP.

QUESTIONS REPORT
for Voglte 2005-301 Draft

UTILITY NEEDS TO HELP VERIFY CORRECT ANSWER / PROVIDE REFERENCES.

I NEED UTILITY TO HELP VERIFY THE CORRECT ANSWER. THE CORRECT ANSWER MAY CHANGE DEPENDING ON HOW THEIR LEVEL DETECTION SYSTEM IS CONFIGURED.

K/A

078 Instrument Air

K1.01 Knowledge of the physical connections and / or cause-effect relationships between the IAS and the following systems: Sensor air.

K/A MATCH ANALYSIS

The K/A is met because the question requires knowledge of the instrument air supply to the traveling screen differential level indication instruments. The failure in the air supply has an effect on the sensor air pressure, thus knowledge of the cause-effect relationship on the pressure sensors in the level indication system is required.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. The dP will indicate zero preventing the traveling screen from rotating on differential level. The screens will rotate at an 8 hour interval when in auto, as this is the normal configuration of the timer.
- B. Incorrect. A 6 inch dL will not be sensed. Plausible because if a 6 inch level dL is sensed, the screen will actually rotate at low speed and no alarm will be received.
- C. Incorrect. A 6 inch dL will not be sensed and an alarm will not be received due to a 6 inch dL. Plausible because if a 6 inch dL is sensed, then screens will rotate in low speed.
- D. Incorrect. The screens will sense a dL of zero, thus precluding rotation. Plausible because screens will rotate at high speed if a 12 inch dL is sensed. Highly plausible because if the dL detection only detects magnitude (not calculating positive or negative dL), then this would be a correct answer. HAVE UTILITY ENSURE THAT THIS IS NOT ACTUALLY CORRECT.

REFERENCES

- 1. V-LO-TX-03101, River Water System

UTILITY NEEDS TO PROVIDE REFERENCES TO VALIDATE CORRECT ANSWER.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	ABADDCADDD	Scramble Range: A - D
Tier:		2			Group:		1
Key Word:		TRAVELING SCREEN AIR			Cog Level:		C/A 2.8
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

Traveling Screen and Wash System

The Traveling Screen and Wash System washes and rotates the screens at the river intake structure. In automatic mode, these functions are controlled by relays, timers, and instrument air control circuits (purgerators). A traveling screen will rotate in any of the following modes of operation:

Programmed Timing

- * Excessive differential level across the traveling screens
- * Every 8 hours
- * Depressing the momentary run pushbutton
- * Footpedal operation

Programmed Timing

In automatic mode, timers start the Traveling Screen and Wash System at pre-set intervals to clean any debris that may have collected on the screen.

Excessive Differential Level Across the Traveling Screens

The differential level across a traveling screen is an indication of the degree of screen fouling. In operation of the purgerators, air is fed through open-end tubes immersed in the water on each side of the traveling screen. Air flow to the tubes is adjusted by means of needle valves and purge meters. When a difference in levels exists across the screen, the pressure in the downstream tube will drop and the pressure difference will actuate a pressure differential instrument. This pressure instrument is set to respond to two differential levels:

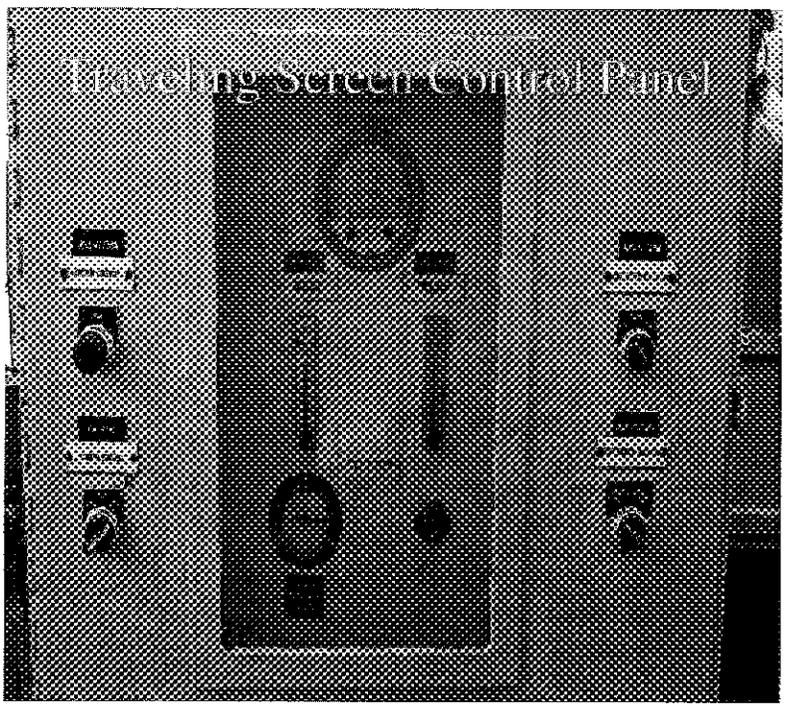
- At 6" WC differential level, screen wash and low speed screen rotation are initiated.
- At 12" WC differential level, the screens switch from low to high speed and a high differential level alarm annunciates at the QPCP.

Depressing the Momentary Run Pushbutton

In either automatic or manual mode, depressing the momentary run pushbutton on the traveling screen control panel for at least one-half second will initiate a traveling screen wash cycle. This method is used primarily to check the Traveling Screen and Wash System for proper operation. If switch is placed in manual operation and the run pushbutton is depressed the traveling screens will run until handswitch is placed in off. Running in manual for long periods of time, may cause damage to screen operation.

Footpedal Operation

During traveling screen maintenance or during cleanup of large amounts of debris from the river, a traveling screen can be rotated to specified positions in forward or reverse by operating the screen with a plug-in foot pedal. The foot pedal is connected to the traveling screen control panel. Foot pedal operation defeats the automatic wash function of the system. Therefore, the potential exists for introducing debris into the suction of the river water makeup pumps during sustained foot pedal operation.



QUESTIONS REPORT
for Vogtle 2005-301 Draft

55. 079A2.01 001

Unit 1 is at 100% Rated Thermal Power (RTP) and Unit 2 is at 25% RTP. Two instrument air compressors are available on Unit 1, one of which is the swing compressor.

Two instrument air compressors are running on Unit 2, with the third compressor unavailable. The following Unit 2 alarms annunciate while instrument air pressure continues to lower:

- INST AIR EQUIP LO PRESS
- SERVICE AIR LO PRESS

18028-C, Loss of Instrument Air, is being implemented.

Which ONE of the following correctly states the actions that should be performed by the operators?

- A. Open the cross tie valve to supply Unit 2 air header from Unit 1.
- B. Re-align the swing compressor from Unit 2 to Unit 1.
- C. Verify isolation of service air (PV-9375) for Unit 2 and trip the reactor.
- D. Trip the turbine and isolate service air (PV-9375) for Unit 2.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

079 Station Air

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the SAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Cross-connection with IAS.

K/A MATCH ANALYSIS

Given the stated scenario, the operators must know the requirement to isolate service air from instrument air (SAS x-connection with IAS). Procedures give the guidance to perform the isolation. The question also tests the predictions of the impacts implicitly because the procedural actions are based on the impacts. Knowledge of the specific details of subsequent procedure steps is not required to answer this question, but knowledge of system design and capacity are required, as well as reactor trip criteria. These are all closed book required items for both RO and SRO applicants.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. There is evidence of a leak and Unit 1 supplies common loads and requires a second compressor to meet the demand.
- B. Incorrect. There is evidence of a leak and Unit 1 supplies common loads and requires a second compressor to meet the demand.
- C. Correct. 18028-C, Step A3 and A7.
- D. Incorrect. AP gives guidance to trip rx, not turbine. Plausible because isolation of service air is correct. (Partially correct distractor).

REFERENCES

1. 18028-C, Loss of Instrument Air, Rev. 23, 11/03/2003.
2. Lesson Plan, LO-LP-60321-13-C, Page 6 - 8.
3. Lesson Plan, V-LO-TX-02101, Service and Instrument Air.
4. ALB01B06, INST AIR EQUIP LO PRESS, Rev. 28, 01/11/2004.
5. ALB01C06, SERVICE AIR LO PRESS, Rev. 28, 01/11/2004.
6. Voglte Requal Exam Bank, RQ-SG-94100-60, LOLP60321, LO-TA-60007

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D B C A A D C C Scramble Range: A - D
Tier: 2 Group: 2
Key Word: INSTRUMENT AIR Cog Level: C/A 2.9
Source: M Exam: VG05301
Test: R Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

55. 079A2.01 001

Unit 1 is at 100% Rated Thermal Power (RTP) and Unit 2 is at 25% RTP. Two instrument air compressors are available on Unit 1, one of which is the swing compressor.

Two instrument air compressors are running on Unit 2, with the third compressor unavailable. The following Unit 2 alarms annunciate while instrument air pressure continues to lower:

- INST AIR EQUIP LO PRESS
- SERVICE AIR LO PRESS

18028-C, Loss of Instrument Air, is being implemented.

Which ONE of the following correctly states the actions that should be performed by the operators?

- A. Open the cross tie valve to supply Unit 2 air header from Unit 1.
- B. Re-align the swing compressor from Unit 2 to Unit 1.
- C. Verify isolation of service air (PV-9375) for Unit 2 and trip the reactor.
- D. Trip the turbine and isolate service air (PV-9375) for Unit 2.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

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K/A MATCH ANALYSIS

Given the stated scenario, the operators must know the requirement to isolate service air from instrument air (SAS x-connection with IAS). Procedures give the guidance to perform the isolation. The question also tests the predictions of the impacts implicitly because the procedural actions are based on the impacts. Knowledge of the specific details of subsequent procedure steps is not required to answer this question, but knowledge of system design and capacity are required, as well as reactor trip criteria. These are all closed book required items for both RO and SRO applicants.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. There is evidence of a leak and Unit 1 supplies common loads and requires a second compressor to meet the demand.
- B. Incorrect. There is evidence of a leak and Unit 1 supplies common loads and requires a second compressor to meet the demand.
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5. ALB01C06, SERVICE AIR LO PRESS, Rev. 28, 01/11/2004.
6. Vogtle Requal Exam Bank, RQ-SG-94100-60, LOLP60321, LO-TA-60007

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D B C A A A D C C Scramble Range: A - D

Tier:	2	Group:	2
Key Word:	INSTRUMENT AIR	Cog Level:	C/A 2.9
Source:	M	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

4. 079A2.01 001

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Two instrument air compressors are running on Unit 2, with the third compressor unavailable. The following Unit 2 alarms annunciate while instrument air pressure continues to lower:

- INST AIR EQUIP LO PRESS
- SERVICE AIR LO PRESS

18028-C, Loss of Instrument Air, ~~has just been entered.~~ *is being implemented.*

Which ONE of the following correctly states the actions that should be performed by the operators?

- A. Open the cross tie valve to supply Unit 2 air header from Unit 1.
- B. Re-align the swing compressor from Unit 2 to Unit 1.
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- D. Trip the turbine and isolate service air (PV-9375) for Unit 2.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

079 Station Air

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Given the stated scenario, the operators must know the requirement to isolate service air from instrument air (SAS x-connection with IAS). Procedures give the guidance to perform the isolation. The question also tests the predictions of the impacts implicitly because the procedural actions are based on the impacts. Knowledge of the specific details of subsequent procedure steps is not required to answer this question, but knowledge of system design and capacity are required, as well as reactor trip criteria. These are all closed book required items for both RO and SRO applicants.

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- A. Incorrect. There is evidence of a leak and Unit 1 supplies common loads and requires a second compressor to meet the demand.
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6. Voglte Requal Exam Bank, RQ-SG-94100-60, LOLP60321, LO-TA-60007

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D B C A A A D C C Scramble Range: A - D

Tier:	2	Group:	2
Key Word:	INSTRUMENT AIR	Cog Level:	C/A 2.9
Source:	M	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

WINDOW B06

<u>ORIGIN</u>	<u>SETPOINT</u>
1-PSL-19414	70 psig

INSTR AIR EQUIP LO PRESS

1.0 PROBABLE CAUSE

1. Instrument Air Dryer, Prefilter or Afterfilter clogged.
2. System piping leak.
3. System valve misalignment.
4. Loss of all Air Compressors.

2.0 AUTOMATIC ACTIONS

NONE

3.0 INITIAL OPERATOR ACTIONS

Go to 18028-C, "Loss Of Instrument Air."

4.0 SUBSEQUENT OPERATOR ACTIONS

NONE

5.0 COMPENSATORY OPERATOR ACTIONS

NONE

END OF SUB-PROCEDURE

REFERENCES: 1X3D-BH-R50L, 1X4DB175-2, CX5DT1101-95B

WINDOW C06

<u>ORIGIN</u>	<u>SETPOINT</u>
1-PSL-9375	95 psig

SERVICE AIR HDR I/O PRESS

1.0 PROBABLE CAUSE

1. Excessive service air demand.
2. Air Compressor trip.
3. System leak.
4. Standby compressor failed to start.

2.0 AUTOMATIC ACTIONS

1. Service Air Dryer Inlet Isolation Valve 1-PV-9375 closes at a service air pressure of 80 psig.
2. Any standby air compressor with its handswitch in AUTO-PTL position will auto start at a discharge pressure of 100 psig decreasing.

3.0 INITIAL OPERATOR ACTIONS

NONE

4.0 SUBSEQUENT OPERATOR ACTIONS

1. CHECK OMCB indications and START a standby Air Compressor if necessary to maintain service air header pressure above 100 psig.
2. DISPATCH an operator to check for system leaks or excessive air usage.
3. If pressure continues to fall and cannot be restored, REFER to 18028-C, "Loss Of Instrument Air".
4. REFER to 13710-1, "Service Air System" and ENSURE Air Compressors are operating properly.
5. If equipment failure is indicated, INITIATE maintenance as required.

Approved By C. H. Williams, Jr.	Vogtle Electric Generating Plant 	Procedure Number 17001-1	Rev 28
Date Approved 1/11/2004	ANNUNCIATOR RESPONSE PROCEDURES FOR ALB 01 ON PANEL 1A1 ON MCB	Page Number	28 of 40

WINDOW C06
(Continued)

CAUTION

Procedure 13710-1 "Service Air System" should be referenced prior to performing the following step if service air has isolated due to low pressure.

6. When service air header pressure is greater than 97 psig as read on 1-PI-19380 on panel PMEC, RESET 1-PSL-9375. Switch is located on instrument rack 15 (1-1624-P5-R15) on Turbine Building level 1 near Powdex vessels.

5.0 COMPENSATORY OPERATOR ACTIONS

1. TREND the Service Air System pressure on the Plant Computer.
2. CHECK the Service Air System pressure greater than or equal to 100 psig once per hour, and INITIATE the appropriate Subsequent Operator Actions if pressure is low.
3. LOG corrective actions to repair the disabled annunciator or reasons for no action on 10018-C, "Annunciator Control", Figure 2.
4. LOG compensatory actions on 10018-C, "Annunciator Control", Figure 5.

END OF SUB-PROCEDURE

REFERENCES: 1X3D-BH-R50L, 1X4DB175-2, CX5DT1101-95A

SECTION D

2.4 OPERATIONS

2.4.1 NORMAL OPERATIONS

The two units' compressors are tied together at the main header primarily for the utilization of the swing reciprocating compressor No. 4. Also, the common header between the two units can allow for additional air capacity during a refueling outage of one unit; however, this situation requires operator supervision to assure proper flow through the air dryers and to maintain adequate flow to the unit that is not in refueling. The primary purpose of this concept is to ensure adequate flow to each unit without jeopardizing air supply to either unit. In other words, if air pressure is lost in one unit, the other unit will not be affected. Caution should be observed at all times to prevent overflow, indicated by high Delta-P, through either of the service air dryers or the instrument air dryers. Inlet and outlet pressure gages are provided for each air dryer to determine Delta-P.

Compressor No. 4 replaces either of the No 3 compressors when either one is down for maintenance. This compressor can be physically aligned to either unit by use of two valves (1-2401-U4-510 and 2-2401-U4-510). Compressor No. 4 must be aligned to the applicable unit using the Unit 1 PMEC transfer switch (located on the Unit 1 PMEC). To improve system reliability the compressor no longer has an interlock with discharge valves 1-2401-U4-510 and 2-2401-U4-510.

Each unit's compressors are independently controlled by Yokogawa digital PID controllers. During normal operation, one of the rotary compressors is the base load machine and runs normally at full load. A second compressor is required to be run on Unit 1 and is normally a reciprocating compressor. This compressor modulates to make up any fluctuations in demand above the capacity of the rotary. Unit 2 does not supply the common loads and usually one rotary compressor running near full load is adequate. If the system load increases such that both the rotary and the reciprocating compressors cannot supply the demand, a third compressor will auto start when system pressure drops to 100 psig. This could be the second rotary compressor (or compressor 4 if it is aligned to operate in Unit 1). From an economic standpoint, it is desirable to run the rotary compressors for the baseload and to use the reciprocating compressor for variable loads above the baseload.

Wet and dirty compressed air leaving the compressor aftercooler and mechanical separator is freed of all entrained liquids and aerosols, as well as solid contamination, by the accessory coalescing prefilter. Liquid contaminants are discharged from the prefilter sump through an automatic drain trap. The compressed air, still laden with water vapor, enters either the left or right tower of the desiccant dryer, depending upon the position of the inlet switching valve. Assume that the wet inlet compressed air is being dried by the left desiccant tower. Within the left tower, the compressed air gives up all of its water vapor to the desiccant. The dry compressed air leaving the left tower will have a dewpoint of -60°F , means the temperature would have to decrease to -60°F for vapor to condense. A small portion of this dry compressed air is expanded to near atmospheric pressure by passage through the manual purge flow control valve and the purge orifice. Expansion of this already dry air to near atmospheric pressure increases the ability of the purge stream to strip previously absorbed water vapor from the partially saturated desiccant within the right tower. The water vapor removed from the desiccant is passed out of the dryer through the purge exhaust valve and muffler. Prior to switchover or reversal, the purge exhaust valve is closed

III. LESSON OUTLINE

NOTES

- a. If stable or rising, go to step to identify and isolate source of leakage
- b. RNO; if lowering, and <80 psig **then:**
Dispatch an operator to ensure service air header isolation valve PV-9375 is closed
 - 1) PV-9375 located: Level A of turbine building
 - 2) Should auto close at 80 psig
- c. If Unit I instrument air pressure continues to lower; dispatch operator to place the river intake emergency air compressor in service per SOP-13727-C.
 - 1) Also note the tower makeup and blowdown valves fail open and could runout the Pumps.
- d. Check if the swing air compressor is already in service supplying the affected unit.
- e. RNO; Place the swing air compressor in service.

Objective 6

NOTE: "Unit 1 Serv. Air Hdr Tied to Unit 2" Annunciator C05 on ALB01 will annunciate in Unit 1 CR when instrument air header common to U-1 and U-2 is established. (This signal comes from valve position indication for 2-2401-U4-510 and 1-2401-U4-510 less than 100% closed)

NOTE: If instrument air header common to both units lowers to <80 psig, the U-1 and U-2 headers should be reisolated from each other

4. SWING COMPRESSOR AND CROSS-TIE OPERATIONS

Check how many air compressors running on **affected unit**. Guidance is provided to align and run the Swing compressor to the affected Unit, if possible.

If 2 or more running, identify and isolate leak. This is an indication of air system leakage, not air compressor availability, and cross tie ops would not be allowed.

- a. Less than 2 running on affected unit:
 - 1) Verify all available air compressors for both units are running
 - a) Start all available compressors in preparation for X-tie of U1/U2 air systems.
 - 2) **If** total number of running Unit 1 and 2 air compressors is 4 or more, **then:**

Dispatch operator (with a radio) to establish an open instrument air header between U-1 and U-2

 - a) Not directed to X-tie if less than 4 compressors running.
 - b) Cross tie the U1/U2 service air

The operator will remain at valve location and establish communication with the CR Anticipate noise problems

 - a) Must be able to quickly isolate two units if both start losing air pressure.
 - 3) Once units are cross-tied, **if** Inst air press of unaffected unit lowers to <80 psig, **then:** Objective 6

Restore/reisolate unaffected unit, by returning lineup to a pre-crossconnected condition.

 - a) Unit 1 is the unaffected unit then:
 - (1) Align swing compressor to U1, and verify running
 - (2) Close cross tie to U2
 - b) Unit 2 is the unaffected unit then:
 - (1) Align swing compressor to U2, and verify running
 - (2) Close cross-tie to U1
- 5. LOCATE AND ISOLATE LEAK IF POSSIBLE.
 - 6. CHECK INST AIR HEADER PRESSURE IS RESTORED TO > 70 PSIG Objective 6

III.	LESSON OUTLINE	NOTES
	<p>a. RNO; If inst press cannot be restored and is < 70 psig, Then Trip the reactor, and go to E-O and to Section B of this procedure, "Loss of IA in Mode 3". Section B of the procedure will continue to guide the restoration and recovery from loss of air in Mode 3.</p>	Continuous Action
	<p>b. With instrument air pressure low at receivers it is even lower at remote valves.</p> <p>As pressure lowers random valves start failing causing control problems (MSIV's, MFRV, FV-121, etc.) It is better to trip, and stabilize while air pressure still available.</p>	Objective 3
	7. VERIFY HEADER PRESSURE STABLE OR RISING	
	<p>a. RNO; If still lowering and leakage cannot be isolated, THEN, Restore/reisolate the unaffected unit to lineup prior to cross-connecting the two units</p>	
	8. MONITOR INSTRUMENT AIR SYSTEM < 100 PSIG	
	<p>a. RNO; If pressure > 100 psig, return to procedure and step in effect after resetting service air valve if it closed, unless it closed to isolate the leak.</p> <p>b. Check SFP gate seals</p>	
	NOTE: Total loss of Inst Air precludes continued plant operation, at power.	
	9. DETERMINE IF OPERATION MAY CONTINUE UNDER UOP IN EFFECT.	
	<p>a. Consider what components will be affected once leak is isolated.</p> <p>b. Consider how reliable air supply is for continued operation.</p> <p>c. If plant not stable or cannot be sure will stay stable, then commence Unit Shutdown.</p> <p>d. RNO; commence unit shutdown</p>	
	10. WHEN CAUSE CORRECTED RESTORE AIR SYSTEMS TO NORMAL	
	C. LOSS OF INSTRUMENT AIR IN MODE 3	Objective 11

You may have entered this procedure as a result of being directed here from Section A, or as a result of being in Mode 3 when loss of instrument air occurred.

A. LOSS OF INSTRUMENT AIR AT POWERACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

- Loss of Turbine Building instrument air will cause all extraction steam stop valves to shut. MFP miniflow valves and feedwater heater and drain tank hi-level dump valves will fail open.
- Loss of instrument air to the Unit 1 Turbine Building will result in loss of instrument air to outside areas. River makeup pump discharge valves will fail closed. Cooling tower makeup valves and blowdown sump dilution valves will fail open.

A3. Check instrument air header
pressure - STABLE
OR RISING

Go to Step A6.

A3. Perform the following:

- a. IF instrument air header pressure lowers to less than 80 psig, THEN dispatch an operator to ensure Service Air Header Isolation Valve PV-9375 is closed.
 - UNIT 1 (TB-A-TD11)
 - UNIT 2 (TB-A-TD10)
- b. IF UNIT 1 service air is unavailable, THEN verify seals supplied with bottled nitrogen at greater than or equal to 50 psig:
 - Cask loading pit gates
 - Fuel transfer canal gates

A. LOSS OF INSTRUMENT AIR AT POWERACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

(Step 3 continued from previous page)

- c. IF Unit 1 instrument air header pressure continues to lower, THEN:
- 1) Dispatch operator to place river intake emergency air compressor in service per 13727-C RIVER INTAKE SYSTEM.
 - 2) Dispatch operator(s) to locally position cooling tower makeup valves and blowdown sump dilution valves as necessary to prevent river water pump runout.
 - a) Only one tower makeup valve open unless two are required to maintain level.
 - b) Only one dilution valve open unless two are required for a liquid waste release.
 - c) Pit entries should be made in accordance with the requirements of 00258-C SAFE WORK PROCEDURES FOR CLOSED VESSELS, CONFINED SPACES, WET LOCATIONS AND SYSTEMS.

A. LOSS OF INSTRUMENT AIR AT POWERACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

Steps A4 and A5 provide different options for re-establishing instrument air to the affected unit.

A4. Check if control of swing compressor is set to affected unit.

IF control is set to the affected unit, THEN verify swing compressor is running.

*Swing Compressor
IS needed to
support unaffected
unit*

A4. IF the swing compressor is not required to support unaffected unit, THEN:

a. Dispatch operator to perform for the affected unit:

UNIT 1

- Stop swing air compressor.
- Service Air Receiver 504 to Air Dryer Isolation Valve 1-2401-U4-510 (TB-A-TC11) open.
- Service Air Unit 1 to Unit 2 Header Isolation Valve 2-2401-U4-510 (TB-A-TC11) shut.
- Unit 1/Unit 2 Control Transfer Switch A-HS-19458 in UNIT 1 position.

UNIT 2

- Stop swing air compressor
- Valve 1-2401-U4-510 (TB-A-TC11) shut.
- Valve 2-2401-U4-510 (TB-A-TC11) open.
- Switch A-HS-19458 in UNIT 2 position.

b. Start swing compressor.

A. LOSS OF INSTRUMENT AIR AT POWERACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

- UNIT 1 SERV AIR HDR TIED TO UNIT 2 annunciator C05 of ALB01 will annunciate in the Unit 1 control room when instrument air header cross-tie to Unit 1 and Unit 2 is established.
- If the pressure in the instrument air header common to both units lowers below 80 psig, the Unit 1 and Unit 2 headers should be reisolated from each other.

A5. Check air compressors running on affected unit.

IF two or more,
THEN go to Step A6.

A5. Perform the following:

- a. Verify all available air compressors for both units are running.
- b. IF the total number of running Unit 1 and Unit 2 air compressors is 4 or more,
THEN dispatch operator equipped with a radio (or use local phone) to establish an open instrument air header between Unit 1 and Unit 2 by opening the following valves:
 - 1-2401-U4-510,
Service Air Receiver
504 to Air Dryer
Isolation Valve
(TB-A-TC11)
 - 2-2401-U4-510,
Service Air Unit 1 to
Unit 2 Header
Isolation Valve
(TB-A-TC11)

A. LOSS OF INSTRUMENT AIR AT POWERACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

(Step 5 continued from previous page)

The operator will remain at the valve location and establish communication with the control room using radio or phone (inside door of Chemical Addition Room).

c. IF the instrument air pressure of the unaffected unit lowers to less than 80 psig, THEN restore/reisolate unaffected unit instrument air as follows:

- IF Unit 1 is selected for the swing compressor, THEN shut valve 2-2401-U4-510.
- IF Unit 2 is selected for the swing compressor, THEN shut valve 1-2401-U4-510.
- Verify swing compressor is running (TB-A-TC11).

A6. Identify the source of the leakage and isolate if possible.

* A7. Check instrument air header pressure restored - GREATER THAN 70 PSIG.

* A7. IF instrument air header pressure can NOT be restored AND is less than 70 psig, THEN trip the reactor and initiate 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION and go to Step B7 of this procedure.

B. LOSS OF INSTRUMENT AIR IN MODE 3ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

CAUTION: Loss of instrument air to the Unit 1 Turbine Building will result in loss of instrument air to outside areas, including the River Intake Structure. River makeup pump discharge valves will fail closed. Cooling tower makeup valves and blowdown sump dilution valves will fail open.

- * B7. IF instrument air header pressure falls below 70 psig, THEN dispatch an operator to close Turbine Building instrument air isolation valve:

UNIT 1: 1-2420-U4-512
(TB-1-TE12)

UNIT 2: 2-2420-U4-512
(TB-1-TE10)

B8. Verify SG ARVs - MAINTAINING SG PRESSURE BETWEEN 1080 AND 1140 PSIG.

B8. Perform the following:

- a. Ensure SG atmospheric relief valves in AUTO:

SG 1: PIC-3000A
SG 2: PIC-3010A
SG 3: PIC-3020A
SG 4: PIC-3030A

- b. Ensure controller setpoint potentiometers set at 7.5.

B9. Verify SG NR level - TRENDING TO 65%.

B9. Restore AFW flow to SGs.

QUESTIONS REPORT
for LORQ Bank 1

1. RQ-SG-94100-60 002

Unit 2 is at 25% power and Instrument air header pressure is 68 psig and lowering. Two air compressors are running and the other available compressor failed to start. Which of the following is the correct actions to take?

- A. Open the crosstie valve to pressurize the unit 2 air header from Unit 1.
- B. Realign the swing compressor to unit 2.
- C. Trip the reactor, verify isolation of service air, and isolate instrument air to the Unit 2 turbine building.
- D. Trip the turbine and maintain the reactor at 25% power.

Category 1: LOLP60321

Category 2: LO-TA-60007

Category 3: 000EK3.05

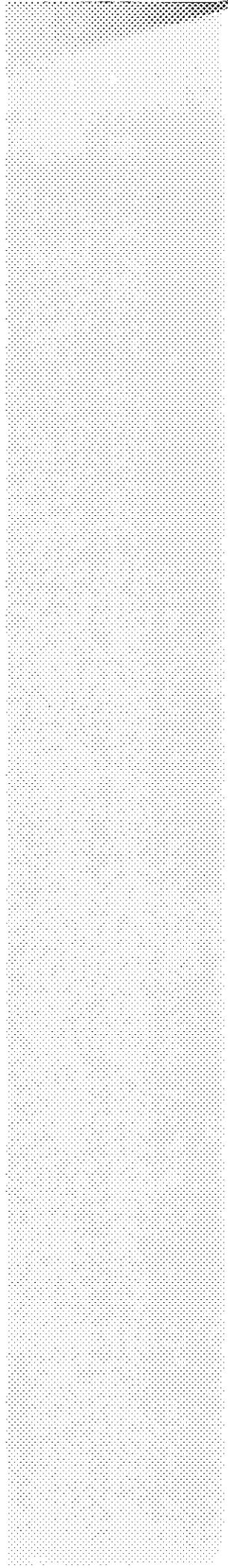
Category 4:

Category 5:

Category 6:

Category 7:

Category 8:



QUESTIONS REPORT
for Voglte 2005-301 Draft

56. 086A3.02 001

The following sequence of events occurs:

- Both Units were operating at 100% power.
- Diesel Generator (DG) 1A is in an extended outage period and is unavailable
- Both Unit 1 Reserve Auxiliary Transformers (RAT) trip
- DG 1B starts and then trips on overspeed
- You receive a report that RAT 1A is on fire

Which ONE of the following correctly describes the automatic response of the fire detection and protection given the above sequence of events?

- A. The fire detection system will detect the fire. The diesel fire pump(s) will start, but the clapper valve(s) must be manually tripped.
- B. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started by pulling up the lever on the Primary Emergency Start Contactor.
- C. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started using the Alternate Emergency Start Contactor.
- D. The fire detection system will detect the fire. The diesel fire pump(s) will start and deliver water to RAT 1A without operator action.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

086 Fire Protection

A3.02 Ability to monitor automatic operation of the Fire Protection System including:
Actuation of the FPS.

K/A MATCH ANALYSIS

An operator must know what to anticipate for system operation in order to effectively monitor the system. Therefore, the K/A is met because the applicant must know how the system should automatically respond given the sequence of events presented in the question.

ANSWER / DISTRACTOR ANALYSIS

A, B, C Incorrect. The diesel pumps will deliver flow automatically. All are plausible because they are likely answers with a lack of backup power supply knowledge.

D. Correct. Battery backup exists for detection and diesel fire pump starting. The system will flow water to the RAT without any operator action.

REFERENCES

1. V-LO-TX-22101, Fire Detection.
2. V-LO-TX-43101, Fire Protection.
3. Vogtle Exam Question LO-LP-22101-04-02.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDCABCD CBA	Scramble Range: A - D
Tier:		2			Group:		2
Key Word:		FIRE PROTECTION			Cog Level:		C/A 2.9
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

56. 086A3.02 001

The following sequence of events occurs:

- Both Units were operating at 100% power.
- Diesel Generator (DG) 1A is in an extended outage period and is unavailable
- Both Unit 1 Reserve Auxiliary Transformers (RAT) trip
- DG 1B starts and then trips on overspeed
- You receive a report that RAT 1A is on fire

Which ONE of the following correctly describes the automatic response of the fire detection and protection given the above sequence of events?

- A. The fire detection system will detect the fire. The diesel fire pump(s) will start, but the clapper valve(s) must be manually tripped.
- B. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started by pulling up the lever on the Primary Emergency Start Contactor.
- C. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started using the Alternate Emergency Start Contactor.
- D. The fire detection system will detect the fire. The diesel fire pump(s) will start and deliver water to RAT 1A without operator action.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

086 Fire Protection

A3.02 Ability to monitor automatic operation of the Fire Protection System including:
Actuation of the FPS.

K/A MATCH ANALYSIS

An operator must know what to anticipate for system operation in order to effectively monitor the system. Therefore, the K/A is met because the applicant must know how the system should automatically respond given the sequence of events presented in the question.

ANSWER / DISTRACTOR ANALYSIS

A, B, C Incorrect. The diesel pumps will deliver flow automatically. All are plausible because they are likely answers with a lack of backup power supply knowledge.

D. Correct. Battery backup exists for detection and diesel fire pump starting. The system will flow water to the RAT without any operator action.

REFERENCES

1. V-LO-TX-22101, Fire Detection.
2. V-LO-TX-43101, Fire Protection.
3. Vogtle Exam Question LO-LP-22101-04-02.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDCAB CDCBA	Scramble Range: A - D
Tier:		2			Group:		2
Key Word:		FIRE PROTECTION			Cog Level:		C/A 2.9
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

5. 086A3.02 001

The following sequence of events occurs:

- Both Units were operating at 100% power.
- Diesel Generator (DG) 1A is in an extended outage period and is unavailable
- Both Unit 1 Reserve Auxiliary Transformers (RAT) trip
- DG 1B starts and then trips on overspeed
- You receive a report that RAT 1A is on fire

Which ONE of the following correctly describes the automatic response of the fire detection and protection given the above sequence of events?

- A. The fire detection system will detect the fire. The diesel fire pump(s) will start, but the clapper valve(s) must be manually tripped.
- B. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started by pulling up the lever on the Primary Emergency Start Contactor.
- C. The fire detection system will not detect the fire. The diesel fire pump(s) must be manually started using the Alternate Emergency Start Contactor.
- D. The fire detection system will detect the fire. The diesel fire pump(s) will start and deliver water to RAT 1A without operator action.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

086 Fire Protection

A3.02 Ability to monitor automatic operation of the Fire Protection System including:
Actuation of the FPS.

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An operator must know what to anticipate for system operation in order to effectively monitor the system. Therefore, the K/A is met because the applicant must know how the system should automatically respond given the sequence of events presented in the question.

ANSWER / DISTRACTOR ANALYSIS

A, B, C Incorrect. The diesel pumps will deliver flow automatically. All are plausible because they are likely answers with a lack of backup power supply knowledge.

D. Correct. Battery backup exists for detection and diesel fire pump starting. The system will flow water to the RAT without any operator action.

REFERENCES

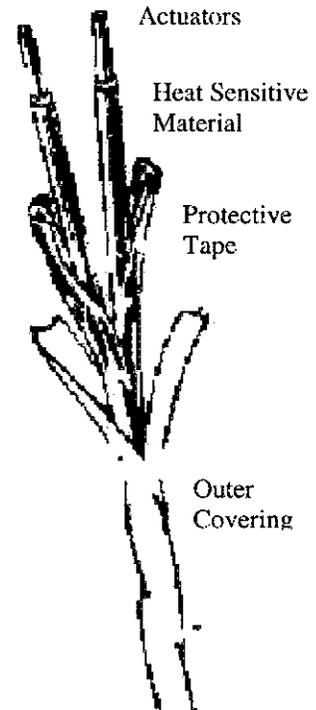
1. V-LO-TX-22101, Fire Detection.
2. V-LO-TX-43101, Fire Protection.
3. Voglte Exam Question LO-LP-22101-04-02.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDCAB CDCBA	Scramble Range: A - D
Tier:		2			Group:		2
Key Word:		FIRE PROTECTION			Cog Level:		C/A 2.9
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

in areas where failure of a component will cause a rapid temperature rise increasing the chance of combustion in those areas. For example, fixed temperature/temperature rise detectors are used near the main turbine bearings and the main feed pump bearings.

Continuous line detectors

These type detectors consist of two conductors (called actuators) inside a common braided sheath held apart by a heat sensitive insulation. When the design temperature is reached, the insulation melts, the two conductors come in contact, and the alarm is initiated. Following the alarm, the fused section of the cable must be replaced to restore the system.



B. Local Display Cabinets

Local display cabinets (LDCs) are only found in the auxiliary building. These cabinets provide detection information for locating fires in large fire zones, by indicating which specific room or enclosed area is in an alarm state. LDC lights are powered by their associated fire detectors.

C. Local Zone Indicating Panels (LZIPs)

Local zone indicating panels (LZIPs) are found throughout the plant. The LZIPs process fire signal information for multiple areas (maximum of 10 zones) and generate local alarms, send remote alarm signals to computer multiplexing cabinets, and send actuation signals to local suppression indicating panels (LSIPs). LZIPs provide operators with local information concerning fire zone status. The panels are equipped with zone alarm, zone trouble, and audible signal circuit trouble displays. Power Block area LZIPs are provided with uninterruptible power source (UPS). LZIPs located outside of the power block area are provided with a backup 24 hour battery supply. The LZIPs receive their signal from detectors or manual pull stations.

D. Local Suppression Indicating Panels (LSIPs)

Local suppression indicating panels (LSIPs) are located throughout the plant. The LSIPs actuate automatic fire suppression actuating devices. LSIPs are provided with a local alarm and normal AC and battery backup power supply.

E. Local Halon Control Panels (LHCP)

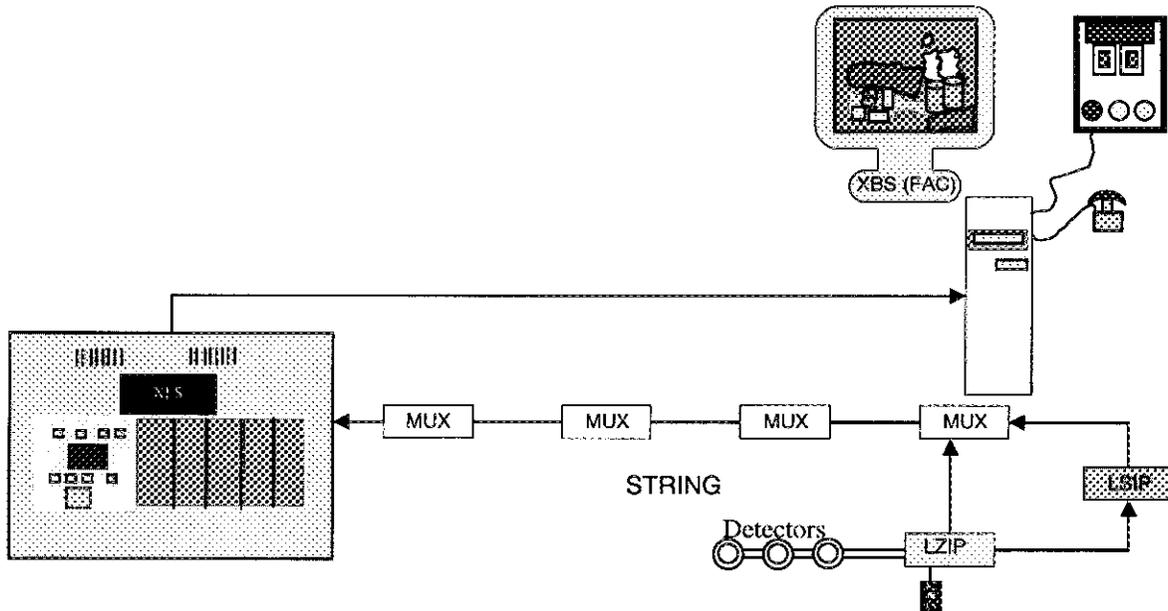
Halon gas is used in areas where normal fire suppression systems would cause damage to equipment or materials as in computer rooms, records storage areas and shutdown panels. The LHCP is the same as an LSIP except that it controls only the Halon system. It also receives its signal from the LZIP. The main difference is that it takes **two (2)** actuation signals for initiation of discharge.

F. Computer Multiplexing Cabinets

Computer multiplexing cabinets are found throughout the plant. These cabinets process alarm signals and feed the signals to the fire alarm signaling system computer network. These cabinets also are provided with 24 hour battery backup power packs, typically mounted next to the cabinet.

G. Excel Life Safety (XLS) System Fire Alarm Computer

There are 72 multiplexers, also called data gathering panels that gather signals from LZIPs, LSIPs, and LHCPs and transmit to four panels known as the Excel Life Safety (XLS) System. They are located on the third floor of the control building, east side. The XLS sends its signal to the Excel Building Supervisor (XBS) system.



G. Sprinkler/Deluge Systems:

- **Wet Sprinklers**

Wet sprinkler systems are generally located in areas where freezing does not occur. For example, oil storage areas in the turbine building. The wet sprinkler is designed to have system pressure on both sides of the control valve up to the sprinkler heads. In the event of a fire, fusible links in the sprinkler head will melt, initiating flow and allowing the control valve to open. Flow is terminated by closing the local manual gate valve.

- **Deluge Sprinklers**

Deluge sprinkler systems are generally located in areas where full coverage of an area is desired. For example, low voltage switchyard transformers, oil reservoirs, and HVAC charcoal filters. These are typically dry piping systems, so freezing is not a concern. In the event of a fire, fusible links in a dry pilot sensing line melt. Air in the line bleeds off, causing the control valve to open. This allows water to flow into dry downstream piping and out open sprinkler heads. Flow is terminated by closing the local manual gate valve.

- **Preaction Sprinklers**

Preaction sprinkler systems are generally located in safety-related areas of the plant: for example, the diesel generator building, the AFW pump house, and most areas in the auxiliary building and containment. Preaction sprinklers are used for these areas because a single failure in the initiating mechanism will not cause actuation. The preaction sprinkler is the most widely-used sprinkler system in the plant. In the event of a fire, two conditions are required to initiate flow: the fire is detected by a fire detector and a fusible link melts in the sprinkler head. A failed fire detector may actuate a preaction valve, but flow is prevented until the sprinkler heads are actuated by the fusible links melting.

Some preaction sprinkler systems have supervisory air (air through low pressure regulator) applied to the system. If a leak develops within the system air pressure would decrease causing an alarm on a local panel and at the FAC. This would prevent an unwanted wetting of an area during an actuation of the sprinkler system.

H. Seismic Category I Dry Standpipe System

The Seismic Category I Dry Standpipe System is located in five areas of the plant: containment, the auxiliary building, the control building, the diesel generator building, and the fuel handling building. This system is designed to provide a fire protection water source to areas required for safe shutdown following a safe shutdown earthquake (SSE). In the event of a fire with normal sprinkler/deluge systems inoperable, the Seismic Category I Dry Standpipe System can supply fire-fighting water from the NSCW System at a rate of 150 gpm (at 60 psig) for 2 hours. The in-service NSCW train Standpipe System Supply Valve must be UNLOCKED and OPENED to the affected building per TABLE 1 of 13903-C.

IV. OPERATION

A. Diesel Fire Pumps

There are three ways to start the diesel driven fire pump: routine/normal, manual and abnormal/emergency. In a routine/normal start, pressure is bleed off the sensing line that controls the auto start function. The diesel will make six attempts to start, (alternating battery banks) with 15 seconds of cranking and 15 seconds of rest. The pressure line is then closed and the diesel will continue to run. The Manual Diesel-Driven Fire Pump starting may only be performed when authorized by the Unit Shift Supervisor. All automatic shutdowns for the Diesel Fire Pump are BYPASSED when starting in Manual 1 or Manual 2 positions. The operator will depress start and hold until diesel starts or 15 seconds have elapsed:

- a. If diesel does not start, PLACE Control Switch C-HS-7990B(7907B) to MANUAL 2 and REPEAT,
- b. If diesel still does not start, ALTERNATE 15 seconds attempts to start in MANUAL 1 and MANUAL 2, two more times (a total of 3 attempts per position),
- c. If the diesel still does not start, NOTIFY the USS.

If the USS decides conditions warrant, then the abnormal/emergency start is to be performed. To emergency start a Diesel Fire Pump PERFORM the following:

- a. OPEN Fuel Solenoid Bypass,
- b. OPEN the cooling water PCV bypass valves for the Diesel Fire Pump to be emergency started:
 - 1) DIESEL FP #2, CLG WTR PCV, BYPASS C-2301-U4-740 and C-2301-U4-743.
 - 2) DIESEL FP #1, CLG WTR PCV, BYPASS C-2301-U4-733 and C-2301-U4-742.
- c. START the diesel by pulling up the lever on the Emergency Start Contactor (east side of engine),
- d. If the battery is too weak to start the diesel, then ATTEMPT diesel start with the other Emergency Start Contactor.

B. Electric Fire Pump

The Electric fire pump is normally run for header pressurization during surveillances and if fire water is needed for fire training. The Electric Fire Pump Discharge relief valve is sized to provide an adequate miniflow path.

C. Preaction Valves

A preaction system is so named because two separate actuations have to occur to open a piping system to flow water on a fire. This will minimize accidental and unwanted water discharge. The first actuation in the flow path is opening of a normally closed system valve (preaction valve) to charge the header. Then the sprinkler head(s) individually open (melt) due to heat from the fire.

A preaction system with supervisory air is the same as the normal preaction system, except that the piping header downstream of the preaction valve contains air under low pressure (20-28 OUNCES /sq. inch). The purpose of this is to detect any breaks in the dry downstream of the preaction valve. This air is supplied from service air via a regulator, and monitored by pressure switches to ensure system integrity. Supervisory air loss DOES NOT actuate the preaction valve; it is only to indicate (by low pressure alarm on LSIP) that the system header may have a leak.

Loss of air pressure in other systems such as DELUGE VALVE WITH DRY PILOT ACTUATION (typical in switchyard transformer protection) will cause system actuation. These (non-supervisory) systems use air (instead of water) supplied to the diaphragm chamber through the diaphragm chamber supply control valve as the force used to hold the clapper valve mechanism shut. Note that these valves are also tripped by energization of an electric solenoid: the only difference is that air (instead of water) is depressurized to the diaphragm chamber. These DRY PILOT ACTUATION valves are used in areas subject to freezing temperatures where frozen water supply to the diaphragm chamber would prevent trip of the preaction valve.

A common occurrence at Vogtle requires resetting the clapper valve on some preaction systems. Procedure 92100-C provides instructions for the valve and sprinkler system restoration. Prior to resetting the clapper valve the operator must make sure the condition that caused the alarming condition will not cause another occurrence after the reset is complete. Also if the condition occurred in the AUX building, then HP needs to be notified.

V. PLANT WILSON

There are six gas turbines and one diesel generator located at Plant Wilson. Each turbine is equipped with automatic detection and suppression fire equipment. Plant Wilson is set up on an auto-dialer to contact 4444 in the case of a fire alarm. The Shift Superintendent will send over someone to investigate the alarm. In case of an actual fire, the SS will decide whether the Vogtle Fire Brigade or Burke County will respond to the condition.

If a fire is detected in one of the units, the siren will sound and the strobe light will flash for that specific unit. There is one 125-lb dry chemical roll around fire extinguisher located by each combustion turbine. There is no automatic discharge fire extinguisher located in the diesel generator. Each unit also has a water mist system to discharge into the turbine room and the mechanical room.

LO-LP-22101-04-02

The following sequence of events occurs:

Both Units were operating @ 100% RTP
DG-1A is in an extended outage period and is tagged out
Suddenly both Unit 1 RAT's trip
DG-1B starts and then trips on overspeed
You receive reports that RAT 1A is on fire

Which one of the following correctly describes the response of the fire detection and protection systems?

- A. Without any AC power the fire detection & protection systems are inoperable and the seismically qualified fire header will have to be used.
- B. The diesel driven fire pump(s) will still perform their function. However the fire detection system will not automatically initiate spray flow. You will have to manually trip the clapper valve(s) for the affected zones.
- C. Without any AC power the diesel driven fire pumps will still perform their function and the fire detection system will perform its function due to backup power from batteries.**
- D. The diesel driven fire pump(s) will still perform their function, and the fire detection system will properly indicate the fire. However, loss of instrument air will prevent proper operation of the clapper valves.

LO-LP-22101-04

Describe the type of normal and backup power supplied to the Fire Detection System.

QUESTIONS REPORT
for Voglte 2005-301 Draft

57. 103K4.06 001

The RCDT is aligned to the auxiliary building for liquid processing. Which ONE of the following correctly describes how the discharge flowpath would be affected if a safety injection (SI) were to occur?

- A. Discharge operations will not be affected by the SI.
- B. The discharge header isolation valves receive a close signal directly from the SI.
- C. The SI signal will result in a containment isolation actuation (CIA), which will directly close the discharge header isolation valves.
- D. The SI signal causes a CIA that will result in a loss of instrument air to containment, which will cause the RCDT discharge header isolation valves to close.

K/A

103 Containment

K4.06 Knowledge of containment system design feature(s) and / or interlock(s) which provide for the following: Containment isolation system.

K/A MATCH ANALYSIS

K/A is met because the question tests knowledge of what causes a CIS and then how that signal affects two isolation valves. Therefore, design features of containment isolation are being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. SI will create a CIS, thus affecting discharge operations. Plausible because applicant could think that discharge operations would not be affected unless there was an obvious containment problem. SI is not necessarily indicative of a containment problem.
- B. Incorrect. SI will create a CIS, which then closes valves. SI does not send a signal directly to valves. Plausible because applicants may know that valves go closed on a SI, but they may not know what signal closes them.
- C. Correct. As noted in referenced lesson plan and P&ID.
- D. Incorrect. Valves will already be closed when they lose air. Plausible because air to cmt is lost on a CIS.

REFERENCES

1. Voglte Exam Bank Question LO-LP-16801-01-02
2. Lesson Plan V-LO-TX-28101, RPS-SSPS-AMSAC
3. P&ID 1X4DB127, Waste Processing System - Liquid System

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A C A C D B D D D

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	2	Group:	1
Key Word:	CONTAINMENT SI CIS	Cog Level:	MEM 3.1
Source:	B	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

57. 103K4.06 001

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- C✓ The SI signal will result in a containment isolation actuation (CIA), which will close the discharge header isolation valves. ↑
directly
- D. The SI signal causes a CIA that will result in a loss of instrument air to containment, which will cause the RCDT discharge header isolation valves to close.

K/A

103 Containment

K4.06 Knowledge of containment system design feature(s) and / or interlock(s) which provide for the following: Containment isolation system.

K/A MATCH ANALYSIS

K/A is met because the question tests knowledge of what causes a CIS and then how that signal affects two isolation valves. Therefore, design features of containment isolation are being tested.

ANSWER / DISTRACTOR ANALYSIS

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MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A C A C D B D D D

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	2	Group:	1
Key Word:	CONTAINMENT SI CIS	Cog Level:	MEM 3.1
Source:	B	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. 103K4.06 001

How will a safety injection (SI) signal affect the discharge flowpath to the Auxiliary Building for processing of the RCDDT?

- A. Discharge operations will not be affected by the SI.
- B. The discharge header isolation valves receive a close signal directly from the SI.
- C. The SI signal will result in a containment isolation actuation (CIA), which will close the discharge header isolation valves.
- D. The SI signal causes a CIA that will result in a loss of instrument air to containment, which will cause the RCDDT discharge header isolation valves to close.

K/A

103 Containment

K4.06 Knowledge of containment system design feature(s) and / or interlock(s) which provide for the following: Containment isolation system.

K/A MATCH ANALYSIS

K/A is met because the question tests knowledge of what causes a CIS and then how that signal affects two isolation valves. Therefore, design features of containment isolation are being tested.

ANSWER / DISTRACTOR ANALYSIS

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- C. Correct. As noted in referenced lesson plan and P&ID.
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- 2. Lesson Plan V-LO-TX-28101, RPS-SSPS-AMSAC
- 3. P&ID 1X4DB127, Waste Processing System - Liquid System

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A C A C D B D D D

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier: 2
Key Word: CONTAINMENT SI CIS
Source: B
Test: R

Group: 1
Cog Level: MEM 3.1
Exam: VG05301
Author/Reviewer: MAB/RSB

Question Number
LO-LP-16801-01-02

How will a Safety Injection (SI) signal affect the discharge flowpath to the Auxiliary Building for processing of the RCDT ?

- A. Discharge operations will not be affected by the SI.
- B. The discharge header isolation valves receive a close signal directly from the SI.
- C. The SI signal will result in a Containment Isolation Actuation (CIA), which will close the discharge header isolation valves.**
- D. The SI signal causes a CIA that will result in a loss of instrument air to containment, which will cause the RCDT discharge header isolation valves to fail closed.

Objective

Given a diagram of the RCDT System, identify the following:

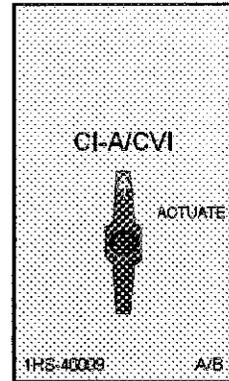
- a. RCDT pumps
- b. RCDT heat exchanger
- c. Major control valves
- d. Drain sources to the RCDT
- e. Gas supplies to and from the RCDT
- f. RCDT drain paths
- g. System interfaces

Containment Isolation Phase A (CIA)

The purpose for CIA is to isolate containment following an accident to limit the offsite release to the public. It performs this function by isolating all system penetrations leaving and entering containment that are not required to safely shutdown the plant.

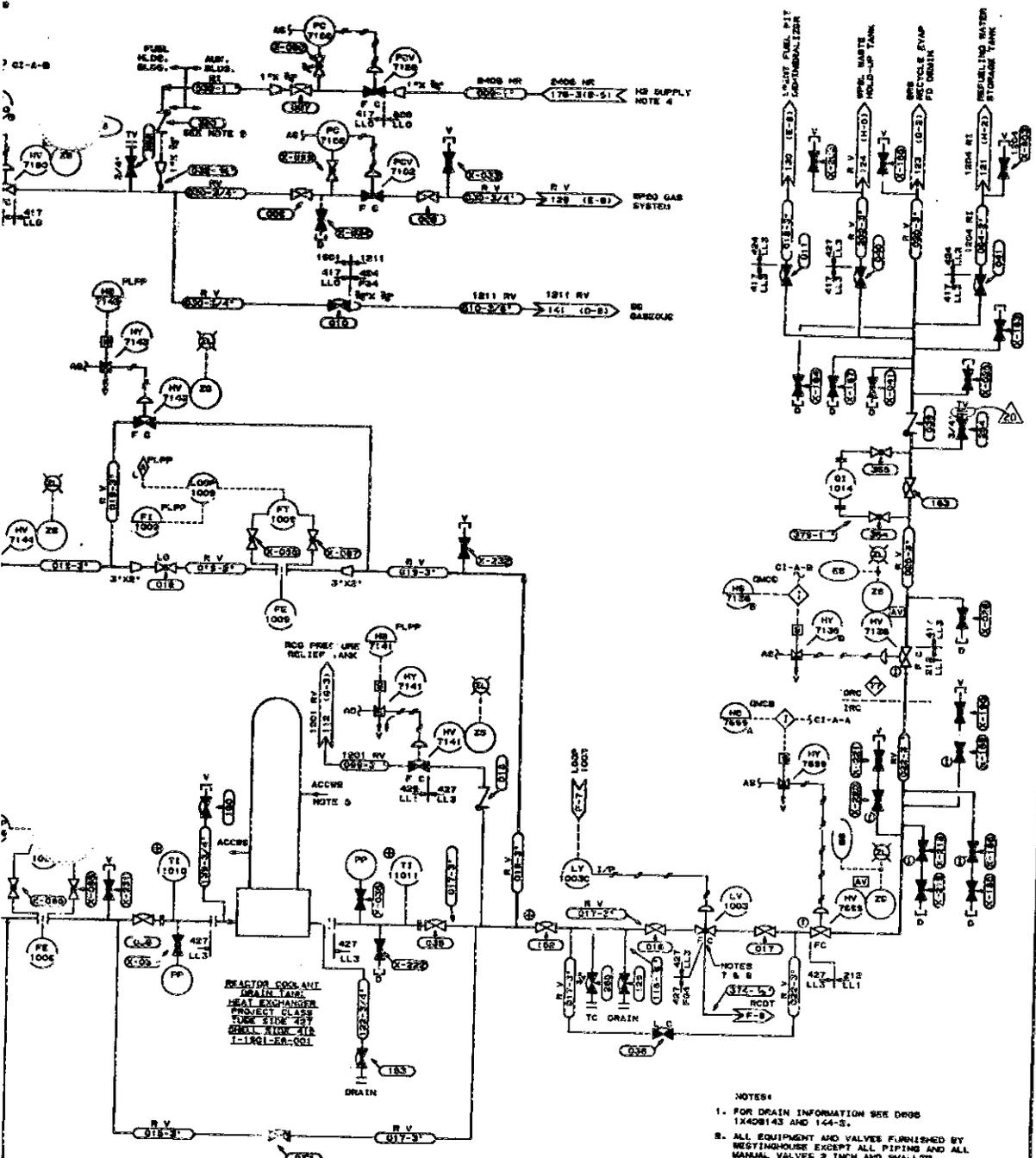
CIA Actuation Signals

- 1) Safety Injection Signal
- 2) Manual CIA/CVI actuating switches 1 out of 2



Equipment affected by CIA Actuating

- 1) HV-8100 RCP Seal Return Isolation Valve Train A
- 2) HV-8112 RCP Seal Return Isolation Valve Train B
- 3) HV-8160 CVCS Letdown Isolation Valve Train A
- 4) HV-8152 CVCS Letdown Isolation valve Train B
- 5) HV-3502 RCS Hot Leg sample valve Train A
- 6) HV-3548 RCS Hot Leg sample valve Train B
- 7) HV-3507 Pressurizer liquid sample Isolation valve Train A
- 8) HV-3508 Pressurizer liquid sample Isolation valve Train B
- 9) HV-3514 Pressurizer steam sample Isolation valve Train A
- 10) HV-3513 Pressurizer steam sample Isolation valve Train B
- 11) HV-0780 Containment Sump Discharge Isolation Train A
- 12) HV-0781 Containment Sump Discharge Isolation Train B
- 13) HV-7699 RCDT discharge isolation valve Train A
- 14) HV-7136 RCDT discharge isolation valve Train B
- 15) HV-7126 RCDT vent to WGPS isolation valve Train A
- 16) HV-7150 RCDT vent to WGPS isolation valve Train B
- 17) HV-27901 Containment Fire Protection Isolation Valve
- 18) HV-9378 Instrument Air to Containment Isolation
- 19) HV-9385 Service Air to Containment Isolation



- NOTES:
1. FOR DRAIN INFORMATION SEE DROB 1X408143 AND 144-8.
 2. ALL EQUIPMENT AND VALVES FURNISHED BY WESTINGHOUSE EXCEPT ALL PIPING AND ALL MANUAL VALVES 2 INCH AND SMALLER.
 3. DELETED.
 4. LIMIT AVAILABLE H₂ SUPPLY IN EVENT OF LEAKAGE.
 5. FOR AUXILIARY COMPONENT COOLING WATER INFO SEE DWG 1X408138-2.
 6. SPOOL PIECE NORMALLY REMOVED. INSTALLED ONLY WHEN LOOP DRAINING TO BE PERFORMED.
 7. PROVIDE 12" REMOVAL SPOOL.
 8. FOR TYPICAL DETAIL SEE STD. DWG. AX400000.
 9. SOFT SEAT CHECK VALVE MARK NO-814.

REFER TO WESTINGHOUSE FLOW DIAGRAM DRAWING NO 1901-73

BECHTEL
LOS ANGELES

GEORGIA POWER COMPANY
ALVIN W. VOGLE NUCLEAR PLANT

P & I DIAGRAM
WASTE PROCESSING SYSTEM-LIQUID
SYSTEM NO. 1901

SCALE: NONE

DRAWING NO. **1X408127**

REV. **20**

DATE

JOB NO. 888

APPROVED: *[Signature]* PE. *[Signature]*
GEORGIA NO. 1901-73

NO.	DATE	DESCRIPTION	BY	CHKD.	APP'D.
1		INCORPORATE CHG'S BY TRNG 24.			
2		INCORPORATE DOC'S 26 AND 28 (UNNOTIFIED)			
3		INCORPORATE DOC'S 27 (UNNOTIFIED) AND 28.			
4		FORWARD FOR CORRECTION.			
REVISIONS					
DATE	BY	CHKD.	APP'D.	DATE	BY
12/2/78					

QUESTIONS REPORT
for Vogtle 2005-301 Draft

58. G2.1.1 001

Which ONE of the following concerning reactivity manipulations meets station expectations per NMP-OS-001, Reactivity Management Program?

- A. When making a routine boration for temperature control at BOL conditions, the manipulation must be peer checked by another licensed operator. The SS does not need to approve the manipulation if it was covered in the pre-shift reactivity briefing.
- B. When making a routine dilution for temperature control, another licensed operator shall peer check the manipulation. The SS must approve the manipulation even if it was covered in the pre-shift reactivity briefing.
- C. When responding to a turbine runback the RO shall have a peer check from another licensed operator prior to inserting control rods to keep Tave matched with Tref. SS approval is not required for these conditions.
- D. When responding to a loss of feedwater heating at 100% power, the BOP shall get approval from the SS prior to lowering power. Peer check from another licensed operator is not required for these conditions.

K/A

G2.1.1

Knowledge of conduct of operations requirements.

K/A MATCH ANALYSIS

Administrative reactivity management requirements being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Distractors are plausible because of the memory-level nature of the question.

REFERENCES

1. NMP-OS-001, Reactivity Management Program, Section 6.4.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D B B D D C C D	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		COMMUNICATIONS			Cog Level:	MEM 3.7	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. G2.1.1.001

Which ONE of the following concerning reactivity manipulations meets station expectations per NMP-OS-001, Reactivity Management Program?

- A. When making a routine boration for temperature control at BOL conditions, the manipulation must be peer checked by another licensed operator. The SS does not need to approve the manipulation if it was covered in the pre-shift reactivity briefing.
- B. When making a routine dilution for temperature control, another licensed operator shall peer check the manipulation. The SS must approve the manipulation even if it was covered in the pre-shift reactivity briefing.
- C. When responding to a turbine runback the RO shall have a peer check from another licensed operator prior to inserting control rods to keep Tave matched with Tref. SS approval is not required for these conditions.
- D. When responding to a loss of feedwater heating at 100% power, the BOP shall get approval from the SS prior to lowering power. Peer check from another licensed operator is not required for these conditions.

K/A

G2.1.1

Knowledge of conduct of operations requirements.

K/A MATCH ANALYSIS

Administrative reactivity management requirements being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Distractors are plausible because of the memory-level nature of the question.

REFERENCES

1. NMP-OS-001, Reactivity Management Program, Section 6.4.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D B B B D D C C D	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		COMMUNICATIONS			Cog Level:	MEM 3.7	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Voglte 2005-301 Draft

58. G2.1.1 001

A part of the safety-related nuclear instrumentation circuit needs to be inspected by operations and maintenance personnel. Individuals performing the work are carrying cellular phones and the exclusion distance is documented as being one foot. (Assume the phone will be used during the inspection and it is properly marked with an Exclusion Distance Label)

Which ONE of the following correctly states the minimum distance that the individuals may allow the cellular phone to approach the instrumentation circuit?

- A. One foot.
- B. Two feet.**
- C. Three feet.
- D. There is no minimum distance requirement.

K/A

G2.1.1

Knowledge of conduct of operations requirements.

K/A MATCH ANALYSIS

Communications requirements are part of the Conduct of Operations Section of the K/A Catalog (G2.1.16 IR = 2.9/2.8).

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Distractors are plausible because of the memory-level nature of the question.

REFERENCES

1. 00004-C, Plant Communications, Rev. 8, 08/26/2003.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D B B D D C C D	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		COMMUNICATIONS			Cog Level:	MEM 3.7	
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QUESTIONS REPORT
for Voglte 2005-301 Draft

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Which ONE of the following correctly states the minimum distance that the individuals may allow the cellular phone to approach the instrumentation circuit?

- A. One foot.
- B Two feet.
- C. Three feet.
- D. There is no minimum distance requirement.

K/A

G2.1.1

Knowledge of conduct of operations requirements.

K/A MATCH ANALYSIS

Communications requirements are part of the Conduct of Operations Section of the K/A Catalog (G2.1.16 IR = 2.9/2.8).

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Distractors are plausible because of the memory-level nature of the question.

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					Answer:	B D B B B D D C C D	Scramble Range: A - D
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Test:		R			Author/Reviewer:	MAB/RSB	

Approved By T.E. Tynan	Vogtle Electric Generating Plant 	Procedure Number 00004-C	Rev 8
Date Approved 08/26/2003	PLANT COMMUNICATIONS	Page Number 1 of 14	

PRB REVIEW REQUIRED

PLANT COMMUNICATIONS

PROCEDURE USAGE REQUIREMENTS-	SECTIONS
Continuous Use: Procedure must be open and readily available at the work location. Follow procedure step by step unless otherwise directed.	
Reference Use: Procedure or applicable section(s) available at the work location for ready reference by person performing steps.	
Information Use: Available on plant site for reference as needed.	ALL

4.4 When using the telephone, both sender and receiver should initially identify themselves by position as well as name.

4.1.5 When directed to perform an activity, report when the activity is completed or its status if the activity is on going. (CO0016369)

4.2 INFORMATIONAL COMMUNICATIONS

For Informational communications, it is not intended that closed loop communications be generally utilized. Personnel should refrain from giving operational orders during this type of communications. Personnel holding informational briefings, summaries, announcements or status discussions may elect to close the loop on selected portions.

4.3 SOUND-POWERED PHONES

On sound-powered phones, there may be numerous people using the system simultaneously. In this instance, the communication should remain highly structured. However, if a team is using sound-powered phones for a specific task (e.g., instrument calibration), the individuals need not identify themselves repeatedly after the initial contact. Verification of information (closed loop), however, should continue.

4.4 WIRELESS COMMUNICATIONS EQUIPMENT (2000200432)

4.4.1 Wireless communication systems are not as reliable as wired systems due to factors such as battery life, electronic interference from computers, other wireless transmitters, AC and DC power control equipment, etc., and physical interference in the signal path.

CAUTION

Operation of wireless transmitters in close proximity of sensitive equipment can cause unexpected plant transients. Unless specifically authorized, the use of transmitters or transceivers is not permitted at any time in the Main Control Rooms, Plant Computer Rooms, Security Computer Room, and rooms and areas containing Generator control equipment, and in Containment while in Modes 1-4 (unless specifically authorized by engineering or in accordance with procedure 50061-C), (Reference Procedure 50061-C, "Use Of Wireless Or Portable Communications Equipment" for equipment authorized for use in these areas.) (CO0000174) (CO0007861)

4.4.2 Prior to use in the power block, the Engineering Support Department shall evaluate wireless communications equipment and calculate Exclusion Distances per Procedure 50061-C, (CO0019353)

Deleted: [redacted]

Deleted: 1
4.4.2 Currently the Ericsson DCT900 Preset Cordless Telephone has been specifically authorized for use in the Control Room 1

Deleted: 3

Deleted: , Use Of Wireless Or Portable Communications Equipment

3 Departments are responsible for affixing Exclusion Distance labels to wireless communications they are responsible for.

Deleted: 4

4.4.4 Users in the power block shall use only transmitters and transceivers (including cordless and cellular telephones) with Exclusion Distance labels (similar to Figure 2) attached.

Deleted: 5

- a. Exclusion Distances are not applicable to areas that do not contain safety related equipment or equipment whose mis-operation may cause a plant transient.
- b. When the function of equipment is not known, the equipment should be treated as EMI/RFI sensitive and use of the transmitter restricted until the function of equipment is determined.
- c. Exclusion distances do not apply to equipment out-of-service.
- d. Nuclear Instrumentation Exclusion Distance shall be at least 2 feet or the value given for the applicable device, whichever is greater.

4.4.5 Users shall not operate transmitters and transceivers within Exclusion Distances of sensitive equipment.

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4.4.6 When direction or control of an activity uses wireless communications, users shall periodically check for clear communications. If interference is present or communications is lost, then the activity shall be stopped.

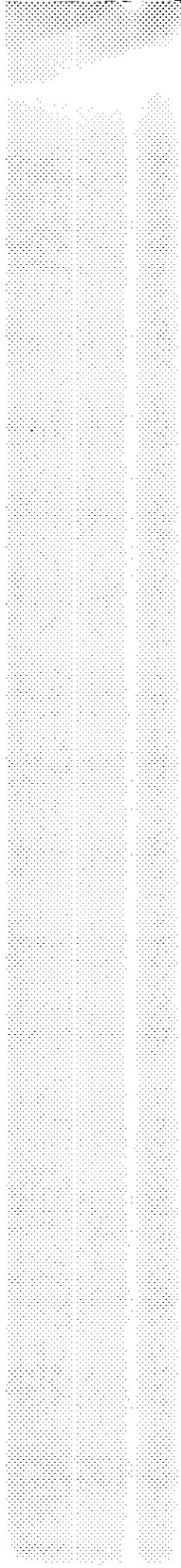
Deleted: 7

4.5 PLANT PAGE

The plant page is the source of information during fires, security events, or plant emergencies. Remain alert and listen for information when the page is used.

4.5.1 The plant page will only be used for operational information. The page will be used to convey immediate operational information to or from the control room or to make site wide announcements important to all plant personnel.

4.5.2 The plant page will not be used to locate personnel, advise someone to call a phone number, conduct maintenance or control surveillances. Beepers, telephones, radios or other pre-arranged methods are to be used.



QUESTIONS REPORT
for Voglte 2005-301 Draft

59. G2.1.23 001

Which ONE of the following correctly states symptoms, as listed in the procedure, for entry into Section "A" of Loss of Class 1E 125 V DC Power, 18034-1, for loss of train "A" power?

- A. ✓ Loss of indicating lights on switchgear breakers for 1AA02, 1AB04, 1AB05, 1AB15. Loss of power to 1AY1A and 1AY2A. Train A Main Steam Line Isolation.
- B. Loss of indicating lights on equipment powered by Motor Control Centers (MCCs) 1ABA through 1ABF. Loss of power to 1AY1A and 1AY2A. Train A Main Steam Line Isolation.
- C. Loss of power to 1AY1A. TDAFW pump loss of control and indication. Emergency DG-1A fails to start. Train A Main Feed Line Isolation.
- D. Trip of the normal and alternate incoming breakers for switchgear 1AA02. Train A Main Feed Line Isolation. 125V DC Vital Bus 1AD1 voltage low. Train A Main Steam Line Isolation.

K/A

G2.1.23

Ability to perform specific system and plant procedures during all modes of plant operation.

K/A MATCH ANALYSIS

Question tests AOP entry condition knowledge, which is necessary knowledge for performing plant procedures in an abnormal mode of operation.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. See Page 2 of reference.

B. Incorrect. See Page 2 of reference. Plausible because all the conditions are correct except for the loss of control power to the "A" Trn MCCs. Control power for the MCCs comes from their own 480V power supply.

C. Incorrect. See Page 2 of reference. Plausible because 1AT1A, EDG-1A, and the Train "A" Main Feed Line Iso are all powered from 1AD1. The TDAFWP control power is powered from the train "C" 125 VDC. The TDAFW loop 1 steam supply valve (HV-3009) is powered from Train "A" 125 VDC.

D. Incorrect. See Page 2 of reference. Plausible since Train "A" MFW Iso, 1AD1 voltage and MSLI are all powered from train "A" 125 V DC. Incorrect because the incoming bkrs to switchgear 1AA02 are powered from 125 VDC Train "A" power, but they will not trip. Since they have lost power, they will be unable to process any protective trips.

REFERENCES

1. 18034-C, Loss of Class 1E 125V DC Power, Rev. 7.1, 11/03/2003.

QUESTIONS REPORT
for Voglte 2005-301 Draft

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B C A A C D A B A Scramble Range: A - D

Tier: 3 Group:
Key Word: AOP ENTRY CONDITION Cog Level: MEM 3.9
Source: N Exam: VG05301
Test: R Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

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- B. Loss of indicating lights on equipment powered by Motor Control Centers (MCCs) 1ABA through 1ABF. Loss of power to 1AY1A and 1AY2A. Train A Main Steam Line Isolation.
- C. Loss of power to 1AY1A. TDAFW pump loss of control and indication. Emergency DG-1A fails to start. Train A Main Feed Line Isolation.
- D. Trip of the normal and alternate incoming breakers for switchgear 1AA02. Train A Main Feed Line Isolation. 125V DC Vital Bus 1AD1 voltage low. Train A Main Steam Line Isolation.

K/A

G2.1.23

Ability to perform specific system and plant procedures during all modes of plant operation.

K/A MATCH ANALYSIS

Question tests AOP entry condition knowledge, which is necessary knowledge for performing plant procedures in an abnormal mode of operation.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. See Page 2 of reference.

B. Incorrect. See Page 2 of reference. Plausible because all the conditions are correct except for the loss of control power to the "A" Trn MCCs. Control power for the MCCs comes from their own 480V power supply.

C. Incorrect. See Page 2 of reference. Plausible because 1AT1A, EDG-1A, and the Train "A" Main Feed Line Iso are all powered from 1AD1. The TDAFWP control power is powered from the train "C" 125 VDC. The TDAFW loop 1 steam supply valve (HV-3009) is powered from Train "A" 125 VDC.

D. Incorrect. See Page 2 of reference. Plausible since Train "A" MFW Iso, 1AD1 voltage and MSLI are all powered from train "A" 125 V DC. Incorrect because the incoming bkrs to switchgear 1AA02 are powered from 125 VDC Train "A" power, but they will not trip. Since they have lost power, they will be unable to process any protective trips.

REFERENCES

1. 18034-C, Loss of Class 1E 125V DC Power, Rev. 7.1, 11/03/2003.

QUESTIONS REPORT
for Voglte 2005-301 Draft

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B C A A C D A B A Scramble Range: A - D
Tier: 3 Group:
Key Word: AOP ENTRY CONDITION Cog Level: MEM 3.9
Source: N Exam: VG05301
Test: R Author/Reviewer: MAB/RSB

A. LOSS OF 125V DC BUS 1AD1SYMPTOMS

- 125V DC Vital Bus 1AD1 voltage low.
- Loss of power to 1AY1A and 1AY2A 120V AC Vital Instrument Panels.
- Loss of indicating lights on 1AA02 and 1AB04, 1AB05 and 1AB15 Switchgear Controls.
- Train A Main Steamline Isolation.
- Train A Main Feedwater Isolation.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

- This procedure should be performed concurrent with 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION.
- Normal Letdown will isolate due to 1-HV-8160 closure.
- See ATTACHMENT A for equipment responses, breaker and valve control loss, valve failures from loss of instrument air, and annunciator failures.

A1. Verify reactor trip.

A1. Trip the reactor and initiate 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION.

Approval

Vogtle Electric Generating Plant

NUCLEAR OPERATIONS



Procedure No.

18034-1

Date

Revision No.

7.1

Unit 1

Page No.

1 of 84

Abnormal Operating Procedures

LOSS OF CLASS 1E 125V DC POWER

PURPOSE

PRB REVIEW REQUIRED

This procedure provides operator actions to be followed in the event that power is lost to one of the 125V DC Vital Busses (1AD1, 1BD1, 1CD1, or 1DD1).

Specific instructional steps will be found in the following sections:

- A. Loss of 125V DC Bus 1AD1
- B. Loss of 125V DC Bus 1BD1
- C. Loss of 125V DC Bus 1CD1
- D. Loss of 125V DC Bus 1DD1

SYMPTOMS

Symptoms are identified in the individual sections.

QUESTIONS REPORT
for Voglte 2005-301 Draft

59. G2.1.23 001

Which ONE of the following correctly states symptoms, as listed in the procedure, for entry into the Degraded Grid Section (Section A) of 18017-C, Abnormal Grid Disturbances / Loss of Grid?

- A. Notification from the Power Control Center that the security tools will be unavailable for greater than eight hours during normal system and weather conditions.
- B. Notification from the Power Control Center that the security tools will be unavailable for greater than eight hours under abnormal conditions.
- C. Notification from the Power Control Center that the security tools will be unavailable for greater than one hour during normal system and weather conditions.
- D. All offsite power sources are deenergized.

K/A

G2.1.23

Ability to perform specific system and plant procedures during all modes of plant operation.

K/A MATCH ANALYSIS

Question tests AOP entry condition knowledge, which is necessary knowledge for performing plant procedures in an abnormal mode of operation.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. See Page 1 of reference.
- B. Incorrect. See Page 1 of reference. Plausible because eight hours is associated with normal system conditions.
- C. Incorrect. See Page 1 of reference. Plausible because one hour is associated with abnormal conditions.
- D. Incorrect. See Page 1 of reference. Plausible because this is a symptom for entry into Section B, Loss of Grid.

REFERENCES

1. 18017-C, Abnormal Grid Disturbances / Loss of Grid, Rev. 4, 03/12/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B C A A C D A B A	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		AOP ENTRY CONDITION			Cog Level:	MEM 3.9	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. G2.1.23 001

Which ONE of the following correctly states symptoms, as listed in the procedure, for entry into the Degraded Grid Section (Section A) of 18017-C, Abnormal Grid Disturbances / Loss of Grid?

- A. Notification from the Power Control Center that the security tools will be unavailable for greater than eight hours during normal system and weather conditions.
- B. Notification from the Power Control Center that the security tools will be unavailable for greater than eight hours under abnormal conditions.
- C. Notification from the Power Control Center that the security tools will be unavailable for greater than one hour during normal system and weather conditions.
- D. All offsite power sources are deenergized.

K/A

G2.1.23

Ability to perform specific system and plant procedures during all modes of plant operation.

K/A MATCH ANALYSIS

Question tests AOP entry condition knowledge, which is necessary knowledge for performing plant procedures in an abnormal mode of operation.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. See Page 1 of reference.
- B. Incorrect. See Page 1 of reference. Plausible because eight hours is associated with normal system conditions.
- C. Incorrect. See Page 1 of reference. Plausible because one hour is associated with abnormal conditions.
- D. Incorrect. See Page 1 of reference. Plausible because this is a symptom for entry into Section B, Loss of Grid.

REFERENCES

1. 18017-C, Abnormal Grid Disturbances / Loss of Grid, Rev. 4, 03/12/2004.

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	Answer: A B C A A C D A B A	Scramble Range: A - D
Tier:	3		Group:		
Key Word:	AOP ENTRY CONDITION		Cog Level:	MEM 3.9	
Source:	N		Exam:	VG05301	
Test:	R		Author/Reviewer:	MAB/RSB	

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS		Procedure No. 18017-C
Date			Revision No. 4
	Unit <u>COMMON</u>		Page No. 1 of 26

Abnormal Operating Procedures

ABNORMAL GRID DISTURBANCES/LOSS OF GRID

PURPOSE

PRB REVIEW REQUIRED

Section A of this procedure provides instructions to ensure vital equipment is available for LOSP due to degraded system voltage.

Section B of this procedure provides instructions to respond to a total loss of offsite power.

SYMPTOMS

Symptoms for entry into Section A, Degraded Grid Conditions are:

- Notification from the Power Control Center that the security tools will be unavailable for greater than eight hours during normal system and weather conditions or for greater than one hour under abnormal conditions.
- Notification from the Power Control Center that the distribution center is "one contingency away" from being unable to maintain system voltage between 230 and 242 kV.

Symptoms for entry into Section B, Loss of Grid are:

- All offsite power sources are deenergized.



QUESTIONS REPORT
for Voglte 2005-301 Draft

60. G2.1.7 001

The following Unit 1 conditions exist:

- Reactor is at 100% Rated Thermal Power.
- Loop 1 NR temperature loop failure has resulted in the OTDT trip setpoint to be 92%.
- Control rods have been placed in manual.
- The DELTA T DEFEAT SWITCH has been selected to defeat the failed channel.
- The Tavg DEFEAT SWITCH has been selected to defeat the failed channel.

If no other actions were taken, which ONE of the following correctly states the plant status and/or required operator actions?

- A✓ If another loop OTDT trip setpoint is subsequently exceeded, then the operators are to ensure the reactor automatically trips.
- B. Loop 1 has been removed from the OTDT protection circuit. Two more loops must exceed the OTDT setpoint for a reactor trip to occur.
- C. The turbine should have already undergone a runback. The BOP is required to manually runback the turbine.
- D. The reactor should have already tripped on OTDT. The RO is required to immediately trip the reactor.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

G2.1.7

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

K/A MATCH ANALYSIS

The applicant must make operational judgements based on plant configuration and instrument interpretation to determine the required operator/plant response.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. OTDT is essentially in 1/3 logic because the protective circuit is not bypassed by the actions stated in the stem.
- B. Incorrect. Not in a 2/3 logic (i.e. loop is not bypassed). Plausible because loop can be removed from control, but not protective, circuits.
- C. Incorrect. Runback occurs on 2/4 within 3% of trip setpoint. Plausible because applicant may not understand or correctly remember runback logic.
- D. Incorrect. Loop only feeds one fourth of logic required for trip. Plausible because applicant may not understand or correctly remember trip logic.

REFERENCES

1. V-LO-TX-28101, Reactor Protection System, Rev. 3.
2. V-LO-TX-16001, Reactor Coolant System, Rev. 3.0.
3. Vogtle Exam Bank Question LO-LP-16101-16-06

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
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Key Word:		OTDT RTD NR TEMP			Cog Level:	C/A 3.7	
Source:		B			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

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for Vogtle 2005-301 Draft

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QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

G2.1.7

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

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Key Word:		OTDT RTD NR TEMP			Cog Level:	C/A 3.7	
Source:		B			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogtle 2005-301 Draft

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QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

G2.1.7

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

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Key Word:		OTDT RTD NR TEMP			Cog Level:	C/A 3.7	
Source:		B			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

CHAPTER 28

REACTOR PROTECTION SYSTEM

TABLE OF CONTENTS

- 28.1 INTRODUCTION AND PURPOSE OF THE REACTOR PROTECTION SYSTEM
- 28.2 OVERVIEW

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28.12 CONTROL INTERLOCKS

The Control interlocks provide input to plant control systems like rod control, turbine control, and steam dump control. Some of the control interlocks help prevent trip set points from being reached

C-1 Intermediate Range High Flux Rod Stop

Set Point:

1 / 2 IR NIS \geq 20% Power

Function:

This interlock stops all outward rod motion in auto or manual which prevents challenging the high flux trip.

Both the Rod Stop and the IR high flux trip can be blocked above P-10.

The Rod stop is bypassed when the IR High Flux trip is taken to the "bypass" position at NIS cabinets.

Gives control room annunciator/alarm when active

C-2 Power Range High Flux Rod Stop

Set point:

1 / 4 PR NIS \geq 105% Power

Function:

This interlock stops all outward rod motion in auto or manual which prevents challenging the high flux trip.

Can be bypassed at the NIS racks.

Gives control room annunciator/alarm when active

C-3 OTAT Runback and Rod Stop

Set points:

2 / 4 Δ T channels 3% below OT delta T trip set point for OTAT.

Function:

This interlock stops all outward rod motion in auto or manual.

Causes Turbine runback

- a) Turbine power reduced at rate of 133%/minute for approx. 2.2 seconds,

stabilizes for about 27.8 seconds

b) Repeated until below set point

Permissive status light illuminates on BPLP when C-3 is active.

C-4 OPAT Runback and Rod Stop

Set points:

2 / 4 ΔT channels 3% below OP delta T trip set point for OPAT.

Function:

This interlock stops all outward rod motion in auto or manual.

Causes Turbine runback

- a) Turbine power reduced at rate of 133%/minute for approx. 2.2 seconds, then held steady for about 27.8 seconds
- b) Repeated until below set point

Permissive status light illuminates on BPLP when C-4 is active.

C-5 Lo Turbine Impulse Permissive Rod Stop

Set point:

PT-505 Turbine impulse pressure channel indicates $\leq 15\%$ turbine power.

Function:

Auto rod stop (allows outward motion in manual control)

Permissive status light on BPLP when active

C-7 Loss of Turbine Load Interlock

Set point:

$\geq 10\%$ turbine power turbine load reduction in within 120 seconds as indicated by PT-506 Turbine impulse pressure.

Function:

Arms steam dump if C-9 is present

If actuated this interlock must be reset at (QMCB-B)

CHAPTER 16

PRIMARY SYSTEMS

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Control Circuits that take input from Narrow Range Temperature Instruments:

Auctioneered high Tav_g circuitry compares Tav_g values from each of the four RCS loops. The most limiting value from the loops (highest Tav_g) is selected for conservatism in calculating control set points. Control Systems that utilize Auctioneer High Tav_g are as follows:

1. Rod Control System
2. Pressurizer Level Control
3. Steam Dump System

Auctioneered Low Tav_g circuitry compares Tav_g from, all loops (lowest Tav_g) is selected for conservatism in calculating actuation/control set points. Two things receive input from Auctioneered Low Tav_g is:

1. "C-16 Low Tav_g Turbine Stop Loading" Tav_g ≤ 553°F or Tav_g ≥ 20°F below Tref. Protects the RCS from cooling down below the minimum temperature for criticality. This interlock prevents the Main Turbine load increase which can be bypassed for testing purposes only.
2. Tav_g/Tref deviation meter (TI-412A) on "C" panel in the control room.

Auctioneered High AT provides input for the Rod Insertion Limit (RIL) computer which generates an alarm set point based on power level and rod height.

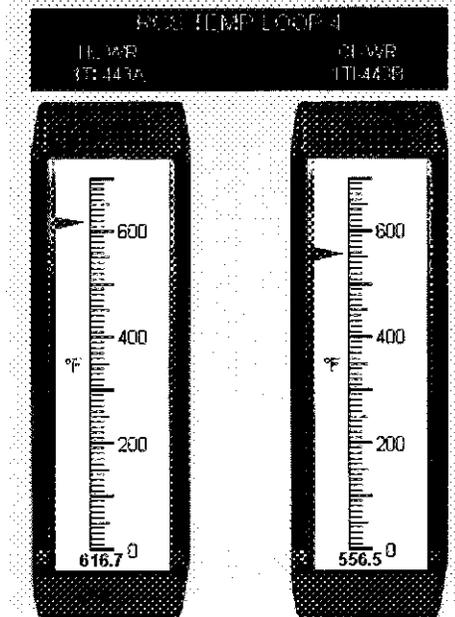
Both loop AT and Tav_g inputs into control circuits can be defeated by the operator at the control panel if Narrow Range temperature instrument is to be removed from service.

Tav_g defeat switch TS-412T is located on the "C" panel in the control room. It allows input from a single Tav_g channel to be defeated from various control circuits. (1) Defeats input into auctioneer low Tav_g calculation such as C-16 and the Tav_g / Tref deviation meter, and (2) defeats selected channel input into auctioneered high Tav_g output circuitry for rod control, steam dump control, pressurizer level control, Tav_g / Tref Deviation alarm, and Auctioneer Tav_g Hi alarm.

AT defeat switch TS-411T is located on the "C" panel in the control room. It allows defeat of a single AT channel into auctioneered high AT calculation. Defeats input into Rod insertion limit computer.

16-54 RCS WIDE RANGE TEMPERATURE INSTRUMENTATION

RCS wide range temperature transmitters measure both the hot and cold legs of the RCS just like the narrow range instruments. The differences in the two are: (1) only one RTD per leg, (2) the thermowells are dry (RTDs do not contact the fluid), (3) they are scaled from 0°F to 700°F, (4) there is no installed spare RTD, (5) located both in control room and Remote Shutdown



LO-LP-16101-16-06

Given the following:

- * Unit One is at 100% power
- * Loop 1 NR Temperature loop failure has resulted in the OTDT trip setpoint to be 92%
- * Control Rods have been placed in manual
- * The DELTA T DEFEAT SWITCH has been selected to defeat the failed channel
- * The Tavg DEFEAT SWITCH has been selected to defeat the failed channel

If no other actions have been taken, which ONE of the following is correct?

- CORRECT A. If another loop OTDT trip setpoint is subsequently exceeded, the reactor will trip immediately. *Then ensure the reactor automatically trips.*
- B. Loop 1 has been removed from the OTDT protection circuit; two more loops must exceed setpoint for a trip to occur.
- C. The turbine load setback to 850 MWe will occur.
- D. The Reactor should have already tripped on OTDT, the RO should immediately trip the reactor.

LO-LP-16101-16

State the function and location of the Tavg and delta T defeat switches and identify the circuit/controls systems to which signals are defeated.

- A. *Correct. Logic is 2/4.*
- B. *Incorrect. Loop is removed from control circuit, but not protection's.*
- C. *Incorrect. Pumpback will not occur on 1/4.*
- D. *Incorrect. 2/4 connections not yet made.*

QUESTIONS REPORT
for Voglte 2005-301 Draft

61. G2.2.13 001

Which ONE of the following correctly states the proper method for positioning a fail open air operated valve (AOV), with a handwheel, to be used as a fluid boundary per NMP-AD-003, Equipment Clearance and Tagging, as part of the tagging process?

- A. Local and/or remote control switches must be in the "Closed" position. The air supply valve must be closed with air vented off of the operator. The handwheel must be in the closed position.
- B. Local and/or remote control switches must be in the "Closed" position. The air supply valve must be closed with air vented off of the valve operator. The handwheel does not need to be in the closed position.
- C. Local and/or remote control switches must be in the closed position. The handwheel must be in the closed position. The air supply is not required to be isolated and vented.
- D. Local and/or remote control switches must be in the "Closed" position. The valve must be mechanically or hydraulically (as appropriate) gagged in the closed position.

K/A

G2.2.13

Knowledge of tagging and clearance procedures.

K/A MATCH ANALYSIS

Question tests knowledge of info found on page 56 of Tagging procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Incorrect answers are all plausible due to the fact that they meet requirements for different AOV types in the NMP.

REFERENCES

1. NMP-AD-003, Equipment Clearance and Tagging, Version 3.0, Page 57 of 66, 07/13/2004.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B D A C B C C D B

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	3	Group:	
Key Word:	TAGGING CHECK VALVE	Cog Level:	MEM 3.6
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. G2.2.13 001

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- A. Local and/or remote control switches must be in the "Closed" position. The air supply valve must be closed with air vented off of the operator. The handwheel must be in the closed position.
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- C. Local and/or remote control switches must be in the closed position. The handwheel must be in the closed position. The air supply is not required to be isolated and vented.
- D. Local and/or remote control switches must be in the "Closed" position. The valve must be mechanically or hydraulically (as appropriate) gagged in the closed position.

K/A

G2.2.13

Knowledge of tagging and clearance procedures.

K/A MATCH ANALYSIS

Question tests knowledge of info found on page 56 of Tagging procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Incorrect answers are all plausible due to the fact that they meet requirements for different AOV types in the NMP.

REFERENCES

1. NMP-AD-003, Equipment Clearance and Tagging, Version 3.0, Page 57 of 66, 07/13/2004.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C B D A C B C C D B

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	3	Group:	
Key Word:	TAGGING CHECK VALVE	Cog Level:	MEM 3.6
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

61. G2.2.13 001

Which ONE of the following correctly states the lowest level of approval acceptable per NMP-AD-003, Equipment Clearance and Tagging, for using a check valve as a fluid boundary tagging point?

- A. Operations Department Manager
- B. Shift Manager**
- C. Unit Shift Supervisor
- D. Shift Support Supervisor

K/A

G2.2.13

Knowledge of tagging and clearance procedures.

K/A MATCH ANALYSIS

Question tests knowledge of info found on page 57 of Tagging procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Incorrect answers are all plausible due to memory item nature of question.

REFERENCES

1. NMP-AD-003, Equipment Clearance and Tagging, Version 3.0, Page 57 of 66, 07/13/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C C A D D C D A B	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		TAGGING CHECK VALVE			Cog Level:	MEM 3.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. G2.2.13 001

Which ONE of the following correctly states the lowest level of approval acceptable per NMP-AD-003, Equipment Clearance and Tagging, for using a check valve as a fluid boundary tagging point?

- A. Operations Department Manager
- B. Shift Manager
- C. Unit Shift Supervisor
- D. Shift Support Supervisor

K/A

G2.2.13

Knowledge of tagging and clearance procedures.

K/A MATCH ANALYSIS

Question tests knowledge of info found on page 57 of Tagging procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

Incorrect answers are all plausible due to memory item nature of question.

REFERENCES

1. NMP-AD-003, Equipment Clearance and Tagging, Version 3.0, Page 57 of 66, 07/13/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C C A D D C D A B	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		TAGGING CHECK VALVE			Cog Level:	MEM 3.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

SRO only ?

- During the period when the freeze seal is in place, the Tagout boundary should be checked periodically for leakby out the drains/vents
- The Tagout contains steps to remove the freeze seal per the approved site process at the appropriate step in the sequence (normally the last boundary point unisolated, allowing time for the freeze seal to thaw, time dependent on ambient temperatures)
- During the period when the freeze seal is thawing, the piping within the original boundary should be checked periodically for leaks

1.14.8 Check Valves

1.14.8.1 Stop check valves may be used as a Tagout point by tagging its actuator in the "Closed" position

1.14.8.2 Normally, check valves will not be used as a fluid boundary point, however, when other means of isolation are not available, check valves may be used for fluid isolation provided the following requirements are met.

- Concurrence must be obtained from the Shift Manager and the Department Supervisor responsible for the work being performed
- If the system being isolated is contaminated, concurrence must also be obtained from Health Physics. This concurrence shall be documented in the Special Instructions section of the Tagout
- The Department Supervisor shall ensure each Holder is aware that a check valve is being used as a fluid boundary point prior to allowing work under the Tagout
- Each Holder shall brief their work crews that a check valve is being use as a fluid boundary point before allowing them to work under the Tagout

1.14.9 Vents and Drains

1.14.9.1 Following establishment of the fluid boundary, the system should be drained and vented:

- Open appropriate drain and vent valves to assure all portions of the work area will be drained and vented, and to assure the system will not re-pressurize from thermal expansion or in-leakage
- Consideration should be given to system elevations when selecting drain/vent points to assure the entire work area will be drained
- Align, and tag if necessary, internal system valves such that the vent and drain will be "in communication" during draining process
- The clearance may have to be expanded beyond the first possible isolation valve to include a vent/drain. In the event a drain or vent does not exist within the Tagout boundary, a note should be added to the Special Instructions section of the Tagout so that other definitive measures will be taken by Maintenance to confirm the system or component is adequately depressurized and/or drained. These measures may include breaking of flange connections, loosening of valve bonnets, removal of instrument tubing, or other similar actions.

QUESTIONS REPORT
for Voglte 2005-301 Draft

62. G2.2.24 001

Which ONE of the following maintenance activities, if conducted, would result in entry into a technical specification LCO action statement (assume each case separately and that all other equipment is operable and in its normal configuration for the stated plant conditions)?

- A. RCS temperature is 425 °F and Maintenance wants to replace the Train "A" Containment Spray Pump bearing.
- B. The unit is at 100% rated thermal power and steam generator #2 ARV needs to be repaired to stop seat leakage.
- C. The unit is at 100% rated thermal power and Maintenance needs you to de-energize the Standby Auxiliary Transformer (SAT) for inspection of electrical bushings.
- D. RCS temperature is 190 °F and CCP-1A motor bearing needs replacement.

K/A

G2.2.24

Ability to analyze the affect of maintenance activities on LCO status.

K/A MATCH ANALYSIS

The proposed maintenance activity in the answer affects a TS LCO.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. LCO 3.6.6 is applicable above 200 F and requires both CS pumps to be operable.
- B. Incorrect. Plausible because this equipment is required under LCO 3.7.4 except only 3 ARVs are required to be operable.
- C. Incorrect. Plausible since the SAT may be used for approved off-site AC sources, but is normally not aligned as a required power source.
- D. Incorrect. Plausible since the CCPs are part of the ECCS system and they are also required under the technical requirements manual (TRM) in mode 5.

REFERENCES

1. TS LCO 3.6.6, Containment Spray and Cooling Systems.
2. TS LCO 3.7.4, Atmospheric Relief Valves (ARVs).
3. TS LCO 3.8.1, AC Sources - Operating.
4. TS LCO 3.5.3, ECCS - Shutdown.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: AADCACBACB

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	3	Group:	
Key Word:	TECH SPEC SPRAY	Cog Level:	C/A 2.6
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. G2.2.24 001

Which ONE of the following maintenance activities, if conducted, would result in entry into a technical specification LCO action statement (assume each case separately and that all other equipment is operable and in its normal configuration for the stated plant conditions)?

- A. RCS temperature is 425 °F and Maintenance wants to replace the Train "A" Containment Spray Pump bearing.
- B. The unit is at 100% rated thermal power and steam generator #2 ARV needs to be repaired to stop seat leakage.
- C. The unit is at 100% rated thermal power and Maintenance needs you to de-energize the Standby Auxiliary Transformer (SAT) for inspection of electrical bushings.
- D. RCS temperature is 190 °F and CCP-1A motor bearing needs replacement.

K/A

G2.2.24

Ability to analyze the affect of maintenance activities on LCO status.

K/A MATCH ANALYSIS

The proposed maintenance activity in the answer affects a TS LCO.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. LCO 3.6.6 is applicable above 200 F and requires both CS pumps to be operable.
- B. Incorrect. Plausible because this equipment is required under LCO 3.7.4 except only 3 ARVs are required to be operable.
- C. Incorrect. Plausible since the SAT may be used for approved off-site AC sources, but is normally not aligned as a required power source.
- D. Incorrect. Plausible since the CCPs are part of the ECCS system and they are also required under the technical requirements manual (TRM) in mode 5.

REFERENCES

- 1. TS LCO 3.6.6, Containment Spray and Cooling Systems.
- 2. TS LCO 3.7.4, Atmospheric Relief Valves (ARVs).
- 3. TS LCO 3.8.1, AC Sources - Operating.
- 4. TS LCO 3.5.3, ECCS - Shutdown.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A A D C A C B A C B

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	3	Group:	
Key Word:	TECH SPEC SPRAY	Cog Level:	C/A 2.6
Source:	N	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

62. G2.2.24 001

Unit 1 is in Mode 1 with the following conditions and activities taking place:

- The 1A containment spray (CS) pump is being worked on by Maintenance after becoming inoperable on Monday morning at 0800 hours, which required entry into Tech Spec LCO 3.6.6 Action A.1.
- Maintenance completed work on the 1A CS pump on Tuesday at 1100 hours.
- On Tuesday at 1200 hours another operator determines that the 1B CS pump is inoperable and will require maintenance to repair the pump.
- On Tuesday at 1230 hours the 1A CS pump post-maintenance test is completed and the 1A CS pump is declared operable.

Which ONE of the following correctly states when the 1B CS pump is required to be operable per LCO 3.6.6 Action A.1? (In other words, when does Action Statement A.1 expire, which would then require entry into Action Statement C)

(Reference provided)

- A. Thursday at 0800 hours.
- B. Friday at 0800 hours.
- C. Friday at 1200 hours.
- D. Friday at 1230 hours.

QUESTIONS REPORT

for Voglte 2005-301 Draft

PROVIDE ONLY TECH SPEC LCO 3.6.6 (Page 3.6.6-1)

K/A

G2.2.24

Ability to analyze the affect of maintenance activities on LCO status.

K/A MATCH ANALYSIS

The maintenance on the "A" CS Pump being completed and the pump successfully being PMTed affects the amount of allowed time to make the "B" CS pump operable. K/A 2.2.24 has an RO importance factor of 2.6 and K/A 2.1.12 (Ability to apply Tech Specs for a system) has an RO importance factor of 2.9, thus making it required RO knowledge.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible because this is 72 hours after the 1A CS pump caused entry into the LCO.
- B. Correct. Using completion time extension rules of TS Section 1.3. 72 hrs plus the initial entry, plus 24 hours = 96 hrs (or 4 days) from the initial entry, which is Friday at 0800 hrs.
- C. Incorrect. Plausible because this is 72 hours after the 1A pump was made available, but not operable.
- D. Incorrect. Plausible because this is 72 hours after the 1B CS pump inoperability.

REFERENCES

1. Tech Spec LCO 3.6.6, Containment Spray and Cooling Systems.
2. Tech Spec Basis for LCO 3.6.6.
3. Tech Spec 1.3, Completion Times.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B A A C B B D B D C	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		TECH SPEC SPRAY			Cog Level:	C/A 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogite 2005-301 Draft

1. G2.2.24 001

Unit 1 is in Mode 1 with the following conditions and activities taking place:

- The 1A containment spray (CS) pump is being worked on by Maintenance after becoming inoperable on Monday morning at 0800 hours, which required entry into Tech Spec LCO 3.6.6 Action A.1.
- Maintenance completed work on the 1A CS pump on Tuesday at 1100 hours.
- On Tuesday at 1200 hours another operator determines that the 1B CS pump is inoperable and will require maintenance to repair the pump.
- On Tuesday at 1230 hours the 1A CS pump post-maintenance test is completed and the 1A CS pump is declared operable.

Which ONE of the following correctly states when the 1B CS pump is required to be operable per LCO 3.6.6 Action A.1? (In other words, when does Action Statement A.1 expire, which would then require entry into Action Statement C)

(Reference provided)

- A. Thursday at 0800 hours.
- B. Friday at 0800 hours.
- C. Friday at 1200 hours.
- D. Friday at 1230 hours.

SRO-only.

QUESTIONS REPORT

for Vogtle 2005-301 Draft

PROVIDE ONLY TECH SPEC LCO 3.6.6 (Page 3.6.6-1)

K/A

G2.2.24

Ability to analyze the affect of maintenance activities on LCO status.

K/A MATCH ANALYSIS

The maintenance on the "A" CS Pump being completed and the pump successfully being PMTed affects the amount of allowed time to make the "B" CS pump operable. K/A 2.2.24 has an RO importance factor of 2.6 and K/A 2.1.12 (Ability to apply Tech Specs for a system) has an RO importance factor of 2.9, thus making it required RO knowledge.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible because this is 72 hours after the 1A CS pump caused entry into the LCO.
- B. Correct. Using completion time extension rules of TS Section 1.3. 72 hrs plus the initial entry, plus 24 hours = 96 hrs (or 4 days) from the initial entry, which is Friday at 0800 hrs.
- C. Incorrect. Plausible because this is 72 hours after the 1A pump was made available, but not operable.
- D. Incorrect. Plausible because this is 72 hours after the 1B CS pump inoperability.

REFERENCES

1. Tech Spec LCO 3.6.6, Containment Spray and Cooling Systems.
2. Tech Spec Basis for LCO 3.6.6.
3. Tech Spec 1.3, Completion Times.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B A A C B B D B D C	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		TECH SPEC SPRAY			Cog Level:	C/A 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours <u>AND</u> 6 days from discovery of failure to meet the LCO
B. One containment cooling train inoperable.	B.1 Restore containment cooling train to OPERABLE status.	72 hours <u>AND</u> 6 days from discovery of failure to meet the LCO
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 84 hours

1.3 Completion Times

DESCRIPTION
(continued)

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability; and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

(continued)

1.3 Completion Times (continued)

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1 COMPLETION TIMES

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u>	6 hours
	B.2 Be in MODE 5.	36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

(continued)

1.3 Completion Times

EXAMPLES
(continued)

EXAMPLE 1.3-2 CONDITIONS AND LCO 3.0.3 ENTRY/COMPLETION TIME CLOCK/COMPLETION TIME EXTENSION

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-4 MULTIPLE COMPONENT CONDITIONS/
(continued) COMPLETION TIMES/COMPLETION TIME
EXTENSIONS

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) To OPERABLE Status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (including the extension) expires while one or more valves are still inoperable, Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES
(continued)

EXAMPLE 1.3-5 SEPARATE CONDITION ENTRY

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

The Note above the ACTIONS table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific condition, the Note would appear in that Condition, rather than at the top of the ACTIONS table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

(continued)

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.</p> <p>Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will <u>not</u> result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.</p>

(continued)

QUESTIONS REPORT
for Vogtle 2005-301 Draft

63. G2.2.28 001

Which ONE of the following correctly states the minimum distance, edge-to-edge, required to be maintained between any irradiated fuel assembly being manipulated and any assembly not located in a storage rack?

- A. 6 inches
- B✓ 12 inches
- C. 18 inches
- D. 24 inches

K/A

G2.2.28

Knowledge of new and spent fuel movement procedures.

K/A MATCH ANALYSIS

Question tests knowledge of a precaution/limitation associated with a fuel handling procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See reference.
- B. Correct. See reference.
- C. Incorrect. See reference.
- D. Incorrect. See reference.

All distractors are plausible due to the memory/recall nature of the question.

REFERENCES

1. 93300-C, Conduct of Refueling Operations, Rev. 21, Page 3, 09/24/2003.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B C C A D A A A B	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		REFUELING			Cog Level:	MEM 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Voglte 2005-301 Draft

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Tier:		3			Group:		
Key Word:		REFUELING			Cog Level:	MEM 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

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MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B C C A D A A A B	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		REFUELING			Cog Level:	MEM 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogtle 2005-301 Draft

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All distractors are plausible due to the memory/recall nature of the question.

REFERENCES

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					Answer:	B B C C A D A A A B	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		REFUELING			Cog Level:	MEM 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

Approved By W. F. Kitchens	Vogtle Electric Generating Plant 	Procedure Number 93300-C	Rev 21
Date Approved 9/24/2003	CONDUCT OF REFUELING OPERATIONS		Page Number 3 of 13

0 PRECAUTIONS AND LIMITATIONS

- 1 The Fuel Handling Coordinator, Shift Superintendent, Fuel Handling Supervisor, Reactor Engineer, Unit Shift Supervisor, Health Physics Technician, or Reactor Operator shall have the authority and responsibility to suspend refueling operations if, in his judgment, any conditions exist which threaten personnel safety or safe handling of fuel.
- 3.2 Suspension of core alterations shall not preclude any individual assigned to the refueling crew from completion of movement of a component to a safe conservative position.
- 3.3 All core alterations shall be observed and directly supervised by either a licensed SRO or SRO Limited to Fuel Handling who is in the Containment Building, of the affected unit and has no other concurrent responsibility during this operation.
- 3.4 No more than one fuel assembly shall be out of the storage racks, fuel cleaning canisters, new fuel elevator, fuel transfer system upender, or fuel assembly leak test canister at any given time in the Fuel Building. A minimum distance of 12 inches, edge-to-edge, shall be maintained between the assembly being manipulated and any assembly not located in a storage rack. No more than two fuel assemblies shall be out of the Reactor Vessel at any given time in the Containment and then the minimum edge-to-edge distance between those two assemblies must be at least 12 inches.
- 3.5 On-Shift operations will be handled in accordance with Procedure 10000-C, "Conduct Of Operations," except as supplemented by this procedure.
- 3.6 Prior to any movement of irradiated fuel through the transfer tube, the removable access plugs located in containment and the Fuel Building shall be verified closed. To ensure there will be no access during fuel movement, NOTIFY Health Physics to establish a locked or posted access on the concrete plugs for the Fuel Transfer Tube Bellows in the Fuel Handling Building (Unit 1 rooms 104 and A09, Unit 2 rooms 101 and A02) and Containment Building. (Unit 1 or 2 19' elevation between col 22 and 23)
- 3.7 After commencement of 1/M plotting, a fuel bundle will not be lowered into the vessel until data gathered from previous bundle has been plotted and a determination made that it is safe to proceed with the reload sequence.



QUESTIONS REPORT
for Vogtle 2005-301 Draft

64. G2.3.1 001

An operator began work at Vogtle in May 2004. The current date is May 2005. The operator has the following dose history (TEDE):

- Year 2004 = 3000 mrem
- Year 2005 = 1427 mrem (Accumulated through May 2005)

The worker is directed to perform a job with an estimated dose of 1156 mrem.

Which ONE of the following correctly states the required approval, if any, needed prior to beginning the work?

- A. Vice President
- B. HP/C Manager
- C. NRC
- D. No approval needed

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

G2.3.1

Knowledge of 10 CFR: 20 and related facility radiation control requirements.

K/A MATCH ANALYSIS

Question tests the knowledge of plant admin and 10 CFR 20 requirements and what level of approval is needed to perform the work. The applicant must know how to calculate his projected dose, he must know the Admin limits (4500 mrem) and must know that he is not projected to exceed the admin limit, thus not needing approval.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible because if the applicant does not understand that the dose limits are on a calendar year, then this would be the correct answer because the limit of 4500 mrem would be exceeded when looking at the previous 12 months.
- B. Incorrect. Plausible because the HP/C manager is responsible for the conduct of HP.
- C. Incorrect. Plausible because if the applicant makes the assumption that it is a rolling 4 quarters, then NRC would be required to be notified for exceeding the 10 CFR 20 limits.
- D. Correct. This is less than 10 CFR 20 limits for TEDE for the calendar year, thus requiring no approval to perform the work.

REFERENCES

1. LO-LP-63920-C-08, Radiation Exposure Limits, Rev. 08, 12/14/2000.
2. 00920-C, Radiation Exposure Limits and Administrative Guidelines, Rev. 14, dated 01/22/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DBDDCDBDCB	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		DOSE LIMITS			Cog Level:	C/A 2.6	
Source:		N			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogtle 2005-301 Draft

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An operator began work at Vogtle in May 2004. The current date is May 2005. The operator has the following dose history (TEDE):

- Year 2004 = 3000 mrem
- Year 2005 = 1427 mrem (Accumulated through May 2005)

The worker is directed to perform a job with an estimated dose of 1156 mrem.

Which ONE of the following correctly states the required approval, if any, needed prior to beginning the work?

- A. Vice President
- B. HP/C Manager
- C. NRC
- D. No approval needed

$$\begin{array}{r} 1427 \\ 1156 \\ \hline 2583 \end{array}$$

$$\begin{array}{r} +3000 \\ \hline 5583 \end{array}$$

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

G2.3.1

Knowledge of 10 CFR: 20 and related facility radiation control requirements.

K/A MATCH ANALYSIS

Question tests the knowledge of plant admin and 10 CFR 20 requirements and what level of approval is needed to perform the work. The applicant must know how to calculate his projected dose, he must know the Admin limits (4500 mrem) and must know that he is not projected to exceed the admin limit, thus not needing approval.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible because if the applicant does not understand that the dose limits are on a calendar year, then this would be the correct answer because the limit of 4500 mrem would be exceeded when looking at the previous 12 months.
- B. Incorrect. Plausible because the HP/C manager is responsible for the conduct of HP.
- C. Incorrect. Plausible because if the applicant makes the assumption that it is a rolling 4 quarters, then NRC would be required to be notified for exceeding the 10 CFR 20 limits.
- D. Correct. ~~$(2600 \text{ mrem/hr}) \times (1/1.5)^2 + 1300 = 2456 \text{ mrem}$~~ . This is less than 10 CFR 20 limits for TEDE for the calendar year, thus requiring no approval to perform the work.

REFERENCES

1. LO-LP-63920-C-08, Radiation Exposure Limits, Rev. 08, 12/14/2000.
2. 00920-C, Radiation Exposure Limits and Administrative Guidelines, Rev. 14, dated 01/22/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	Scramble Range:	A - D
					Answer:			
Tier:		3			Group:			
Key Word:		DOSE LIMITS			Cog Level:	C/A 2.6		
Source:		N			Exam:	VG05301		
Test:		R			Author/Reviewer:	MAB/RSB		

QUESTIONS REPORT
for Voglte 2005-301 Draft

2. G2.3.1 001

An operator has the following dose history (TEDE):

- Third Quarter of year 2004 = 1560 mrem
 - Fourth Quarter of year 2004 = 1440 mrem
 - First Quarter of year 2005 = 1300 mrem
 - Second Quarter of year 2005 (This is the current quarter) = 127 mrem
- Answers for 2004*
- Remains Total For 2005.*

The person will be working on a component (considered a point source) that has a dose rate of 2600 mrem / hour at one foot. The worker will perform all of his work at 18 inches from the component and the work will take 45 minutes to complete.

Which ONE of the following correctly states the required approval, if any, needed prior to beginning the work?

- A. Vice President
- B. HP/C Manager
- C. NRC
- D. No approval needed

Give them exposure

This makes it different than JPM.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

G2.3.1

Knowledge of 10 CFR: 20 and related facility radiation control requirements.

K/A MATCH ANALYSIS

Question tests the knowledge of plant admin and 10 CFR 20 requirements and what level of approval is needed to perform the work. The applicant must know how to calculate his projected dose, he must know the Admin limits (4500 mrem) and must know that he is not projected to exceed the admin limit, thus not needing approval.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible because if the applicant does not understand that the dose limits are on a calendar year, then this would be the correct answer because the limit of 4500 mrem would be exceeded when looking at the previous 12 months.
- B. Incorrect. Plausible because the HP/C manager is responsible for the conduct of HP.
- C. Incorrect. Plausible because if the applicant makes the assumption that it is a rolling 4 quarters, then NRC would be required to be notified for exceeding the 10 CFR 20 limits.
- D. Correct. $(2600 \text{ mrem/hr}) \times (1/1.5)^2 + 1300 = 2456 \text{ mrem}$. This is less than 10 CFR 20 limits for TEDE for the calendar year, thus requiring no approval to perform the work.

REFERENCES

1. LO-LP-63920-C-08, Radiation Exposure Limits, Rev. 08, 12/14/2000.
2. 00920-C, Radiation Exposure Limits and Administrative Guidelines, Rev. 14, dated 01/22/2004.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	Answer:	Scramble Range:	A - D
Tier:		3					Group:		
Key Word:		DOSE LIMITS					Cog Level:		C/A 2.6
Source:		N					Exam:		VG05301
Test:		R					Author/Reviewer:		MAB/RSB

AUTHORIZATION TO INCREASE RADIATION WORKER ADMINISTRATIVE EXPOSURE LIMITS

WORKER NAME: _____ SSN: _____ EXPID _____

APPROVED EXPOSURE LIMITS:	UP TO	5,000	mrem TEDE	
		50,000	mrem TODE	NOTE
		15,000	mrem LDE	THESE ARE 10CFR20
		50,000	mrem SDE, WB SKIN	LIMITS
		50,000	mrem SDE, MAX. EXT.	

REASON: _____

WORKER SIGNATURE: _____ DATE: _____

PRIOR SITE EXPOSURE DOCUMENTED? (YES/NO & INITIAL): _____

TLD MUST BE READ PRIOR TO AUTHORIZING EXPOSURES UP TO 10CFR20 LIMITS

UPDATED EXPOSURE/CURRENT LIMITS:	_____ / _____	mrem/yr TEDE	
	_____ / _____	mrem/yr TODE	
	_____ / _____	mrem/yr LDE	
	_____ / _____	mrem/yr SDE, WB SKIN	
	_____ / _____	mrem/yr SDE, MAX. EXT.	

CURRENT EXPOSURE VERIFIED BY? (DATE/TIME & INITIAL): _____ / _____ / _____

Dosimetry Supervisor: _____ Time/Date: _____ / _____

EXPOSURE INCREASE AUTHORIZATION:

HP Superintendent:	_____	Date: _____
HP/Chemistry Manager:	_____	Date: _____
NPGM:	_____	Date: _____
Exec. Vice Pres:	_____	Date: _____

PHONE APPROVALS:

_____	SIGNS FOR DOSIMETRY SUPERVISOR	Date/Time: _____ / _____
_____	SIGNS FOR HP SUPERINTENDENT	Date/Time: _____ / _____
_____	SIGNS FOR HP/CHEM MANAGER	Date/Time: _____ / _____
_____	SIGNS FOR NPGM	Date/Time: _____ / _____
_____	SIGNS FOR Exec. Vice Pres	Date/Time: _____ / _____

DOSIMETRY REVIEW:

Computer Entry Complete (Time/Date/Initial): _____ / _____ / _____

Figure 2

TABLE 2

RADIATION WORKER EXPOSURE GUIDELINES

ANNUAL LIMITS (mrem)¹

CATEGORY	TEDE	TODE	LDE	SDE,WB	SDE,ME	REQUIRED APPROVAL
RADIATION WORKER ²						
- Documented ³	4500	45,000	13,500	45,000	45,000	NONE
- Undocumented ⁴	450	4500	1350	4500	4500	

- 1 Annual dose limits shall be reduced by the amount of dose that was occupationally received while being employed by any other facility during that year.
- 2 Exposures exceeding these annual limits require Vice President approval using Figure 2.
- 3 "Undocumented" means the individual has not declared his/her current year and/or lifetime cumulative radiation dose.
- 4 "Documented" means the individual has disclosed his/her current year and lifetime cumulative dose on a written, signed statement from the individual or the individual's most recent employer or on an up-to-date NRC Form-4.

(CO0018190) (CO0027397)

III. LESSON OUTLINE	NOTES
<p>3. Radiation Workers - See Table 2 of 00920-C</p> <p>a) Annual limit total effective dose equivalent TEDE 4500 mrem</p> <p>b) Other category limits</p> <p>(1) Total organ dose equivalent -- 45,000 mrem</p> <p>(2) Lens of eye dose equivalent -- 13,500 mrem</p> <p>(3) Shallow dose equivalent, whole body skin (SDE, WB) -- 45,000 mrem</p> <p>(4) Shallow dose equivalent, maximum extremity -- 45,000 mrem</p> <p>c) Signed statement indicating amount of occupational exposure received by individual in current calendar quarter and year from sources possessed by other licensees</p> <p>(1) Completed</p> <p>(a) Prior to first entry into RCA</p> <p>(b) During each employment by GPC, or</p> <p>(c) Each period of work assignment or visitation at VEGP</p> <p>(d) Exposure is documented by logging in and out of the RCA using the HP computer or manually</p> <p>(e) TLD reading is the official record</p> <p>D. Lifetime Exposure Guidelines</p> <p>1. Maintain total lifetime dose less than 75 Rem, apply administrative controls when dose exceed age in years or 50 Rem</p> <p>2. Controls listed above do not replace or override Emergency Exposure Guidelines</p>	Objective 4
	SEE TABLE 4 for action levels

III. LESSON OUTLINE	NOTES
<p>E. Planned Special Exposure</p> <ol style="list-style-type: none"> 1. Used only when exceptional situation exists and alternatives that might avoid the higher exposure are unavailable or impractical. 2. Written approval from Executive Vice President required and documentation 3. prior to a PSE the individuals must be: <ol style="list-style-type: none"> a) Informed of the planned operation b) Informed of the estimated doses, potential risks, and specific radiation levels or other conditions that may be involved in performing the task. c) Instructed in measure to maintain ALARA d) All previous PSEs and all doses in excess of routine operational limits for the individual's lifetime are determined prior to authorizing the PSE. e) Emergency doses are considered and subtracted from the current year and lifetime limits f) Complete records are required g) PSE limits are per table 3 annual and lifetime limits <p>F. Emergency and Accident Exposure</p> <ol style="list-style-type: none"> 1. Authorization controlled by Procedure 91301-C, "Emergency Exposure Guidelines" 2. Guidelines <ol style="list-style-type: none"> a) TEDE 10 Rem Protecting valuable property b) 25 Rem lifesaving or protection of large population c) > 25 Rem lifesaving or protection of large population <ol style="list-style-type: none"> (1) Only on a voluntary basis, and person aware of the risks. 	<p>Start IEN 84-40</p> <p>Objective 6</p>

QUESTIONS REPORT
for Voglte 2005-301 Draft

65. G2.3.11 001

The #1 Gas Decay Tank on Unit 2 is being released in accordance with 13202-2, Gaseous Releases. After the release has been underway for 10 minutes, Flow Transmitter, A-FT-0014, fails low. Which ONE of the following correctly states the actions that are required by 13202-2?

- A. The release does not need to be terminated unless Waste Gas Processing System Effluent Monitor, A-RE-0014, becomes inoperable or its setpoint is exceeded.
- B. The release must be terminated. It may not be recommenced until A-FT-0014 is repaired.
- C. The release does not need to be terminated. It may continue provided release rates are manually calculated.
- D. The release must be terminated. It may be recommenced provided release rates are manually calculated.

K/A

G2.3.11

Ability to control radiation releases.

K/A MATCH ANALYSIS

Question tests ability to properly conduct a radioactive gas release to the environment. Memory level because it just requires recall of 13202-2, Step 2.2.3.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Release must be terminated. Plausible because it also needs to be terminated if the Rad monitor fails or comes into alarm.
- B. Incorrect. Release may be recommenced with manual calcs for release rate. Plausible because it is not unrealistic to think that an operable FT is required.
- C. Incorrect. Release must be terminated. Plausible because it may be restarted using manual calcs.
- D. Correct. Release must be terminated and it may be restarted using manual calcs of release rate. See 13202-2 Step 2.2.3 and 4.2.14 for confirmation of answer.

REFERENCES

1. 13202-2, Gaseous Releases, Rev. 8, 09/24/2003.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D D D D A D D B B B Scramble Range: A - D

Tier: 3

Group:

Key Word: WASTE GAS RELEASE

Cog Level: MEM 2.7

Source: N

Exam: VG05301

Test: R

Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

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Tier: 3

Group:

Key Word: WASTE GAS RELEASE

Cog Level: MEM 2.7

Source: N

Exam: VG05301

Test: R

Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

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- B. The release must be terminated. It may not be recommenced until A-FT-0014 is repaired.
- C. The release does not need to be terminated. It may continue by adjusting A-HIC-0014 to 20% and performing a manual calculation for flow rate after pressure in the #1 Gas Decay Tank has dropped by 2 psig.
- D. The release must be terminated. It may be recommenced by adjusting A-HIC-0014 to 20% and performing a manual calculation for flow rate after pressure in the #1 Gas Decay Tank has dropped by 2 psig.

K/A

G2.3.11

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Source: N

Exam: VG05301

Test: R

Author/Reviewer: MAB/RSB

Approved By W. F. Kitchens	Vogle Electric Generating Plant 	Procedure Number: Rev 13202-2 8
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PRB REVIEW REQUIRED

GASEOUS RELEASES

PROCEDURE USAGE REQUIREMENTS-		SECTIONS
Continuous Use:	Procedure must be open and readily available at the work location. Follow procedure step by step unless otherwise directed.	ALL
Reference Use:	Procedure or applicable section(s) available at the work location for ready reference by person performing steps.	NONE
Information Use:	Available on plant site for reference as needed.	NONE

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0 **PURPOSE**

This procedure provides instructions for the controlled release of a Gas Decay Tank or Waste Gas Decay Shutdown Tank. Instructions are provided as follows:

- 4.1 Initial Preparations For Release
- 4.2 Release
- 4.3 System Restoration

2.0 **PRECAUTIONS AND LIMITATIONS**

2.1 **PRECAUTIONS**

2.1.1 Adhere to all applicable radiological controls.

2.2 **LIMITATIONS**

2.2.1 The ODCM, Section 3.1.2 specifies gaseous release dose rate limits and sampling requirements.

2.2.2 The ODCM, Section 3.1.1 specifies operability and surveillance requirements for gaseous release instrumentation.

2.2.3 If Waste Gas Processing System Effluent Monitor A-RE-0014 or Flow Transmitter A-FT-0014 becomes inoperable during the release, terminate the release and notify the Unit Shift Supervisor (USS).

3.0 **PREREQUISITES OR INITIAL CONDITIONS**

3.1 If a Normal Gas Decay Tank is to be released, the Gaseous Waste Processing System is shut down.

2 If any of the Gas Decay Tanks are to be released, ENSURE the Waste Gas Decay Shutdown Tanks (A-1902-V6-009 and A-1902-V6-010) are not in service.

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0 **INSTRUCTION**

1 INITIAL PREPARATIONS FOR RELEASE

CAUTIONS

- a. The tank which is to be released must remain isolated except for sampling. This will ensure the validity of the gaseous release permit.
- b. The Gaseous Waste Processing System can not be restarted until the Gas Decay Tank has been released.

NOTES

- a. Since all Gaseous Waste Processing System Relief Valves relieve to Waste Gas Decay Shutdown Tank A-1902-V6-010, the system must be shut down prior to isolating this tank when preparing to release it.
- b. The Gas Decay Tank is placed in recirculation to ensure all piping in the system is homogenous to prevent the release path from tripping closed.
- c. Since pressures may be higher than typical during normal recombiner operation, the flow and pressure requirements for recirculation per 13201-2 may not be achievable. A flow or greater than 1000 scfh satisfies this mixing requirement.

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4.1.1 PLACE the Gas Decay Tank to be released in the Recirculation Mode by one of the following methods:

- a. If the WGS is operating, SWAP the inservice gas decay tank to the GDT to be released per 13201-2, "Gaseous Waste Processing System",
- b. If the WGS is not operating, STARTUP the WGS with the GDT to be released per 13201-2, "Gaseous Waste Processing System".

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4.1.2 AFTER 1 hour shutdown the Waste Gas System per 13201-2, "Gaseous Waste Processing System".

4.1.3 ISOLATE the Inlet, Outlet, Sample, and Drain Valves of the Gas Decay Tank to be released per Table 1.

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1.4 REQUEST Chemistry Department sample and PREPARE a Gaseous Effluent Permit for the tank to be released. RECORD the name of the person contacted in the Unit Control Log.

4.2 **RELEASE**

CAUTION

No part of the release should be performed until the approved Gaseous Effluent Permit is received and approved in the Control Room.

4.2.1 ENSURE Chemistry has performed a source and channel check of Waste Gas Processing System Effluent Monitor A-RE-0014. If A-RE-0014 is operable, PULSE CHECK A-RE-0014 as follows:

- a. NOTIFY the Control Room to expect an alarm from A-RE-0014 on the Digital Radiation Monitor System.
- b. OPEN WASTE GAS DISCHARGE VALVE A-RV-0014 by performing the following:
 - (1) SET A-HIC-0014 TO 0% DEMAND,
 - (2) PLACE A-HS-0014 in OPEN,
 - (3) SET A-HIC-0014 to 100%,
 - (4) VERIFY A-RV-0014 opens.
- c. REQUEST Chemistry to activate the pulse test on channel A-RE-0014.
- d. ENSURE WASTE GAS DISCHARGE VALVE A-RV-0014 closes and Hi Radiation alarm in Control Room annunciates.
- e. REQUEST Chemistry to restore channel A-RE-0014 to normal.

4.2.2 If Operable, ENSURE channel check of A-FT-0014 has been performed by Chemistry.

4.2.3 PLACE WASTE GAS DISCHARGE CONTROL VALVE A-HS-0014 in CLOSE (1-PGPP).

4.2.4 SET WASTE GAS DISCHARGE CONTROL A-HIC-0014 to 0% demand (1-PGPP).

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NOTE

If the Radioactive Gaseous Monitoring Instrument ARE-0014 or Flow Transmitter AFT-0014 is determined to be inoperable, the release may be performed if the requirements of ODCM Section 3.1.1 are met.

- 4.2.5 ALIGN the Gaseous Waste Processing System for release:
- a. If Gas Decay Tank 1, 2, 3, or 4 is to be released, USE Checklist 1,
 - b. If Gas Decay Tank 5, 6, or 7 is to be released, USE Checklist 2.
- 4.2.6 ALIGN the Gaseous Release Header per Checklist 3.
- 4.2.7 VERIFY all conditions of the Gaseous Effluent Permit that must be satisfied prior to the release are met.
- 4.2.8 VERIFY the tank aligned for release is the same tank for which the Gaseous Effluent Permit was issued.
- 4.2.9 NOTE the maximum allowable release flow rate and A-RE-0014 setpoint given on the Gaseous Effluent Permit.

NOTE

A-RE-0014 alarms and data are located in the UNIT 1 Control Room.

- 2.10 NOTIFY the Unit 1 Control Room that the release is starting so they can monitor the flow and radiation data.
- 4.2.11 PLACE A-HS-0014 in OPEN.

CAUTION

Monitor ALL GDTs and ensure that only the GDT being released is decreasing in pressure. If a GDT not being released decreases in pressure, stop the release and notify the USS.

- 4.2.12 Continuously MONITOR all Gas Decay Tank pressures during the first hour of the release, then CHECK all pressures hourly until the release is complete.

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CAUTION

Do not exceed the maximum allowable release rate or A-RE-0014 setpoint stated on the release permit. If at any time during the release, the allowable release rate or A-RE-0014 setpoint is exceeded, stop the release and notify the USS.

- 4.2.13 If AFT-0014 is operable, MONITOR A-RI-0014 and release flow rate while adjusting A-HIC-0014 to obtain the desired release rate.
- 4.2.14 If AFT-0014 is inoperable, the following steps must be performed to comply with the action step of the QDCM. VERIFY Flowrate by performing the following:
- a. ADJUST A-HIC-0014 to 20% open,
 - b. LOG the start time and initial pressure of the GDT being released in the ABO logbook,
 - c. When the initial pressure has decreased by 2 psig, PERFORM the following to verify the initial flowrate is within the limits of the release permit:
 - (1) SUBTRACT the present pressure reading from the initial pressure reading then DIVIDE the result by 14.7,
 - (2) MULTIPLY the result of 4.2.14c(1) by 600,
 - (3) DIVIDE the result of 4.2.14c(2) by the number of minutes the release has been occurring. The resultant number is the flowrate in standard cubic feet per minute,
 - d. ADJUST A-HS-0014 as needed to comply with the permit release rate,
 - e. Every 4 hours VERIFY the release rate by performing steps 4.2.14.c(1) thru 4.2.14.c(3).
- 4.2.15 RECORD the start parameters on the Gaseous Effluent Permit.

QUESTIONS REPORT
for Voglte 2005-301 Draft

66. G2.4.12 001

19000-C, E-0 Reactor Trip or Safety Injection, has been entered upon a reactor trip.

Which ONE of the following correctly describes the required operator response with respect to performance of immediate operator actions following the reactor trip?

- A. The USS is required to state the entire step, including all substeps. The RO and BOP are required to repeat only the high level step.
- B. The USS is required to state the entire step, including all substeps. The RO and BOP are required to repeat the entire step, including all substeps.
- C. The USS is required to state the high level step. The RO and BOP are required to repeat the step, including all substeps.
- D. The RO and BOP are required to repeat only the high level step and be able to perform all substeps.

K/A

G2.4.12

Knowledge of general operating crew responsibilities during emergency operations.

K/A MATCH ANALYSIS

Part of crew responsibilities include correctly carrying out immediate operator actions. This question tests knowledge of the admin requirements for performing immediate actions during an EOP.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. USS not required to state substeps. RO/BOP required to repeat substeps.
- B. Incorrect. USS not required to state substeps.
- C. Correct. 10020-C, Section 3.4.
- D. Incorrect. Communication of substeps to USS is required.

Distractors are plausible because the question is memory-level. If applicants do not remember the requirements, then any one of the distractors could be a logical choice.

REFERENCES

1. 10020-C, EOP and AOP Rules of Usage, Rev. 2, 01/11/2004.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A C D B D A B D C Scramble Range: A - D

Tier: 3

Group:

Key Word: IMMEDIATE ACTIONS

Cog Level: MEM 3.4

Source: N

Exam: VG05301

Test: R

Author/Reviewer: MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

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Key Word: IMMEDIATE ACTIONS

Cog Level: MEM 3.4

Source: N

Exam: VG05301

Test: R

Author/Reviewer: MAB/RSB

Approved By C. H. Williams, Jr.	Vogtle Electric Generating Plant 	Procedure Number 10020-C	Rev 2
Date Approved 1/11/2004	EOP AND AOP RULES OF USAGE	Page Number 6 of 25	

2 **"GO TO" STEPS**

To maintain consistency in referencing or branching to another procedure:

- 3.2.1 "Go to" is used when it is desired to branch to another procedure or to a preceding step in the procedure.

Example: IF the reactor trips,
THEN go to 19000-C, E-0
REACTOR TRIP OR SAFETY INJECTION.

Branching implies the procedure in use shall be exited and a new procedure entered.

- 3.2.2 "return to" is used when it is desired to branch to a previous step in the procedure.

3.3 **"BY INITIATING" STEPS**

When "by initiating" is used, the referenced procedure will be used as a supplement to, and it will be performed concurrently with the one in effect.

3.4 **IMMEDIATE OPERATOR ACTIONS STEPS**

- 3.4.1 These are actions that, for EOPs are to be committed to memory for immediate performance upon initiation of the procedure. These actions, which typically involve verification of automatic actions, are listed starting on top of the next page after the symptoms section with "IMMEDIATE OPERATOR ACTIONS" typed above Step 1.

- 3.4.2 Immediate Operator Action Steps shall be performed by memory by the operator. The Unit Shift Supervisor will state the high level steps as written in the procedure. Upon restatement the operator will repeat the step including all substeps to ensure completeness.

- 3.4.3 All EOP immediate actions must be completed prior to taking any early action or non-EOP action.

QUESTIONS REPORT
for Voglte 2005-301 Draft

67. G2.4.4 001

Unit 1 was at 100% rated thermal power with the following conditions:

- Chemistry confirmed a 7 gpd tube leak in Steam Generator #1.
- RE-12839C, SJAЕ Rad Monitor, alarm setpoint was adjusted.
- RE-0724, Main Steam N16 Monitor, was reading above background.
- Steam Generator #1 steam supply to the TDAFW Pump was isolated.
- 18009-C, Steam Generator Tube Leak, was entered, and remains in effect.
- Steam Generator #2 pressures are 800 psig and dropping rapidly.
- Containment pressure is 8 psig and rising rapidly.
- Containment sump levels are trending up.
- RCS subcooling is trending up.

The control room crew then enters 19000-C, E-0 Reactor Trip or Safety Injection, due to an automatic reactor trip and safety injection.

Which ONE of the following correctly describes the correct course of action?

- A✓ Transition from 19000-C to 19020-C, E-2 Faulted Steam Generator Isolation.
- B. Transition from 19000-C to 19030-C, E-3 Steam Generator Tube Rupture.
- C. Transition from 19000-C to 19010-C, E-1 Loss of Reactor or Secondary Coolant.
- D. Transition from 19000-C to 18004-C, Reactor Coolant System Leakage.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

G2.4.4

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

K/A MATCH ANALYSIS

Indications provided in the question can be used to determine what procedure to go to.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Faulted SG is correct procedure.
- B. Incorrect. A small amount of tube leakage does not require entry into SGTR. Plausible because there is SG tube leakage.
- C. Incorrect. Steam Generator pressure and RCS subcooling differentiates between a LOCA and faulted SG. Plausible because many parameters trend in same direction for either event.
- D. Incorrect. RCS subcooling and SG pressures indicate a faulted SG, not RCS leak. Plausible because many parameters trend in same direction for either event.

REFERENCES

1. 19030-C, E-3 Steam Generator Tube Rupture, Rev. 30, 04/02/2004.
2. 19000-C, E-0 Reactor Trip or Safety Injection, Rev. 29, 06/25/2004.
3. 19020-C, E-2 Faulted Steam Generator Isolation, Rev. 16.1, 07/30/2003.
4. 18004-C, Reactor Coolant System Leakage, Rev. 20, 04/21/2004.
5. Vogtle Exam Bank Question LO-LP-37121-06-02.

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	Answer: A C B B C C A A A D	Scramble Range: A - D
Tier:	3		Group:		
Key Word:	FAULTED SG MSLB		Cog Level:	C/A 4.0	
Source:	M		Exam:	VG05301	
Test:	R		Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogtle 2005-301 Draft

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- D. Transition from 19000-C to 18004-C, Reactor Coolant System Leakage.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

G2.4.4

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K/A MATCH ANALYSIS

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1. 19030-C, E-3 Steam Generator Tube Rupture, Rev. 30, 04/02/2004.
2. 19000-C, E-0 Reactor Trip or Safety Injection, Rev. 29, 06/25/2004.
3. 19020-C, E-2 Faulted Steam Generator Isolation, Rev. 16.1, 07/30/2003.
4. 18004-C, Reactor Coolant System Leakage, Rev. 20, 04/21/2004.
5. Vogtle Exam Bank Question LO-LP-37121-06-02.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	ACBBCCAAAD	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		FAULTED SG MSLB			Cog Level:	C/A 4.0	
Source:		M			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. G2.4.4 001

Unit 1 was at 100% rated thermal power with the following conditions:

- Chemistry confirmed a 7 gpd tube leak in Steam Generator #1.
- RE-12839C, SJAЕ Rad Monitor, alarm setpoint was adjusted.
- RE-0724, Main Steam N16 Monitor, was reading above background.
- Steam Generator #1 steam supply to the TDAFW Pump was isolated.
- 18009-C, Steam Generator Tube Leak, was entered, and remains in effect.
- Steam Generator #2 pressures are 800 psig and dropping rapidly.
- Containment pressure is 8 psig and rising rapidly.
- Containment sump levels are trending up.
- RCS subcooling is trending up.

The control room crew then enters 19000-C, E-0 Reactor Trip or Safety Injection, due to an automatic reactor trip and safety injection.

Which ONE of the following correctly describes the correct course of action?

- A✓ Transition from 19000-C to 19020-C, E-2 Faulted Steam Generator Isolation.
- B. Transition from 19000-C to 19030-C, E-3 Steam Generator Tube Rupture.
- C. Transition from 19000-C to 19010-C, E-1 Loss of Reactor or Secondary Coolant.
- D. Transition from 19000-C to 18004-C, Reactor Coolant System Leakage.

QUESTIONS REPORT
for Vogite 2005-301 Draft

K/A

G2.4.4

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

K/A MATCH ANALYSIS

Indications provided in the question can be used to determine what procedure to go to.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Faulted SG is correct procedure.
- B. Incorrect. A small amount of tube leakage does not require entry into SGTR. Plausible because there is SG tube leakage.
- C. Incorrect. Steam Generator pressure and RCS subcooling differentiates between a LOCA and faulted SG. Plausible because many parameters trend in same direction for either event.
- D. Incorrect. RCS subcooling and SG pressures indicate a faulted SG, not RCS leak. Plausible because many parameters trend in same direction for either event.

REFERENCES

- 1. 19030-C, E-3 Steam Generator Tube Rupture, Rev. 30, 04/02/2004.
- 2. 19000-C, E-0 Reactor Trip or Safety Injection, Rev. 29, 06/25/2004.
- 3. 19020-C, E-2 Faulted Steam Generator Isolation, Rev. 16.1, 07/30/2003.
- 4. 18004-C, Reactor Coolant System Leakage, Rev. 20, 04/21/2004.
- 5. Vogite Exam Bank Question LO-LP-37121-06-02.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A C B B C C A A A D	Scramble Range: A - D
Tier:		3			Group:		
Key Word:		FAULTED SG MSLB			Cog Level:	C/A 4.0	
Source:		M			Exam:	VG05301	
Test:		R			Author/Reviewer:	MAB/RSB	

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

27. CHECK SGs secondary pressure boundaries:

a. CHECK pressures in all SGs -

- NO SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER.
- NO SG COMPLETELY DEPRESSURIZED.

a. GO TO 19020-C, E-2 FAULTED STEAM GENERATOR ISOLATION.

LO-LP-37121-06-02

Given the following conditions:

- * The unit is at 100% power
- * Chemistry confirms that SG #1 has a 7 GPD tube leak
- * RE-12839C, SJAЕ rad monitor alarm setpoint has been adjusted
- * RE-0724, Main Steam N16 monitor is reading above background
- * AOP 18009-C, "Steam Generator Tube Leak" is in effect
- * The crew enters 19000-C due to an unisolable fault on SG #2

Which of the following is the correct action to take?

- A. Transition from 19000-C to 19030-C, "SGTR" based on abnormal secondary radiation.
- B. Transition from 19000-C to 19020-C, "Faulted SG Isolation" based on the uncontrolled SG #2 depressurization.**
- C. Reopen steam supply to the TDAFW pump from SG #1 and isolate the steam supply from SG #2.
- D. Isolate both steam supplies to the TDAFW pump, even if neither MDAFW pump is available.

LO-LP-37121-06

State how a loss of secondary coolant is initially detected and the proper emergency procedures entered.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

68. WE01G2.1.9 001

The SRO announces to the crew that 19005-C, Rediagnosis, must be entered.

Which ONE of the following conditions would require the RO to dispute this course of action (I.E. prevent entry into 19005-C)?

- A. Total ECCS flow is 2000 gpm.
- B. 19030-C, Steam Generator Tube Rupture, is in progress.
- C. Following a safety injection, a yellow path on "Inventory" is present at Step 1 of 19010-C, Loss of Reactor or Secondary Coolant, but the procedure reader has decided not to implement the FRP at this time.
- D. 19001-C, Reactor Trip Response, is in progress with pressurizer level at 20% and stable and RCS subcooling at 40 °F and stable.

K/A

WE01 Rediagnosis

G2.1.9 Ability to direct personnel activities inside the control room.

K/A MATCH ANALYSIS

In order to correctly direct control room activities, the operator must possess the knowledge of what procedure needs to be utilized. This question tests the entry conditions associated with Rediagnosis, which appear in a Note on Page 2 of the Rediagnosis procedure. ROs are required to know procedure entry conditions. Question is memory level because applicant only needs to memorize the Note on Page 2 of the Rediagnosis procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. This is one of the entry conditions in 19005-C (ECCS in service).
- B. Incorrect. This is one of the entry conditions in 19005-C (Optimal Rec Proc).
- C. Incorrect. This is one of the entry conditions in 19005-C (Not Red or Orange Path).
- D. Correct. No Optimal Rec Proc has been entered and SI could not have been required if they are in Rx Trip Response.

REFERENCES

1. 19005-C, ES-0.0, Rediagnosis, Rev. 8.1, 11/17/1999.
2. Vogtle Exam Bank Question LO-LP-37002-12-02.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A A A D C B C D

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	1	Group:	2
Key Word:	REDIAGNOSIS	Cog Level:	MEM 2.5
Source:	B	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

68. WE01G2.1.9 001

The SRO announces to the crew that 19005-C, Rediagnosis, must be entered.

Which ONE of the following conditions would require the RO to dispute this course of action (I.E. prevent entry into 19005-C)?

- A. Total ECCS flow is 2000 gpm.
- B. 19030-C, Steam Generator Tube Rupture, is in progress.
- C. Following a safety injection, a yellow path on "Inventory" is present at Step 1 of 19010-C, Loss of Reactor or Secondary Coolant, but the procedure reader has decided not to implement the FRP at this time.
- D. 19001-C, Reactor Trip Response, is in progress with pressurizer level at 20% and stable and RCS subcooling at 40 °F and stable.

K/A

WE01 Rediagnosis

G2.1.9 Ability to direct personnel activities inside the control room.

K/A MATCH ANALYSIS

In order to correctly direct control room activities, the operator must possess the knowledge of what procedure needs to be utilized. This question tests the entry conditions associated with Rediagnosis, which appear in a Note on Page 2 of the Rediagnosis procedure. ROs are required to know procedure entry conditions. Question is memory level because applicant only needs to memorize the Note on Page 2 of the Rediagnosis procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. This is one of the entry conditions in 19005-C (ECCS in service).
- B. Incorrect. This is one of the entry conditions in 19005-C (Optimal Rec Proc).
- C. Incorrect. This is one of the entry conditions in 19005-C (Not Red or Orange Path).
- D. Correct. No Optimal Rec Proc has been entered and SI could not have been required if they are in Rx Trip Response.

REFERENCES

1. 19005-C, ES-0.0, Rediagnosis, Rev. 8.1, 11/17/1999.
2. Vogtle Exam Bank Question LO-LP-37002-12-02.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A A A D C B C D

Scramble Range: A - D

QUESTIONS REPORT
for Vogite 2005-301 Draft

Tier:	1	Group:	2
Key Word:	REDIAGNOSIS	Cog Level:	MEM 2.5
Source:	B	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE01G2.1.9 001

The SRO announces to the crew that 19005-C, Rediagnosis, must be entered.

Which ONE of the following conditions would require the RO to dispute this course of action (I.E. prevent entry into 19005-C)?

- A. Total ECCS flow is 2000 gpm.
- B. 19030-C, Steam Generator Tube Rupture, is in progress.
- C. Following a safety injection, a yellow path on "Inventory" is present at Step 1 of 19010-C, Loss of Reactor or Secondary Coolant, but the procedure reader has decided not to implement the FRP at this time.
- D. 19001-C, Reactor Trip Response, is in progress with pressurizer level at 20% and stable and RCS subcooling at 40 °F and stable.

K/A

WE01 Rediagnosis

G2.1.9 Ability to direct personnel activities inside the control room.

K/A MATCH ANALYSIS

In order to correctly direct control room activities, the operator must possess the knowledge of what procedure needs to be utilized. This question tests the entry conditions associated with Rediagnosis, which appear in a Note on Page 2 of the Rediagnosis procedure. ROs are required to know procedure entry conditions. Question is memory level because applicant only needs to memorize the Note on Page 2 of the Rediagnosis procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. This is one of the entry conditions in 19005-C (ECCS in service).
- B. Incorrect. This is one of the entry conditions in 19005-C (Optimal Rec Proc).
- C. Incorrect. This is one of the entry conditions in 19005-C (Not Red or Orange Path).
- D. Correct. No Optimal Rec Proc has been entered and SI could not have been required if they are in Rx Trip Response.

REFERENCES

- 1. 19005-C, ES-0.0, Rediagnosis, Rev. 8.1, 11/17/1999.
- 2. Vogtle Exam Bank Question LO-LP-37002-12-02.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A A A D C B C D

Scramble Range: A - D

QUESTIONS REPORT
for Voglte 2005-301 Draft

Tier:	1	Group:	2
Key Word:	REDIAGNOSIS	Cog Level:	MEM 2.5
Source:	B	Exam:	VG05301
Test:	R	Author/Reviewer:	MAB/RSB

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS  Unit <u>COMMON</u>	Procedure No. 19005-C
Date		Revision No. 8.1
		Page No. 1 of 5

EMERGENCY OPERATING PROCEDURE

ES-0.0 REDIAGNOSIS

PURPOSE

PRB REVIEW REQUIRED

This procedure provides a mechanism to allow the operator to determine or confirm the most appropriate post accident recovery procedure. (Applicable in Modes 1, 2, 3, and 4.)

MAJOR ACTIONS

- ◆ Check If Any SGs Are Not Faulted
- ◆ Check If Any SG Is Faulted and If It Was Isolated
- ◆ Check If There Is a SGTR

ENTRY CONDITIONS

- This procedure is entered based on operator judgement.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

- This procedure should only be used if all the following conditions are met:
 - ECCS is in service or is required.
 - 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION has been performed.
 - A transition from 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION has been made to another Optimal Recovery Procedure.
- This procedure should not be used if a required (red or orange path) Function Restoration Procedure (FRP) is in effect.

* 1. Check if any SG is not faulted:

a. Check pressure in all SGs - ANY STABLE OR RISING.

a. IF a controlled cooldown is in progress, THEN go to Step 2.

IF a controlled cooldown is NOT in progress, THEN the following applies:

- IF main steamlines NOT isolated, THEN go to 19020-C, E-2 FAULTED STEAM GENERATOR ISOLATION.

-OR-

- IF main steamlines isolated, THEN go to 19121-C, ECA-2.1 UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS.

LO-LP-37002-12-02

Select which one of the following conditions would prevent entry into 19005-C "Rediagnosis":

- A. **19001-C "Reactor Trip Response" is in progress with Pzr level at 20% and 40 degrees RCS subcooling. Both are stable.**
- B. 19030-C "Steam Generator Tube Rupture", is in progress.
- C. Following an SI, a yellow path on "Inventory" is present at step 1 of 19010-C "Loss of Reactor or Secondary Coolant", but the USS has made the decision not to implement the FRP at this time.
- D. Total ECCS flow 2000 gpm

LO-LP-37002-12

State the intent of and entry conditions for EOP 19005, Rediagnosis.

Not an EOP-only objective. The EOP-only objective states Pzr-only is the objective option to only EOP.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

69. WE03EK3.3 001

The following Unit 1 conditions exist:

- A Small Break LOCA has occurred
- A reactor trip and SI has occurred.
- Operators have entered 19012-C "Post-LOCA Cooldown and Depressurization."
- At Step 11 the operators are directed to "Check RCS subcooling based on CETCs greater than 24°F (38°F)."

Which ONE of the following describes the reason subcooling is checked to be above this value?

- A. To determine if RCPs must be stopped
- B. To determine if RCS depressurization can commence.
- C. To allow normal charging to be aligned
- D. To allow the SI signal needs to be reset

K/A

WE03 LOCA Cooldown - Depress.

EK3.3 Knowledge of the reasons for the following responses as they apply to the (LOCA Cooldown and Depressurization): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.

K/A MATCH ANALYSIS

Question tests reasons for control manipulations during an emergency. A scenario is given to place the operator in the right frame of mind at a particular procedure step, but question is memory level because it is simple recall of the basis for an action.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect, Subcooling is checked to determine if RCPs can be started.
- B. Correct, Subcooling is checked to determine if the RCS can be depressurized.
- C. Incorrect, Subcooling for aligning normal charging is 31°F(46°F).
- D. Incorrect, The SI is reset at step 1 of this procedure and is not determined by subcooling.

REFERENCES

Vogtle Bank Question # LO-OR-37112-01 Need to obtain a Licensee Objective when the Lesson plans are received. VEGP 19012-C Rev 26.1 page 9 of 33.
WOG Background document Rev 1C page 109 Step Description for ES-1.2.

QUESTIONS REPORT
for Voglte 2005-301 Draft

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B C C A A C D A D A Scramble Range: A - D
Tier: 1 Group: 2
Key Word: LOCA COOLDOWN DEPRES Cog Level: MEM 3.9
Source: B Exam: VG05301
Test: R Author/Reviewer: GWL/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

69. WE03EK3.3 001

The following Unit 1 conditions exist:

- A Small Break LOCA has occurred
- A reactor trip and SI has occurred.
- Operators have entered 19012-C "Post-LOCA Cooldown and Depressurization."
- At Step 11 the operators are directed to "Check RCS subcooling based on CETCs greater than 24°F (38°F)."

Which ONE of the following describes the reason subcooling is checked to be above this value?

- A. To determine if RCPS must be stopped
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K/A

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QUESTIONS REPORT
for Voglte 2005-301 Draft

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B C C A A C D A D A Scramble Range: A - D
Tier: 1 Group: 2
Key Word: LOCA COOLDOWN DEPRES Cog Level: MEM 3.9
Source: B Exam: VG05301
Test: R Author/Reviewer: GWL/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE03EK3.3 001

The following Unit 1 conditions exist:

- A Small Break LOCA has occurred
- A reactor trip and SI has occurred.
- Operators have entered 19012-C "Post-LOCA Cooldown and Depressurization."
- At Step 10 the operators are directed to "Check RCS subcooling based on CETCs greater than 24°F (38°F)."

Which ONE of the following describes the reason subcooling is checked to be above this value?

- A. To determine if RCPS must be stopped
- B. To determine if RCS depressurization can commence.
- C. To allow normal charging to be aligned
- D. To allow the SI signal needs to be reset

K/A

WE03 LOCA Cooldown - Depress.

EK3.3 Knowledge of the reasons for the following responses as they apply to the (LOCA Cooldown and Depressurization): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.

K/A MATCH ANALYSIS

Question tests reasons for control manipulations during an emergency. A scenario is given to place the operator in the right frame of mind at a particular procedure step, but question is memory level because it is simple recall of the basis for an action.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect, Subcooling is checked to determine if RCPs can be started.
- B. Correct, Subcooling is checked to determine if the RCS can be depressurized.
- C. Incorrect, Subcooling for aligning normal charging is 31°F(46°F).
- D. Incorrect, The SI is reset at step 1 of this procedure and is not determined by subcooling.

REFERENCES

Vogtle Bank Question # LO-OR-37112-01 Need to obtain a Licensee Objective when the Lesson plans are received. VEGP 19012-C Rev 26.1 page 9 of 33.
WOG Background document Rev 1C page 109 Step Description for ES-1.2.

QUESTIONS REPORT
for Voglte 2005-301 Draft

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B C C A A C D A D A Scramble Range: A - D
Tier: 1 Group: 2
Key Word: LOCA COOLDOWN DEPRES Cog Level: MEM 3.9
Source: B Exam: VG05301
Test: R Author/Reviewer: GWL/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE03EK3.3 001

- A Small Break LOCA has occurred on Unit 1
- A reactor trip and SI has occurred.
- Operators have entered 19012-C "Post-LOCA Cooledown and Depressurization."
- At step the 10 operators are directed to "Check RCS subcooling based on CETCs greater than 24°F (38°F).

Which ONE of the following describes the reason subcooling is checked to be above this value?

- A. To determine if RCPS must be stopped
- B. To determine if RCS depressurization can commence.
- C. To allow normal charging to be aligned
- D. To allow the SI signal needs to be reset

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

When the low steamline pressure SI/SLI signal is blocked, main steamline isolation will occur if the high steam pressure rate setpoint is exceeded.

* 9. Check if low steamline pressure SI/SLI should be blocked:

a. PRZR pressure - LESS THAN 2000 PSIG.

a. WHEN PRZR pressure is less than 2000 PSIG and the high steam pressure rate alarms are clear, THEN block low steamline pressure SI/SLI by performing step 9c.

b. High steam pressure rate alarms - CLEAR

c. Block low steamline pressure SI/SLI by performing the following:

- Momentarily place HS-40068 in the BLOCK position,
- Momentarily place HS-40069 in the BLOCK position.

10. Check RCS subcooling - GREATER THAN 24° F [38° F ADVERSE].

10. Go to Step 23.

STEP DESCRIPTION TABLE FOR ES-1.2

Step 8

STEP: Check RCS Subcooling Based On Core Exit TCs - GREATER THAN (R. 01)°F [(R. 02)°F FOR ADVERSE CONTAINMENT]

PURPOSE: To determine if the RCS is subcooled so that subsequent actions dependent upon subcooling can be performed

BASIS:

If RCS subcooling can be verified, the LOCA is most likely small and controllable, i.e., SI flow equals or exceeds break flow. Subsequent steps that may be allowed include deliberate RCS depressurization, RCP restart, and makeup (SI) flow reduction. If subcooling cannot be verified, the transition to Step 22 bypasses these actions.

Step 8 is contained within the main cooldown loop (Steps 5-32). Consequently, it is possible that subcooling could be verified later as the cooldown continues.

ACTIONS:

Determine if RCS subcooling based on core exit TCs is greater than (R. 01)°F [(R. 02)°F for adverse containment]

INSTRUMENTATION:

- o RCS pressure indication
- o Core exit TCs temperature indication

CONTROL/EQUIPMENT:

N/A

KNOWLEDGE:

N/A

PLANT-SPECIFIC INFORMATION:

- o (R. 01) The sum of temperature and pressure measurement system errors, including allowances for normal channel accuracies, translated into temperature using saturation tables.
- o (R. 02) The sum of temperature and pressure measurement system errors, including allowances for normal channel accuracies and post accident transmitter errors, translated into temperature using saturation tables.



QUESTIONS REPORT
for Voglte 2005-301 Draft

70. WE04EK1.1 001

Which ONE of the following correctly states actions contained in 19112-C, ECA-1.2 LOCA Outside Containment, and reasons for those actions?

- A. Open HV-8802A (SI PMP-A TO HOT LEG 1 & 4 ISO VLV) to provide a flow path for Low Head Safety Injection. Then close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV) and monitor RCS pressure.
- B. Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action does not result in an RCS pressure rise then allow the valve to remain closed because this will allow time for the operators to check Auxiliary Building alarms while the flow path is isolated.
- C. If the leak is not identified and isolated then transition to 19010-C, Loss of Reactor or Secondary Coolant, because RCS inventory will continue to be lost outside of containment.
- D. Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action results in an RCS pressure rise then stop the 'A' RHR Pump.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE04 LOCA Outside Containment

EK1.1 Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems.

K/A MATCH ANALYSIS

The question tests operational implications of closing valves to identify the source of the leak. Therefore, the operational implications of components during a LOCA outside containment are being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. No procedural direction is given to open HV8802A. Plausible because guidance does exist to close HV-8809A.
- B. Incorrect. If pressure does not rise when the valve is closed, then closing the valve did not isolate the leak and the procedure directs the valve to be re-opened. Plausible because guidance does exist to close HV-8809A.
- C. Incorrect. If the leak is not isolated, then the correct action would be to transition to ECA-1.1, Loss of Emergency Coolant Recirculation. Plausible because a LOCA does exist.
- D. Correct. 19112-C, Step 2.

REFERENCES

- 1. Surry 2004-301 Exam Question WE04EK3.2.
- 2. 19112-C, ECA-1.2, LOCA Outside Containment, Rev. 4.1, 11/22/2000.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D C C D B C B B C C	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		LOCA OUTSIDE CONTAIN			Cog Level:		MEM 3.5
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

70. WE04EK1.1.001

Which ONE of the following correctly states actions contained in 19112-C, ECA-1.2 LOCA Outside Containment, and reasons for those actions?

- A. Open HV-8802A (SI PMP-A TO HOT LEG 1 & 4 ISO VLV) to provide a flow path for Low Head Safety Injection. Then close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV) and monitor RCS pressure.
- B. Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action does not result in an RCS pressure rise then allow the valve to remain closed because this will allow time for the operators to check Auxiliary Building alarms while the flow path is isolated.
- C. If the leak is not identified and isolated then transition to 19010-C, Loss of Reactor or Secondary Coolant, because RCS inventory will continue to be lost outside of containment.
- D✓ Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action results in an RCS pressure rise then stop the 'A' RHR Pump.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE04 LOCA Outside Containment

EK1.1 Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems.

K/A MATCH ANALYSIS

The question tests operational implications of closing valves to identify the source of the leak. Therefore, the operational implications of components during a LOCA outside containment are being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. No procedural direction is given to open HV8802A. Plausible because guidance does exist to close HV-8809A.
- B. Incorrect. If pressure does not rise when the valve is closed, then closing the valve did not isolate the leak and the procedure directs the valve to be re-opened. Plausible because guidance does exist to close HV-8809A.
- C. Incorrect. If the leak is not isolated, then the correct action would be to transition to ECA-1.1, Loss of Emergency Coolant Recirculation. Plausible because a LOCA does exist.
- D. Correct. 19112-C, Step 2.

REFERENCES

- 1. Surry 2004-301 Exam Question WE04EK3.2.
- 2. 19112-C, ECA-1.2, LOCA Outside Containment, Rev. 4.1, 11/22/2000.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D C C D B C B B C C	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		LOCA OUTSIDE CONTAIN			Cog Level:		MEM 3.5
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Voglte 2005-301 Draft

1. WE04EK1.1 001

Which ONE of the following correctly states actions contained in 19112-C, ECA-1.2 LOCA Outside Containment, and reasons for those actions?

- A. Open HV-8802A (SI PMP-A TO HOT LEG 1 & 4 ISO VLV) to provide a flow path for Low Head Safety Injection. Then close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV) and monitor RCS pressure.
- B. Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action does not result in an RCS pressure rise then allow the valve to remain closed because this will allow time for the operators to check Auxiliary Building alarms while the flow path is isolated.
- C. If the leak is not identified and isolated then transition to 19010-C, Loss of Reactor or Secondary Coolant, because RCS inventory will continue to be lost outside of containment.
- D✓ Close HV-8809A (RHR PMP-A TO COLD LEG 1 & 2 ISO VLV). If this action results in an RCS pressure rise then stop the 'A' RHR Pump.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE04 LOCA Outside Containment

EK1.1 Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems.

K/A MATCH ANALYSIS

The question tests operational implications of closing valves to identify the source of the leak. Therefore, the operational implications of components during a LOCA outside containment are being tested.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. No procedural direction is given to open HV8802A. Plausible because guidance does exist to close HV-8809A.
- B. Incorrect. If pressure does not rise when the valve is closed, then closing the valve did not isolate the leak and the procedure directs the valve to be re-opened. Plausible because guidance does exist to close HV-8809A.
- C. Incorrect. If the leak is not isolated, then the correct action would be to transition to ECA-1.1, Loss of Emergency Coolant Recirculation. Plausible because a LOCA does exist.
- D. Correct. 19112-C, Step 2.

REFERENCES

1. Surry 2004-301 Exam Question WE04EK3.2.
2. 19112-C, ECA-1.2, LOCA Outside Containment, Rev. 4.1, 11/22/2000.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D C C D B C B B C C	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		LOCA OUTSIDE CONTAIN			Cog Level:		MEM 3.5
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS  Unit <u>COMMON</u>	Procedure No. 19112-C
Date		Revision No. 4.1
		Page No. 1 of 4

EMERGENCY OPERATING PROCEDURE

ECA-1.2 LOCA OUTSIDE CONTAINMENT

PURPOSE

PRB REVIEW REQUIRED

This procedure provides actions to identify and isolate a LOCA outside containment. (Applicable in Modes 1, 2, and 3.)

MAJOR ACTIONS

- ◆ Verify Proper Valve Alignment.
- ◆ Identify and Isolate Break.
- ◆ Check If Break Is Isolated.

ENTRY CONDITIONS

- 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION, Step 32.
- 19010-C, E-1 LOSS OF REACTOR OR SECONDARY COOLANT, Step 13.
- 19005-C, REDIAGNOSIS, Step 4.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

- | | |
|---|---|
| <p>1. Verify proper valve alignment:</p> <p>a. Verify valves in RHR pump suction from RCS - SHUT (use Plant Computer):</p> <ul style="list-style-type: none"> • HV-8701A - RHR PMP-A DOWNSTREAM SUCTION FROM HOT LEG LOOP-1 • HV-8701B - RHR PMP-A UPSTREAM SUCTION FROM HOT LEG LOOP-1 • HV-8702A - RHR PMP-B DOWNSTREAM SUCTION FROM HOT LEG LOOP-4 • HV-8702B - RHR PMP-B UPSTREAM SUCTION FROM HOT LEG LOOP-4 <p>b. Verify RHR pump hot leg injection valve - SHUT:</p> <ul style="list-style-type: none"> • HV-8840 - RHR TO HL ISO VLV <p>c. SI pump hot leg injection valves - SHUT:</p> <ul style="list-style-type: none"> • HV-8802A - SI PMP-A TO HOT LEG 1&4 ISO VLV • HV-8802B - SI PMP-B TO HOT LEG 2&3 ISO VLV | <p>1. Shut valves using QMCB handswitches.</p> <p>b. Dispatch an operator to shut valve:</p> <ul style="list-style-type: none"> • 1-HV-8840 - RHR TO HL ISO VLV (AB-A13) • 2-HV-8840 - RHR TO HL ISO VLV (AB-A18) <p>c. Dispatch an operator to shut valve:</p> <ul style="list-style-type: none"> • 1-HV-8802A - SI PMP-A TO HOT LEG 1&4 ISO VLV (AB-A09) • 2-HV-8802A - SI PMP-A TO HOT LEG 1&4 ISO VLV (AB-A103) • 1-HV-8802B - SI PMP-B TO HOT LEG 2&3 ISO VLV (FHB-A10) • 2-HV-8802B - SI PMP-B TO HOT LEG 2&3 ISO VLV (FHB-A01) |
|---|---|

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

2. Try to identify and isolate
RHR Cold Leg Injection break:

a. Shut RHR PMP-A TO COLD
LEG 1&2 ISO VLV HV-8809A.

b. Check RCS pressure -
RISING.

c. Go to Step 2f.

d. Shut RHR PMP-B TO COLD
LEG 3&4 ISO VLV HV-8809B.

e. Check RCS pressure -
RISING.

f. Stop RHR pump in train
with leak isolated.

g. Go to Step 4.

b. Open RHR PMP-A TO COLD
LEG 1&2 ISO VLV HV-8809A.

Go to Step 2d.

e. Open RHR PMP-B TO COLD
LEG 3&4 ISO VLV HV-8809B.

Go to Step 3.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED3. Try to identify and isolate
SI Cold Leg Injection break:a. Shut SI PMP-A TO COLD LEG
ISO VLV HV-8821A.b. Check RCS pressure -
RISING.

c. Go to Step 3i.

d. Shut SI PMP-B TO COLD LEG
ISO VLV HV-8821B.e. Check RCS pressure -
RISING.

f. Go to Step 3i.

g. Shut COLD LEG INJECTION
FROM SIS HV-8835.h. Check RCS pressure -
RISING.i. Stop SI Pump in train
with leak isolated.

4. Check if break is isolated:

a. Check RCS pressure -
RISING.b. Go to 19010-C, E-1 LOSS
OF REACTOR OR SECONDARY
COOLANT.b. Open SI PMP-A TO COLD LEG
ISO VLV HV-8821A.

Go to Step 3d.

e. Open SI PMP-B TO COLD LEG
ISO VLV HV-8821B.

Go to Step 3g.

h. Open COLD LEG INJECTION
FROM SIS HV-8835.

Go to Step 4.

a. Go to 19111-C, ECA-1.1
LOSS OF EMERGENCY COOLANT
RECIRCULATION.

END OF PROCEDURE TEXT

QUESTIONS REPORT
for Westinghouse 3 Loop Questions

1. WE04EK3.2 001

Which ONE of the following correctly states actions contained in 1-ECA-1.2, LOCA Outside Containment, and the reasons for those actions?

- 19112-C
- HV-8802A, SI PMP-A TO HOT LEG 124 ISO VLV
#V-8802B
- A. Open ~~1-SI-MOV-1890A (LHSI to Hot Leg) or 1-SI-MOV-1890B (LHSI to Hot Leg)~~ to provide a flow path for Low Head Safety Injection. Then close ~~1-SI-MOV-1890C (LHSI to Cold Legs)~~ and monitor RCS pressure. HV-8809A
- HV-8809A
- B. If closing 1-SI-MOV-1890C (LHSI to Cold Legs) does not result in an RCS pressure rise then allow it to remain closed because this will give operators time to check Aux Building alarms while the flow path is isolated.
- 19010-C
- C. If the leak is not identified and isolated then transition to ~~BE-1~~, Loss of Reactor or Secondary Coolant, because RCS inventory is continued to be lost outside of containment.
- HV-8809A, RHR PMP-A TO COLD LEG 122 ISO VLV,
- D. If closing 1-SI-MOV-1890C (LHSI to Cold Legs) results in an RCS pressure rise, ~~then place the LHSI pumps in PTL because their suction valves from the RWST will be closed to isolate potential leak paths.~~ then, stop RHR pump 'A'.

Surry

References:

ND-95.3-LP-21, ECA-1.2 LOCA Outside Containment, Rev. 7
ECA-1.2, LOCA Outside Containment, Rev. 5

Distractor Analysis:

- A. Incorrect because ECA-1.2 does not give any direction to open 1-SI-MOV-1890A & B. These valves should be left in the closed position. This distractor is plausible because ECA-1.2 does give guidance to close 1890C.
- B. Incorrect because if 1-SI-MOV-1890C is closed and RCS pressure is still decreasing, then the leak was not isolated and the valve needs to be re-opened. This is the normal SI flow path and it is important to re-establish this path if closing the valve did not isolate the leak.
- C. Incorrect because if the leak is not isolated, then the correct transition would be to go to 1-ECA-1.1, Loss of Emergency Coolant Recirculation.
- D. Correct because if RCS pressure rises upon closure of 1-SI-MOV-1890C, then the leak was isolated and 1-ECA-1.2 directs the LHSI pumps to be placed in PTL and the suction valves from the RWST to be closed.

WE04

EK3.2: Knowledge of the reasons for the following responses as they apply to the (LOCA Outside Containment): Normal, abnormal, and emergency operating procedures associated with (LOCA Outside Containment).

QUESTIONS REPORT
for Westinghouse 3 Loop Questions

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C B A C D A B C C Scramble Range: A - D
RO Tier: 1 SRO Tier: 1
K/A Value: LOCA OUTSIDE Cog. Level: C/A 3.4/4.0
Source: M Exam: SR04301
Test: R Misc: MAB/SDR



QUESTIONS REPORT
for Vogtle 2005-301 Draft

71. WE08G2.4.20 001

A depressurization of all steam generators is occurring and 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, has just been entered. The turbine driven auxiliary feedwater pump (TDAFWP) is the only source of feedwater available to feed the steam generators.

Per the CAUTION statements of 19121-C, which ONE of the following meets the required actions associated with the TDAFW Pump?

- A. Shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) and HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1).
- B✓ Shut HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 30 gpm of auxiliary feed flow to each steam generator.
- C. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1), and maintain 60 gpm of auxiliary feed flow to only one steam generator.
- D. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 60 gpm of auxiliary feed flow to each steam generator.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE08 RCS Overcooling - PTS

G2.4.20 Knowledge of operational implications of EOP warnings, cautions, and notes.

K/A MATCH ANALYSIS

ECA-2.1 is used in a condition where a rapid cooldown of the RCS occurs with the potential to repressurize. In this condition it is important to maintain a heat sink and avoid SG dryout. PTS mitigation strategies include limiting the cooldown and RCS soak, both of which are linked to the caution statements. (FR-P.1, Response to Pressurized Thermal Shock Condition, also contains the same guidance as is found in ECA-2.1.) The question is memory level because it only requires the knowledge of the caution statements.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See Cautions in ECA-2.1 and FR-P.1. Plausible because feeding SGs when they are blowing down would provide more inventory to further blow down the SG.
- B. Correct. The Caution in ECA-2.1 (Page 2 of 34) requires that if the TDAFWP is the only source of feed, then the steam supply to the TDAFWP should be maintained from one SG. Notice that this Caution is slightly different than the Caution in FR-P.1, which requires maintaining steam to the TDAFWP from at least one SG.
- C. Incorrect. Caution in ECA-2.1 (Page 5 of 34) requires feed flow be maintained to all SG at 30 gpm to prevent SG dryout. Plausible because maintaining both valves open is in agreement with the caution in FR-P.1.
- D. Incorrect. Same as "C" above.

REFERENCES

- 1. LO-LP-37071-04, Pressurized Thermal Shock, Rev. 4, 03/17/1999.
- 2. 19121-C, ECA-2.1, Uncontrolled Depressurization of All Steam Generators, Rev. 23.1.
- 3. 19241-C, FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Rev. 20.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D D D C B D A B A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		PTS MSLB SG DEPRESS			Cog Level:		MEM 3.3
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

19121-C

71. WE08G2.4.20 001

A depressurization of all steam generators is occurring and ECA-2.1, Uncontrolled Depressurization of All Steam Generators, has just been entered. The turbine driven auxiliary feedwater pump (TDAFWP) is the only source of feedwater available to feed the steam generators.

Per the CAUTION statements of ECA-2.1, which ONE of the following meets the required actions associated with the TDAFWP? → Pump

- A. Shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) and HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1).
- B✓ Shut HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 30 gpm of auxiliary feed flow to each steam generator.
- C. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1), and maintain 60 gpm of auxiliary feed flow to only one steam generator.
- D. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 60 gpm of auxiliary feed flow to each steam generator.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE08 RCS Overcooling - PTS

G2.4.20 Knowledge of operational implications of EOP warnings, cautions, and notes.

K/A MATCH ANALYSIS

ECA-2.1 is used in a condition where a rapid cooldown of the RCS occurs with the potential to repressurize. In this condition it is important to maintain a heat sink and avoid SG dryout. PTS mitigation strategies include limiting the cooldown and RCS soak, both of which are linked to the caution statements. (FR-P.1, Response to Pressurized Thermal Shock Condition, also contains the same guidance as is found in ECA-2.1.) The question is memory level because it only requires the knowledge of the caution statements.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See Cautions in ECA-2.1 and FR-P.1. Plausible because feeding SGs when they are blowing down would provide more inventory to further blow down the SG.
- B. Correct. The Caution in ECA-2.1 (Page 2 of 34) requires that if the TDAFWP is the only source of feed, then the steam supply to the TDAFWP should be maintained from one SG. Notice that this Caution is slightly different than the Caution in FR-P.1, which requires maintaining steam to the TDAFWP from at least one SG.
- C. Incorrect. Caution in ECA-2.1 (Page 5 of 34) requires feed flow be maintained to all SG at 30 gpm to prevent SG dryout. Plausible because maintaining both valves open is in agreement with the caution in FR-P.1.
- D. Incorrect. Same as "C" above.

REFERENCES

- 1. LO-LP-37071-04, Pressurized Thermal Shock, Rev. 4, 03/17/1999.
- 2. 19121-C, ECA-2.1, Uncontrolled Depressurization of All Steam Generators, Rev. 23.1.
- 3. 19241-C, FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Rev. 20.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D D D C B D A B A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		PTS MSLB SG DEPRESS			Cog Level:		MEM 3.3
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE08G2.4.20 001

A depressurization of all steam generators is occurring and ECA-2.1, Uncontrolled Depressurization of All Steam Generators, has just been entered. The turbine driven auxiliary feedwater pump (TDAFWP) is the only source of feedwater available to feed the steam generators.

Per the CAUTION statements of ECA-2.1, which ONE of the following meets the required actions associated with the TDAFWP?

- A. Shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) and HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1).
- B✓ Shut HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 30 gpm of auxiliary feed flow to each steam generator.
- C. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1), and maintain 60 gpm of auxiliary feed flow to only one steam generator.
- D. Do not shut HV-3009 (LP-1 MS SPLY TO AUX FW TD PMP-1) or HV-3019 (LP-2 MS SPLY TO AUX FW TD PMP-1) and maintain 60 gpm of auxiliary feed flow to each steam generator.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE08 RCS Overcooling - PTS

G2.4.20 Knowledge of operational implications of EOP warnings, cautions, and notes.

K/A MATCH ANALYSIS

ECA-2.1 is used in a condition where a rapid cooldown of the RCS occurs with the potential to repressurize. In this condition it is important to maintain a heat sink and avoid SG dryout. PTS mitigation strategies include limiting the cooldown and RCS soak, both of which are linked to the caution statements. (FR-P.1, Response to Pressurized Thermal Shock Condition, also contains the same guidance as is found in ECA-2.1.) The question is memory level because it only requires the knowledge of the caution statements.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See Cautions in ECA-2.1 and FR-P.1. Plausible because feeding SGs when they are blowing down would provide more inventory to further blow down the SG.
- B. Correct. The Caution in ECA-2.1 (Page 2 of 34) requires that if the TDAFWP is the only source of feed, then the steam supply to the TDAFWP should be maintained from one SG. Notice that this Caution is slightly different than the Caution in FR-P.1, which requires maintaining steam to the TDAFWP from at least one SG.
- C. Incorrect. Caution in ECA-2.1 (Page 5 of 34) requires feed flow be maintained to all SG at 30 gpm to prevent SG dryout. Plausible because maintaining both valves open is in agreement with the caution in FR-P.1.
- D. Incorrect. Same as "C" above.

REFERENCES

- 1. LO-LP-37071-04, Pressurized Thermal Shock, Rev. 4, 03/17/1999.
- 2. 19121-C, ECA-2.1, Uncontrolled Depressurization of All Steam Generators, Rev. 23.1.
- 3. 19241-C, FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Rev. 20.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D D D C B D A B A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		PTS MSLB SG DEPRESS			Cog Level:		MEM 3.3
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB



VOGTLE ELECTRIC GENERATING PLANT

TRAINING LESSON PLAN

TITLE: Pressurized Thermal Shock NUMBER: LO-LP-37071-04

PROGRAM: Licensed Operator REVISION: 4

SME: Perry Tucker DATE: March 17, 1999

APPROVED: **D. Scukanec** DATE: 3/23/99

INSTRUCTOR GUIDELINES:

I. FORMAT

- A. Verbal lecture with visual aids

II. MATERIALS

- A. Overhead projector
- B. Transparencies
- C. White board with markers

III. EVALUATION

- A. Oral or written exam in conjunction with other lesson plans

IV. REMARKS

- A. Ensure students have latest revision of EOP

- B. Performance-based instructional units (IUs) are attached to the lesson plan as student handouts. After the lecture on Pressurized Thermal Shock, the student should be given adequate self-study time for the IUs. The instructor should direct self-study activities and be available to answer questions that may arise concerning the IU material. After self-study, the student will perform, simulate, observe, or discuss (as identified on the cluster signoff criteria list) the task covered in the instructional unit in the presence of an evaluator.

III. LESSON OUTLINE:	NOTES
<ul style="list-style-type: none"> a. Guidelines try to avoid PTS conditions b. If PTS occurs, guidance provided to prevent or limit possible vessel damage and return to "normal" condition 	
<ul style="list-style-type: none"> 2. Integrity, CSF is strictly concerned with the reactor vessel <ul style="list-style-type: none"> a. Red path means that a flaw <u>may</u> grow, without corrective action 	LO-TP-37071-003
<ul style="list-style-type: none"> 3. Action involved to prevent/mitigate PTS <ul style="list-style-type: none"> a. Try to stop cooldown b. Minimize cooldown rate c. Reduce and stabilize pressure d. RCS temperature soak 	Objective 4
<ul style="list-style-type: none"> 4. Intent of 19241-C <ul style="list-style-type: none"> a. Provide actions to avoid or limit thermal shock or pressurized thermal shock to the reactor pressure vessel or overpressure conditions at low temperatures b. Objective is to limit or prevent potential flaw growth <ul style="list-style-type: none"> 1) Right of limit A - no growth expected 2) Left of limit A - limit growth 	Objective 5
<ul style="list-style-type: none"> 1) Right of limit A - no growth expected 2) Left of limit A - limit growth 	LO-TP-37071-004
<ul style="list-style-type: none"> D. Major Action Steps of 19241 <ul style="list-style-type: none"> 1. Stop RCS cooldown <ul style="list-style-type: none"> a. Identify source of CD b. Terminate or limit the CD c. Cold leg temperatures best indication of downcomer temps 2. Terminate SI if criteria satisfied <ul style="list-style-type: none"> a. SI flow - significant contribution to any cold leg temp decrease or overpressure condition if RCS is intact b. Less restrictive criteria than other SI termination steps in the ORG's 	Objective 6 Note: ensure students know <u>how</u> to perform each step of procedure

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS		Procedure No. 19121-C
Date			Revision No. 23.1
	Unit <u>COMMON</u>		Page No. 1 of 34

EMERGENCY OPERATING PROCEDURE

ECA-2.1 UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS

PURPOSE

PRB REVIEW REQUIRED

This procedure provides actions for a loss of secondary coolant which affects all steam generators. (Applicable in Modes 1, 2, 3, and 4.)

MAJOR ACTIONS

- ◆ Reestablish Any Secondary Pressure Boundary.
- ◆ Control Feed Flow.
- ◆ Terminate SI Flow.
- ◆ Cool Down and Place RHR System in Operation.
- ◆ Cool Down to Cold Shutdown Conditions.

ENTRY CONDITIONS

- 19005-C, ES-0.0 REDIAGNOSIS, Step 1.
- 19020-C, E-2 FAULTED STEAM GENERATOR ISOLATION, Step 2.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION:

If the TDAFW pump is the only source of feed flow, steam supply to the TDAFW should be maintained from one SG.

Notice that this Caution is different than the FR-P.1 Caution.

NOTE:

Foldout page should be continuously monitored and applicable actions taken.

1. Check SGs secondary pressure boundaries:

a. Following valves - SHUT:

- MSIVs
- MFIVs
- BFIVs
- MFRVs
- BFRVs

1. Shut valves.

IF valves can NOT be shut:
THEN dispatch operator to shut valves, one loop or train at a time by:

a. Momentarily open breakers:

UNIT 1

TRAIN A

- 1AD12-08
(CB-B52)

TRAIN B

- 1BD12-08
(CB-B47)

UNIT 2

TRAIN A

- 2AD12-08
(CB-B29)

TRAIN B

- 2BD12-08
(CB-B36)

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

(Step 1 continued from previous page)

b. BSIVs - SHUT.

b. Momentarily open breakers:

UNIT 1TRAIN ATRAIN B

- 1AD12-03
(CB-B52)

- 1BD12-03
(CB-B47)

UNIT 2TRAIN ATRAIN B

- 2AD12-03
(CB-B29)

- 2BD12-03
(CB-B36)

Reopen RMW isolation valves, HV-7760A and HV-7760B.

c. SG Blowdown and sampling isolation valves - SHUT.

c. Momentarily open breakers:

UNIT 1TRAIN ATRAIN B

- 1AD11-08
(CB-B52)

- 1BD11-08
(CB-B47)

- 1AD12-14
(CB-B52)

- 1BD12-14
(CB-B47)

UNIT 2TRAIN ATRAIN B

- 2AD11-08
(CB-B29)

- 2BD11-08
(CB-B36)

- 2AD12-14
(CB-B29)

- 2BD12-14
(CB-B36)

At the discretion of the Unit Shift Supervisor, open FIRE PROT HDR CNMT ISOL HV-27901.

d. SG ARVs - SHUT.

d. Locally shut SG ARV isolation valves.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

(Step 1 continued from previous page)

e. TDAFW pump steam supply
valves - SHUT:

- HV-3009
- HV-3019

e. Locally shut valves.

-OR-

Locally shut isolation
valves:

UNIT 1

- 1-1301-U4-005
(for 1-HV-3009)
(AB-108)
- 1-1301-U4-007
(for 1-HV-3019)
(EB-123/North Main
Steam Valve Room)

UNIT 2

- 2-1301-U4-005
(for 2-HV-3009)
(AB-159)
- 2-1301-U4-007
(for 2-HV-3019)
(EB-122/North Main
Steam Valve Room)

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

Feed flow should be maintained at 30 gpm to each SG to provide minimum feed flow to prevent SG dryout with an NR level of less than 10% [32% ADVERSE].

NOTE:

Shutdown margin should be monitored during RCS cooldown.

* 2. Control feed flow to minimize RCS cooldown:

a. Check cooldown rate in RCS cold legs - LESS THAN 100° F/HR.

b. Check NR level in all SGs - LESS THAN 65%.

c. Check RCS WR hot leg temperatures - STABLE OR LOWERING.

a. Lower feedflow to 30 gpm to each SG.

Go to Step 2c.

b. Control feed flow to maintain NR level in all SGs at less than 65%.

c. Control feed flow or dump steam to stabilize RCS WR hot leg temperatures.

NOTE:

Seal injection flow should be maintained to all RCPs.

* 3. Check if RCPs should be stopped:

a. ECCS pumps - AT LEAST ONE RUNNING:

- CCPs or SI pumps

b. RCP trip parameter - RCS PRESSURE LESS THAN 1375 PSIG.

c. Stop all RCPs.

a. Go to Step 4.

b. Go to Step 4.

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS 	Procedure No. 19241-C
Date		Revision No. 20
Unit <u>COMMON</u>		Page No. 1 of 30

EMERGENCY OPERATING PROCEDURE

FR-P.1 RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION

PURPOSE

PRB REVIEW REQUIRED

This procedure provides actions to avoid, or limit, thermal shock or pressurized thermal shock to the reactor pressure vessel, or overpressure conditions at low temperature. (Applicable in Modes 1, 2, 3, and 4.)

MAJOR ACTIONS

- ◆ Stop RCS Cooldown
- ◆ Terminate SI if Criteria Satisfied
- ◆ Depressurize RCS to Minimize Pressure Stress
- ◆ Establish Normal Operating Conditions and Stable RCS Conditions
- ◆ Soak if Necessary to Further Cooldown

ENTRY CONDITIONS

- 19200-C, F-0.4 INTEGRITY CSFST on a RED or either ORANGE condition.
- 19222-C, FR-C.2 RESPONSE TO DEGRADED CORE COOLING, Step 10

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

- 19231-C, FR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK should be implemented only if a total feed flow capability of 570 gpm is not available at any time during this procedure.
- Switching to alternate CST by initiating 13610, AUXILIARY FEEDWATER SYSTEM will be necessary when CST level lowers to less than 15%.

NOTE:

91001-C EMERGENCY CLASSIFICATION AND IMPLEMENTING INSTRUCTIONS should be implemented at this time.

- | | |
|--|--|
| <p>1. Check RCS WR pressure greater than 300 psig.</p> | <p>1. <u>IF</u> RHR injection flow greater than 500 gpm, <u>THEN</u> return to procedure and step in effect.</p> |
|--|--|

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

- If RWST level lowers to less than 39%, ECCS should be aligned for cold leg recirculation by initiating 19013-C, ES-1.3 TRANSFER TO COLD LEG RECIRCULATION.
- If the TDAFW pump is the only available source of feed flow, steam supply to the TDAFW pump must be maintained from at least one SG.

NOTE:

A faulted SG is any SG that is depressurizing in an uncontrolled manner or is completely depressurized.

* 2. Check RCS WR cold leg temperatures - STABLE OR RISING.

* 2. Try to stop RCS cooldown:

- a. Verify SG ARVs shut.
- b. Verify main steam line isolation and bypass valves shut.
- c. IF RHR system in service, THEN stop any cooldown from RHR system.
- d. Control feed flow to non-faulted SGs to stop RCS cooldown.

Maintain total feed flow greater than 570 gpm until NR level greater than 10% (32% adverse) in at least one nonfaulted SG.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

(Step 2 continued from previous page)

- e. Minimize cooldown from faulted SGs:
- 1) Close steam supply valves to TDAFW pump from faulted SG:
 - HV-3009 - LP-1 MS SPLY TO AUX FW TD PMP-1
 - HV-3019 - LP-2 MS SPLY TO AUX FW TD PMP-1
 - 2) IF all SGs faulted, THEN control feed flow at 30 gpm to each SG.
 - 3) IF any faulted SG NOT necessary for RCS temperature control, THEN isolate all feedwater to faulted SG(s).

IF a faulted SG is necessary for RCS temperature control, THEN control feed flow at 30 gpm to that SG.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

72. WE09EK2.2 001

Unit 1 has just tripped and operators are performing E-0, Reactor Trip or Safety Injection, Step 21, "VERIFY RCS temperatures," with the following conditions.

- RCS cold leg temperatures are 560 °F and rising
- Condenser vacuum is 27.00 inches of Hg and lowering
- Power supply 1AY1A is de-energized
- Busses 1NAA and 1NAB are de-energized

Which ONE of the following correctly states the required operator action?

- A. With steam dumps in steam pressure mode, turn the PIC-507 potentiometer counter-clockwise.
- B. With steam dumps in steam pressure mode, turn the PIC-507 potentiometer clockwise.
- C. With SG #1 (PV-3000A) and SG #4 (PV-3030A) in manual mode, depress the manual up arrow to dump steam.
- D. With SG #2 (PV-3010A) and SG #3 (PV-3020A) in manual mode, depress the manual up arrow to dump steam.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE09 Natural Circ.

EK2.2 Knowledge of the interrelations between the (Natural Circulation Operations) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A MATCH ANALYSIS

Operation of the SG as a heat sink in order to enhance NC is being tested. Applicant has adequate info to decipher that RCPs are not operating due to loss of busses. Adequate memory level info is given for applicant to decipher that steam dumps are not available and specific power supply information wrt ARVs is not needed (applicant only needs to know which electrical train).

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. No Condensate pumps running - no C-9 interlock for condenser - no stm dumps. Plausible because if applicant does not know that condensate pumps are supplied by the two busses that tripped, then applicant may think this choice is correct.
- B. Incorrect. See "A" above, except potentiometer direction is also wrong.
- C. Incorrect. ARV-3000A and 3030A not available with loss of 1AY1A. Plausible because ARVs are required to dump steam with current plant conditions.
- D. Correct. No condensate pumps are operating, thus the condenser is not available for stm dumps, which requires the use of ARVs with a rising cold leg temp above 557 F. ARV-3010A and 3020A still have power and depressing the UP arrow will open the ARVs.

REFERENCES

- 1. P&ID, 1X3D-AA-C01A, Rev. 20, 13800 v Switchgear 1NAA.
- 2. P&ID, 1X3D-AA-C02A, Rev. 11, 13800 v Switchgear 1NAB.
- 3. V-LO-TX-07101, Circulating Water, Rev. 2.
- 4. V-LO-TX-21101, Main Steam, Rev. 4.0.
- 5. V-LO-TX-28101, RPS-SSPS-AMSAC, Rev. 3.
- 6. 19000-C, E-0 Reactor Trip or Safety Injection, Rev. 29.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D A B D C D B B C A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		NC NATURAL CIRC ARV			Cog Level:		C/A 3.6
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

72. WE09EK2.2 001

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- Power supply 1AY1A is de-energized
- Busses 1NAA and 1NAB are de-energized

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- A. With steam dumps in steam pressure mode, turn the PIC-507 potentiometer counter-clockwise.
- B. With steam dumps in steam pressure mode, turn the PIC-507 potentiometer clockwise.
- C. With SG 1 (^{# PV} ~~ARV-3000A~~) and SG 4 (^{# PV} ~~ARV-3030A~~) in manual mode, depress the manual up arrow to dump steam.
- D ✓ With SG 2 (^{# PV} ~~ARV-3010A~~) and SG 3 (^{# PV} ~~ARV-3020A~~) in manual mode, depress the manual up arrow to dump steam.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE09 Natural Circ.

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Operation of the SG as a heat sink in order to enhance NC is being tested. Applicant has adequate info to decipher that RCPs are not operating due to loss of busses. Adequate memory level info is given for applicant to decipher that steam dumps are not available and specific power supply information wrt ARVs is not needed (applicant only needs to know which electrical train).

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- 3. V-LO-TX-07101, Circulating Water, Rev. 2.
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					Answer:	D A B D C D B B C A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		NC NATURAL CIRC ARV			Cog Level:		C/A 3.6
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE09FK2.2 001

Unit 1 has just tripped ~~due to a loss of busses 1NAA and 1NAB~~ and operators are performing E-0, Reactor Trip or Safety Injection, Step 21, "VERIFY RCS temperatures," with the following conditions.

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- Condenser vacuum is 27.00 inches of Hg
- Power supply 1AY1A is de-energized
- *1NAA and 1NAB are de-energized.*

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- B. With steam dumps in steam pressure mode, turn the PIC-507 potentiometer clockwise.
- C. With ^{SG 1}ARV-3000A and ^{SG 4}3030A in manual mode, depress the manual up arrow to dump steam.
- D With ^{SG 2}ARV-3010A and ^{SG 3}3020A in manual mode, depress the manual up arrow to dump steam.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE09 Natural Circ.

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- 4. V-LO-TX-21101, Main Steam, Rev. 4.0.
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- 6. 19000-C, E-0 Reactor Trip or Safety Injection, Rev. 29.

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					Answer:	D A B D C D B B C A	Scramble Range: A - D
Tier:		i			Group:		2
Key Word:		NC NATURAL CIRC ARV			Cog Level:		C/A 3.6
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

At the base of the tower, a steel bypass pipe and valve are used for cold weather conditions and a de-silting channel is connected to a sump feeding the tower blow down line.

The Circulating Water System loses water continuously through evaporation in the cooling towers and through continuous blow down of the system. Therefore, makeup from River Water System to the Circulating Water System must also be continuous to overcome these losses. Makeup to and losses from the Circulating Water System are:

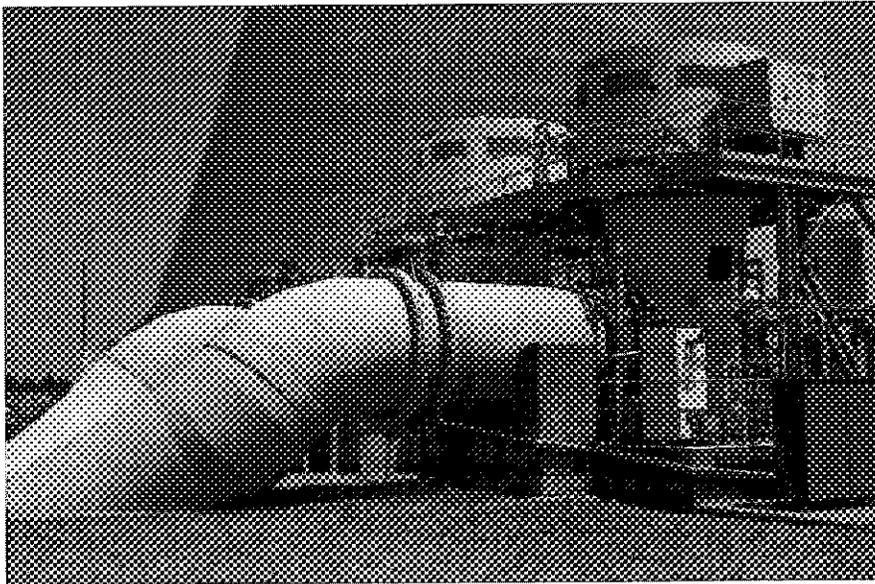
Calculated (gpm at 100% Power) per Unit

Blow down	5,000
Evaporation and Drift Losses	15,000
Makeup (Total)	20,000

2. Circulating Water Pumps

Two circulating water pumps supply the driving head for circulating water through the system. Each circulating water pump is a vertical, single stage, open impeller unit. The two pumps are located at the end of the cooling tower flume in a 35 ft deep pit to achieve the required NPSH. The pump discharge is approximately at ground level and the impeller near the bottom of the pit. The pumps are rated at 242,300 gpm each at a discharge pressure of 41 psig. The pumps power supplies are as follows:

Circ Water Pump 1 - NAB-05 Circ Water Pump 2 - NAA-04



CIRC WATER PUMP

The Circ Water pump casing houses two journal bearings at the lower end. One journal bearing is located on the lower shaft just below the coupling and another journal bearing is in the pump stuffing box area. Injection of clean water via a tap in the stuffing box extension, from the Utility Water System, lubricates all bearings in the pump. A

19. The capacity of one "Main Steam Safety Valve" is _____% of rated steam flow.

Main Steam "Atmospheric Relief Valves":

The Steam Generator power-operated "Atmospheric Relief Valves" (commonly referred to as ARV) provide a means for plant cooldown by discharging steam to the atmosphere when the, Main Condenser or Steam Dump System is not available or Main Steam Isolation Valves are closed for some reason. Under such circumstances, the Atmospheric Relief Valves, in conjunction with the Auxiliary Feedwater System, allow for primary temperature to be stabilized following a reactor trip or controlled cooldown to the point where the Residual Heat Removal System (RHR) can assume the burden of heat removal.

A power-operated atmospheric relief valve is mounted in the outlet piping from each steam generator. The four valves are installed to provide for controlled removal of reactor decay heat during normal reactor cooldown when the Main Steam Isolation Valves (MSIV) is closed or the Turbine Steam Dump System is not available. The valves will pass sufficient flow at all pressures to achieve a 50 degree per hour plant cooldown rate. The maximum actual capacity of the relief valve at design pressure is limited to reduce the magnitude of a reactor transient if one valve should inadvertently open and remain open, (One valve has capacity to pass 596,000 lb. mass steam flow/hour, which is about **3.75% of full rated steam flow at 100% Reactor Power.**

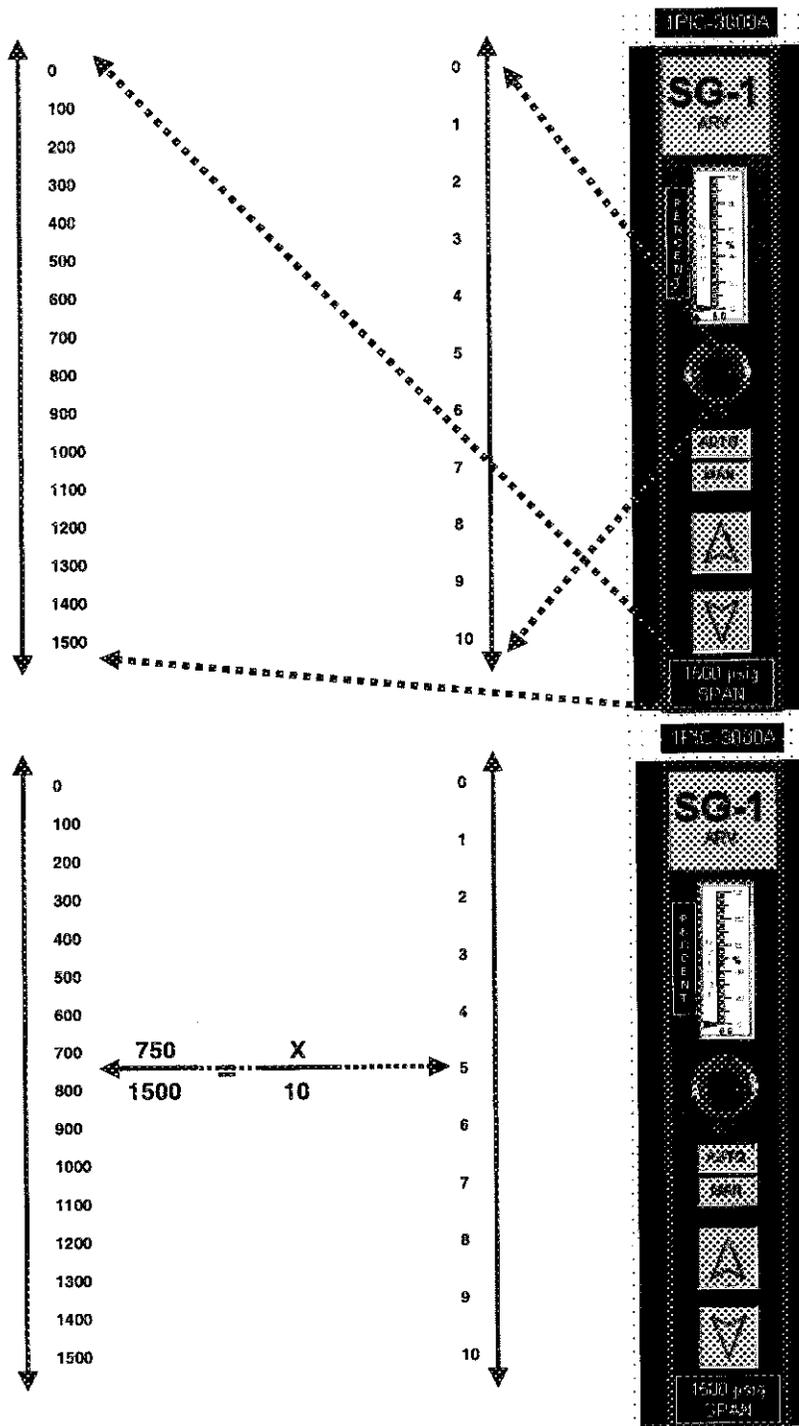
Each power-operated relief valve is located outside of the containment and upstream of the Main Steam Isolation Valves (MSIV) in the Main Steam Valve Rooms. This placement permits valve operation following all accident conditions, including those, which could result in closure of the Main Steam Isolation Valves (MSIV).

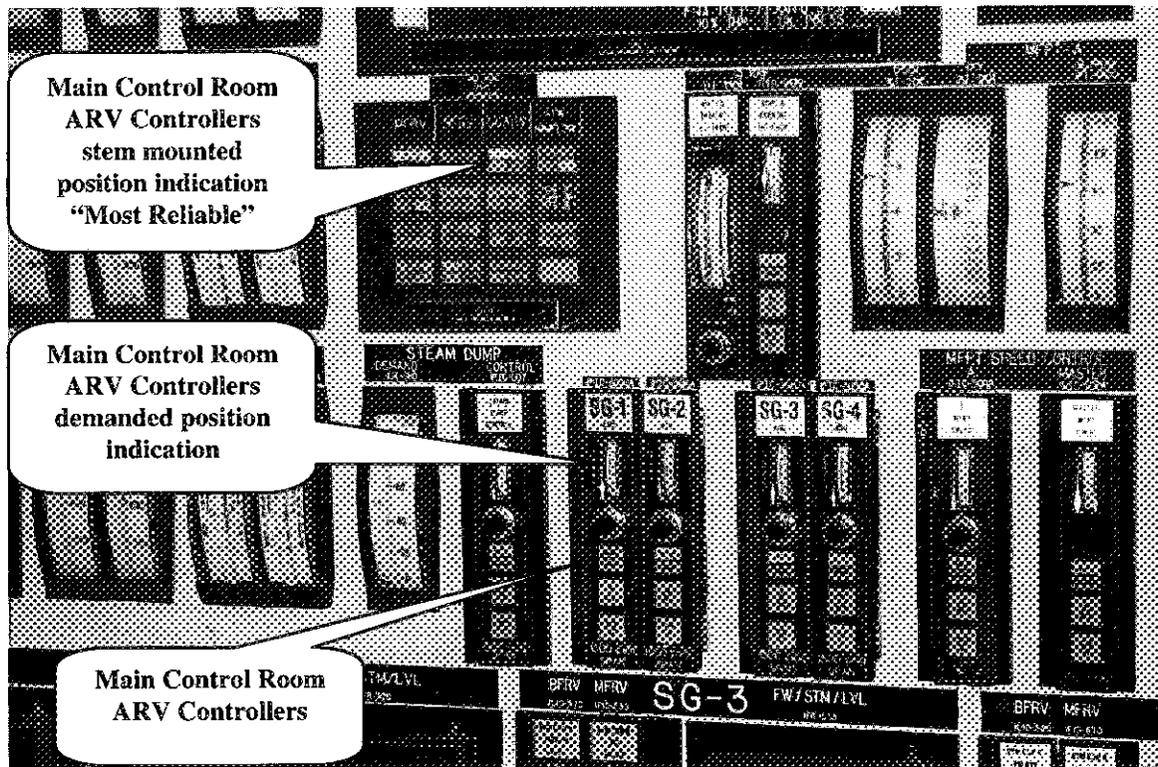
The Atmospheric Relief Valves are electro-hydraulically operated and are powered by Class 1E sources. The capability for remote manual valve operations is provided in the Main Control Room and at the Shutdown Panels. Local manual operators are provided to permit operation of the valves in the event of a complete loss of remote automatic/manual control.

On loss of power and/or signal, the actuator will extend the operator and close the valve.

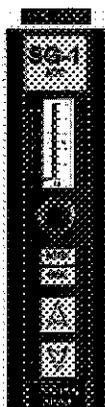
The Atmospheric Relief Valves also serve to prevent operation of the Main Steam Safety Valves during relatively mild transients by opening at a lower set-point. Following Main Steam Safety Valve actuation, the Atmospheric Relief Valves assist the Main Steam Safety Valves to positively reseal by automatically reducing pressure to a value below the necessary Main Steam Safety Valve reseating pressure. The operation of each Atmospheric Relief Valve is controlled from a pressure tap on the associated Steam Generator main steam line. This piping connection is separate from the other steam piping pressure taps, which are used for reactor protection.

Setting the ARV potentiometer:





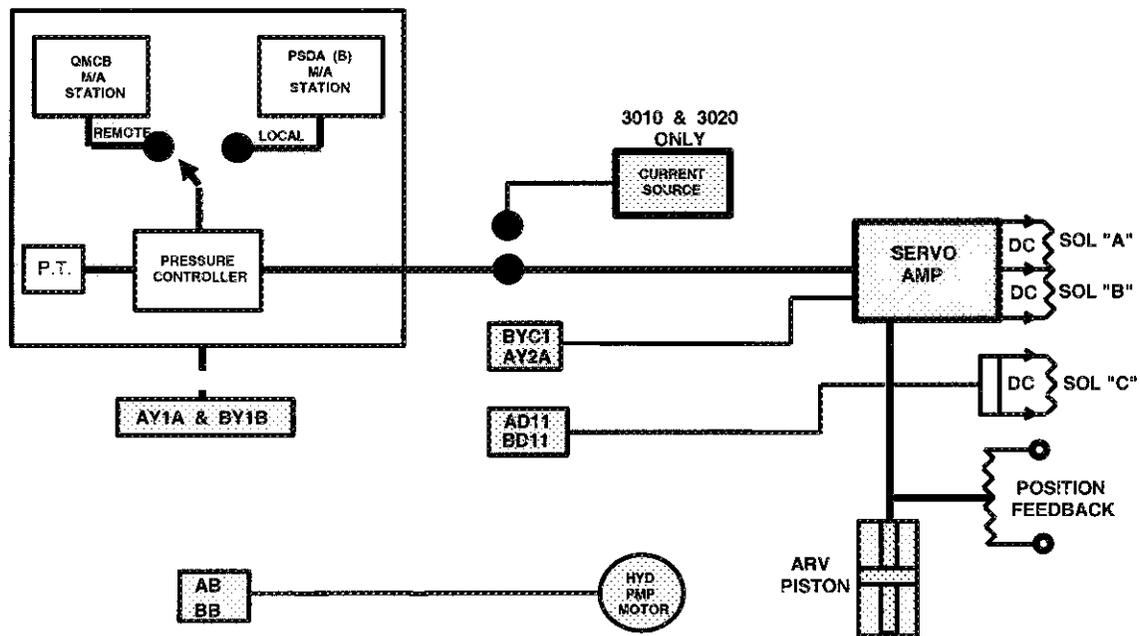
Each Atmospheric Relief Valve has its own Hagan Controller located on the "B" panel in the Main Control Room. The Controller is normally set using a 0 to 10 turn potentiometer with a scale range of 0 to 1500 psig. During normal plant operations the pot is set at 7.47 (UOP guidance) which corresponds to 1125 psig and will control Reactor Coolant temperature at 560°F.



In "Automatic operation" ARV controller compares steam line pressure from a corresponding dedicated pressure transmitter to the potentiometer set-point entered by the operator. If the Main Steam line pressure exceeds the set-point the ARV will throttle open to reduce pressure. In "Manual operation" the operator depresses the "UP" arrow to open the ARV for more steam flow, and the "DOWN" arrow to close the ARV to lower steam flow. The ARV is placed in the automatic control position by depressing the "AUTO/MAN" pushbutton and is placed in manual control either by depressing the "UP" or "DOWN" arrow pushbuttons. One common error the instructors see with Hagan controllers (ARV as an example) is that the students will use the demanded position as the actual component position, which may not be the case. Good operating practice is to always use redundant indications for any operation you perform, checking for the desired results.

Loss of one of the power supplies to the ARV:

The various components that make up an ARV have several different 1E power supplies, any of which if lost will render the ARV inoperable from its remote control stations. The operators must be aware of this condition in order to be effective when operating the plant in various loss of power scenarios. The loss of power conditions are covered in the "Abnormal Operating Procedures". Below is a list of various power losses commonly seen in the simulator, which will render the ARV inoperable:



ARV CONTROL AND POWER SUPPLY

MAIN STEAM SYSTEM

<p>(1/2)AY1A (1/2)AD1 will also remove power from this bus)</p>	<p>Provides power to 1PIC-3000A and 1PIC-3030A the Main Control Room (QMCB) operator control station (Hagen Controllers). All indication will be lost to the Hagen Controllers and the ARV will not operate in manual or automatic from the Main Control room or Shutdown Panel "A".</p>
<p>(1/2)BY1B (1/2)BD1 will also remove power from this bus</p>	<p>Provides power to 1PIC-3010A and 1PIC-3020A the Main Control Room (QMCB) operator control station (Hagen Controllers). All indication will be lost to the Hagen Controllers and the ARV will not operate in manual or automatic from the Main Control room or Shutdown Panel "B".</p>
<p>(1/2)AY2A (1/2)AD1 will also remove power from this bus</p>	<p>Provides power to the Servo Amp (solenoids "A" and "B") for 1PV-3000 and 1PV-3030 rendering the ARVs inoperable. The ARV will not operate in manual or automatic from the Main Control room or Shutdown Panel "A".</p>
<p>(1/2)BYC1 120 Vac panel on (1/2)BBC</p>	<p>Provides power to the Servo Amp (solenoids "A" and "B") for 1PV-3010 and 1PV-3020 rendering the ARVs inoperable. The ARV will not operate in manual or automatic from the Main Control room or Shutdown Panel "B".</p>
<p>(1/2)ABB</p>	<p>Provides power to the 480 VAC hydraulic pump motor and will render 1PV-3000 and 1PV-3030 inoperable. The accumulator stored energy will take the ARV to the closed position.</p>
<p>(1/2)BBB</p>	<p>Provides power to the 480 VAC hydraulic pump motor and will render 1PV-3010 and 1PV-3020 inoperable. The accumulator stored energy will take the ARV to the closed position.</p>
<p>(1/2)AD11</p>	<p>Provides power to solenoid "C" which is used to recharge the accumulator for 1PV-3000 and 1PV-3030. Loss of this power supply will render the ARV inoperable and result in failing closed.</p>

Permissive status light illuminates on BPLP when C-7 is active

C-9 Condenser available

Set point:

1 / 2 Circ water pump breakers closed with no U/V relays actuated on Circ water pump feeder breaker that is closed and 1 / 2 condenser vacuum sensors in 3 of 3 condensers ≥ 24.92 " Hg vacuum

Function:

Allows steam dump operation

Permissive status light on BPLP when C-9 is active

C-11 Bank D full rod withdrawal

Set point:

220 steps on control Bank D

Function:

Rods will not Auto withdrawal. This prevents rods from continuing to step out past the full rods out position.

Annunciator/alarm when C-11 is active

C-16 Stop turbine loading

Set point:

Auctioneered low Tavg below Tref $\geq 20^\circ\text{F}$, or

Auctioneered low Tavg $\leq 553^\circ\text{F}$

This interlock can be manually bypassed from turbine control panel for testing only.

Function:

This interlock prevents turbine loading from cooling the RCS excessively.

Annunciator/alarm on main control board when C-16 is active, if it has not been bypassed.

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			Page No.
			1 of 33

EMERGENCY OPERATING PROCEDURE

E-0 REACTOR TRIP OR SAFETY INJECTION

PURPOSE

PRB REVIEW REQUIRED

This procedure provides actions to verify proper response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection, to evaluate plant conditions, and to identify the appropriate recovery procedure. (Applicable in modes 1, 2 and 3)

MAJOR ACTIONS

- ◆ Verify Automatic Actions as Initiated by the Protection and Safeguards Systems.
- ◆ Identify Appropriate Optimal Recovery Guideline.
- ◆ Shut Down Unnecessary Equipment and Continue Trying to Identify Appropriate Optimal Recovery Guideline.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

- *21. VERIFY RCS temperatures -
- Any RCP running - VERIFY RCS AVERAGE TEMPERATURE STABLE AT OR TRENDING TO 557° F.
- OR-
- No RCP running - VERIFY RCS COLD LEG TEMPERATURES STABLE AT OR TRENDING TO 557° F.

- *21. IF temperature less than 557° F and lowering, THEN PERFORM the following:
- a. STOP dumping steam.
 - b. IF cooldown continues, THEN LOWER total feed flow.

IF all SG NR levels less than 10% [32% ADVERSE], THEN MAINTAIN total feed flow greater than 570 gpm.
 - c. IF cooldown continues, THEN PERFORM one or more of the following to stop cooldown:
 - TRIP both MFPs.
 - SHUT MSIVs and BSIVs.

IF temperature greater than 557° F and rising, THEN:

 - DUMP steam to condenser.

-OR-

 - DUMP steam using SG ARVs.

WINDOW A01

<u>ORIGIN</u>	<u>SETPOINT</u>
Rly 251X	Not Applicable

CIRC WTR P-1 MOTOR OVERLOAD

1.0 PROBABLE CAUSE

1. Motor overload.
2. Electric fault

2.0 AUTOMATIC ACTIONS

NONE

3.0 INITIAL OPERATOR ACTIONS

CAUTION

If Load must be reduced to maintain vacuum, every effort should be made to maintain the steam dumps closed.

1. INITIATE 18013-C, "Rapid Power Reduction" to rapidly REDUCE load as necessary to maintain condenser vacuum while continuing with the following steps.
2. START additional Mechanical Vacuum Pumps if required.
3. If below 50 percent power and turbine trips, INITIATE 18011-C, "Turbine Trip Below P-9".

SUBSEQUENT OPERATOR ACTIONS

1. ENSURE Circulating Water Pump 2 is running.
 - a. ENSURE C 9 and steam dumps available.

NOTE

If Pump 1 discharge valve does not shut, Pump 2 flow will short cycle and most circ water flow will be lost.

2. CHECK that the Pump 1 discharge valve, 1HV-7244 closes on ZLB-1.
3. DISPATCH an operator to locally check Circulating Water Pump 1 for abnormal conditions.

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Approved By C. H. Williams, Jr.	Vogtle Electric Generating Plant 	Procedure Number 17001-1	Rev 28
Date Approved 1/11/2004	ANNUNCIATOR RESPONSE PROCEDURES FOR ALB 01 ON PANEL 1A1 ON MCB	Page Number 7 of 40	

WINDOW A01
(Continued)

4. DISPATCH an operator to check Switchgear 1NAB05 in the Turbine Building Level 2 Switchgear Room and NOTE which relays picked up.
5. If equipment failure is indicated, INITIATE maintenance as required.
6. If Reactor power is reduced $>15\%$ in a one-hour period, NOTIFY Chemistry to determine iodine activity per Technical Specifications SR 3.4.16.2 (Analysis required complete between 2 and 6 hours.)

5.0 COMPENSATORY OPERATOR ACTIONS

NONE

END OF SUB-PROCEDURE

REFERENCES: 1X3D-BC-B05A, 1X4DB150-1

QUESTIONS REPORT
for Vogtle 2005-301 Draft

73. WE11EK2.2 001

The following Unit 1 conditions exist:

- A primary LOCA outside containment is in progress
- The reactor was tripped and Safety Injection was manually actuated
- 19112-C, ECA-1.2 LOCA Outside Containment, has been completed
- The crew was unable to isolate the leak and they have transitioned to 19111-C, ECA-1.1 Loss of Emergency Coolant Recirculation.

Which ONE of the following choices describes the correct actions to take in 19111-C under these conditions?

- A. Start makeup to the RWST from the boric acid system, shift Containment Cooling Units to fast speed, and initiate RCS cooldown.
- B. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the Spent Fuel Pool.
- C. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the boric acid system.
- D. Start makeup to the RWST from the Spent Fuel Pool, initiate RCS cooldown, and minimize ECCS flow to keep RVLIS full range > 62%.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

WE11 Loss of Emergency Coolant Recirc.

EK2.2 Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A MATCH ANALYSIS

The RWST is providing inventory for heat removal and is relied upon for a longer period of time when emergency coolant recirculation is not available. The question tests knowledge that is required to keep the core covered and maintain a cooling medium for the fuel.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Containment cooling fans are to be verified in slow speed (19111-C, Step 3). Plausible because the other items are correct.
- B. Incorrect. Maintaining subcooling greater than 74 °F is contradictory to Major Actions (19111-C, Page 1). Plausible because the other items are correct.
- C. Incorrect. Maintaining subcooling greater than 74 °F is contradictory to Major Actions (19111-C, Page 1). Plausible because the other items are correct.
- D. Correct. See 19111-C, Page 1, Step 7, Step 9, Step 20

REFERENCES

- 1. 19111-C, Loss of Emergency Coolant Recirculation, Rev. 24.1, 09/18/2002.
- 2. 19112-C, ECA-1.2 LOCA Outside Containment, Rev. 4.1, 11/22/2000.
- 3. Vogtle Bank Question LO-LP-37112-01-08.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D C A A D B B C A B	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		LOSS OF RECIRC			Cog Level:		C/A 3.9
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogite 2005-301 Draft

73. WE11EK2.2 001

The following Unit 1 conditions exist:

- A primary LOCA outside containment is in progress
- The reactor was tripped and Safety Injection was manually actuated
- 19112-C, ECA-1.2 LOCA Outside Containment, has been completed
- The crew was unable to isolate the leak and they have transitioned to 19111-C, ECA-1.1 Loss of Emergency Coolant Recirculation.

Which ONE of the following choices describes the correct actions to take in 19111-C under these conditions?

- A. Start makeup to the RWST from the boric acid system, shift Containment Cooling Units to fast speed, and initiate RCS cooldown.
- B. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the Spent Fuel Pool.
- C. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the boric acid system.
- D✓ Start makeup to the RWST from the Spent Fuel Pool, initiate RCS cooldown, and minimize ECCS flow to keep RVLIS full range > 62%.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

WE11 Loss of Emergency Coolant Recirc.

EK2.2 Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

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Key Word:		LOSS OF RECIRC			Cog Level:		C/A 3.9
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE11EK2.2 001

The following Unit 1 conditions exist:

- A primary LOCA outside containment is in progress
- The reactor was tripped and Safety Injection was manually actuated
- 19112-C, ECA-1.2 LOCA Outside Containment, has been completed
- The crew was unable to isolate the leak and they have transitioned to 19111-C, ECA-1.1 Loss of Emergency Coolant Recirculation.

Which ONE of the following choices describes the correct actions to take in 19111-C under these conditions?

- A. Start makeup to the RWST from the boric acid system, shift Containment Cooling Units to fast speed, and initiate RCS cooldown.
- B. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the Spent Fuel Pool.
- C. Initiate RCS cooldown, establish one train of ECCS flow to maintain subcooling greater than 74 °F, and start makeup to the RWST from the boric acid system.
- D✓ Start makeup to the RWST from the Spent Fuel Pool, initiate RCS cooldown, and minimize ECCS flow to keep RVLIS full range > 62%.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

K/A

WE11 Loss of Emergency Coolant Recirc.

EK2.2 Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A MATCH ANALYSIS

The RWST is providing inventory for heat removal and is relied upon for a longer period of time when emergency coolant recirculation is not available. The question tests knowledge that is required to keep the core covered and maintain a cooling medium for the fuel.

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- A. Incorrect. Containment cooling fans are to be verified in slow speed (19111-C, Step 3). Plausible because the other items are correct.
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- D. Correct. See 19111-C, Page 1, Step 7, Step 9, Step 20

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Tier:		1			Group:		1
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Test:		R			Author/Reviewer:		MAB/RSB

Approval	Vogtle Electric Generating Plant NUCLEAR OPERATIONS 	Procedure No. 19111-C
Date		Revision No. 24.1
Unit <u>COMMON</u>		Page No. 1 of 37

EMERGENCY OPERATING PROCEDURE

ECA-1.1 LOSS OF EMERGENCY COOLANT RECIRCULATION

PURPOSE

PRB REVIEW REQUIRED

This procedure provides actions to restore emergency coolant recirculation capability, to delay depletion of the RWST by adding makeup and reducing outflow, and to depressurize the RCS to minimize break flow. (Applicable in Modes 1, 2, and 3)

MAJOR ACTIONS

- ◆ Continue Attempts to Restore ECR.
- ◆ Increase/Conserve RWST Level.
- ◆ Initiate Cooldown to Cold Shutdown.
- ◆ Depressurize RCS to Minimize RCS Subcooling.
- ◆ Try to Add Makeup to RCS from Alternate Source.
- ◆ Depressurize SGs to Cool Down and Depressurize RCS.
- ◆ Maintain RCS Heat Removal.

ENTRY CONDITIONS

- 19010-C, E-1 LOSS OF REACTOR OR SECONDARY COOLANT, Step 13.
- 19013-C, ES-1.3 TRANSFER TO COLD LEG RECIRCULATION, Steps 4 and 6.
- 19112-C, ECA-1.2 LOCA OUTSIDE CONTAINMENT, Step 4.
- 19005-C, ES-0.0 REDIAGNOSIS, Step 4.
- 19251-C, FR-Z.1 RESPONSE TO HIGH CONTAINMENT PRESSURE, Step 3.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

- If emergency coolant recirculation capability is restored during this procedure, further recovery actions should continue by returning to procedure and step in effect.
- If suction source is lost to any ECCS or CS pump, the pump should be stopped.

* 1. Check emergency coolant recirculation capability - RESTORED:

a. Power available and operable:

TRAIN A

- HV-8811A - CNMT SUMP TO RHR PMP-A SUCTION
- RHR Pump A
- HV-8809A - RHR PMP-A TO COLD LEG 1&2 ISO VLV
- RHR Train A Hx

TRAIN B

- HV-8811B - CNMT SUMP TO RHR PMP-B SUCTION
- RHR Pump B
- HV-8809B - RHR PMP-B TO COLD LEG 3&4 ISO VLV
- RHR Train B Hx

b. CNMT emergency sump levels - greater than or equal to 13.5 inches:

- LI-764

-OR-

- LI-765

* 1. Continue attempts to restore at least one train of recirculation.

WHEN recirculation capability is restored, THEN return to procedure and step in effect.

Continue with Step 2.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

If offsite power is lost after SI reset, action is required to restart the following ESF equipment if plant conditions require their operation:

- RHR pumps
- SI pumps
- Post-LOCA cavity purge units
- Containment Coolers in low speed (Started in high speed on a UV signal)
- ESF Chilled Water Pumps (if CRI reset)

2. Reset SI if necessary.

NOTE:

Step 3 is not applicable to a LOCA outside containment.

3. Verify containment cooling units - RUNNING IN LOW SPEED.

3. Start cooling units in low speed.

NOTE:

A transition to Step 27 should be initiated when RWST level lowers to less than or equal to 10%.

4. Check RWST level - GREATER THAN 10%.

4. Go to Step 27.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE:

Step 5 is not applicable to a LOCA outside containment.

5. Determine containment spray requirements:

a. Check spray pump suction - FROM RWST.

- HV-9017A - CNMT SPRAY
PMP-A RWST SUCT ISO
VLV - OPEN
- HV-9017B - CNMT SPRAY
PMP-B RWST SUCT ISO
VLV - OPEN

a. IF spray pump suction from sump, THEN go to Step 7.

b. Determine number of spray pumps required from Table:

RWST LEVEL	CONTAINMENT PRESSURE	FAN COOLERS IN SLOW	SPRAY PUMPS REQUIRED
GREATER THAN 39%	GREATER THAN 52 PSIG	N/A	2
	BETWEEN 21.5 PSIG AND 52 PSIG	0	2
		4	1
	8	0	
BETWEEN 10% AND 39%	LESS THAN 21.5 PSIG	N/A	0
	GREATER THAN 52 PSIG	N/A	2
		BETWEEN 21.5 PSIG AND 52 PSIG	3
LESS THAN 10%	N/A	6	0
		N/A	0

c. Check spray pumps running - EQUAL TO NUMBER REQUIRED.

c. Reset containment spray. Operate spray pumps and discharge valves as required.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

Step 6 is not applicable to a LOCA outside containment.

- * 6. Check if containment spray should be aligned for recirculation:

- a. Check spray pumps -
RUNNING.
- b. Check containment emergency sump levels - greater than or equal to 13.5 inches:

- LI-764

-OR-

- LI-765

- c. Initiate ATTACHMENT B, CONTAINMENT SPRAY SWITCHOVER FROM INJECTION TO RECIRCULATION.

- a. Go to Step 7.

- b. WHEN containment emergency sump level indicators LI-764 or LI-765 greater than or equal to 13.5 inches, THEN perform Step 6c.

Continue with Step 7.

7. Makeup to RWST as necessary:

- Initiate 13701, BORIC ACID SYSTEM.

-OR-

- Initiate ATTACHMENT A, Makeup From Spent Fuel Pool.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

CAUTION: Switching to alternate CST by initiating 13610, AUXILIARY FEEDWATER SYSTEM will be necessary when CST level lowers to less than 15%.

8. Check intact SG levels:

- | | |
|--|---|
| <p>a. Check NR level - GREATER THAN 10% [32% ADVERSE].</p> <p>b. Control feed flow to maintain NR level between 10% [32% ADVERSE] and 65%.</p> | <p>a. <u>IF</u> all SGs NR levels less than 10% [32% ADVERSE], <u>THEN</u> maintain total feed flow greater than 570 gpm.</p> <p>b. <u>IF</u> NR level in any intact SG continues to rise, <u>THEN</u> stop feed flow to that SG.</p> |
|--|---|

NOTE:

Shutdown margin should be monitored during RCS cooldown.

9. Initiate RCS cooldown to cold shutdown:

- | | |
|---|--|
| <p>a. Maintain cooldown rate in RCS cold legs - LESS THAN 100° F/HR.</p> <p>b. Dump steam to condenser from intact SG(s) using steam dumps.</p> | <p>b. Dump steam from intact SG(s) using SG ARV(s).

<u>IF</u> no intact SG(s) available, <u>THEN</u> use faulted SG(s).</p> |
|---|--|

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

When the low steamline pressure SI/SLI signal is blocked, main steamline isolation will occur if the high steam pressure rate setpoint is exceeded.

*10. Check if low steamline pressure SI/SLI should be blocked:

a. PRZR pressure - LESS THAN 2000 PSIG.

a. WHEN PRZR pressure is less than 2000 psig and the high steam pressure rate alarms are clear, THEN block low steamline pressure SI/SLI by performing step 10c.

b. High steam pressure rate alarms - CLEAR

c. Block low steamline pressure SI/SLI by performing the following:

- Momentarily place HS-40068 in the BLOCK position,
- Momentarily place HS-40069 in the BLOCK position.

11. Check if ECCS is in service: 11. Go to Step 20

- CCPs - ANY RUNNING

-OR-

- BIT NOT ISOLATED

-OR-

- RHR pumps - ANY RUNNING IN INJECTION MODE

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

12. Establish one train of ECCS flow:

- a. CCP - ONLY ONE RUNNING.
- b. SI pump - ONLY ONE RUNNING.
- c. RCS pressure - LESS THAN 300 PSIG.
- d. RHR pump - ONLY ONE RUNNING.

- a. Start or stop a CCP to establish only one pump running.
- b. Start or stop an SI pump to establish only one pump running.
- c. Stop RHR pumps.
Go to Step 13.
- d. Start or stop an RHR pump to establish only one pump running.

13. Verify no backflow from RWST to containment emergency sumps:

- a. CNMT SUMP TO RHR PMP-A SUCTION - SHUT:
 - HV-8811A
- b. CNMT SUMP TO RHR PMP-B SUCTION - SHUT:
 - HV-8811B

- a. If RHR PMP-A is running and containment emergency sump level is less than 13.5 inches, stop RHR PMP-A.

Shut RWST TO RHR PMP-A SUCTION HV-8812A.
- b. If RHR PMP-B is running and containment emergency sump level is less than 13.5 inches, stop RHR PMP-B.

Shut RWST TO RHR PMP-B SUCTION HV-8812B.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

- RCP 4 (preferentially) or RCP 1 should be run to provide normal PRZR spray.
- Spray valves should be shut if the associated RCP 4 or RCP 1 is not running to prevent spray flow leaking through non-isolated spray path.

*14. Check if an RCP should be started:

a. Check all RCPs - STOPPED.

b. Check RCS subcooling based on core exit TCs - GREATER THAN 24°F [38°F ADVERSE].

c. Try to start an RCP using ATTACHMENT D.

a. Stop all but one RCP.

Go to Step 15.

b. Go to step 15

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

*15. Check if ECCS can be terminated:

a. Check RVLIS indication:

- Full range - GREATER THAN 62% - IF NO RCP RUNNING.

-OR-

- Dynamic head range - GREATER THAN 25% - IF ONE RCP RUNNING.

b. Check RCS subcooling based on core exit TCs - GREATER THAN 74°F [88°F ADVERSE].

a. Go to Step 20

b. Establish minimum ECCS flow to remove decay heat. Perform the following:

- 1) Determine minimum ECCS flow required using Figure 1.
- 2) Throttle ECCS flow to minimum value.
- 3) Go to Step 20.

CAUTION: Repositioning Phase A isolation valves may cause radiation problems throughout the plant.

16. Reset containment isolation Phase A.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDCAUTION:

Reestablishing Instrument Air to Containment may result in opening of pressurizer spray valves and unexpected lowering of RCS pressure.

17. Establish instrument air to containment:

- a. Verify instrument air pressure - GREATER THAN 100 PSIG.
- b. Open INSTR AIR CNMT ISO VLV HV-9378 using handswitches HS-9378A and HS-9378B.

- a. Start additional air compressors to establish instrument air pressure greater than 100 psig by initiating 13710, SERVICE AIR SYSTEM.

18. Stop ECCS pumps and place in standby:

- RHR pumps.
- SI pumps.
- All but one CCP.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

Without instrument air available, charging should be established using 13006, CHEMICAL AND VOLUME CONTROL SYSTEM for Safety Grade Charging.

- *19. Establish charging flow:
- a. Ensure CCP alternate miniflow valves in ENABLE PTL position:
 - HV-8508A - CCP-A RV TO RWST ISOLATION
 - HV-8508B - CCP-B RV TO RWST ISOLATION
 - b. Shut BIT DISCH ISOLATION valves:
 - HV-8801A
 - HV-8801B
 - c. Set SEAL FLOW CONTROL HC-0182 to maximum seal flow (HV-0182 - SHUT).
 - d. Open CHARGING TO RCS ISOLATION valves:
 - HV-8105
 - HV-8106
 - e. Establish desired charging flow using HC-0182 and FV-0121.
 - f. Maintain RCP seal injection flow - 8 TO 13 GPM PER RCP.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINED

*20. Verify adequate charging/ECCS flow:

a. Check RVLIS indication:

- Full range - GREATER THAN 62% - IF NO RCP RUNNING.

-OR-

- Dynamic head range - GREATER THAN 25% - IF ONE RCP RUNNING

b. Check core exit TCs - STABLE OR LOWERING.

a. Raise charging/ECCS flow to maintain RVLIS indication as necessary.

b. Raise charging/ECCS flow to maintain TCs stable or lowering.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

The upper head region may void during RCS depressurization if RCPs are not running. This will result in a rapidly rising PRZR level.

*21. Depressurize RCS to reduce break flow:

a. Check RCS Subcooling greater than 34°F [48°F ADVERSE]

b. Depressurize RCS using normal PRZR spray.

c. Check if either of the following conditions satisfied:

- RCS subcooling - BETWEEN 24°F [38°F ADVERSE] AND 34°F [48°F ADVERSE].

-OR-

- PRZR level - GREATER THAN 75% [52% ADVERSE].

d. Stop RCS depressurization.

a. Go to Step 22. OBSERVE NOTE PRIOR TO STEP 22.

b. IF normal spray is NOT available, THEN depressurize RCS using one PRZR PORV.

IF RCS can NOT be depressurized using any PRZR PORV, THEN use auxiliary spray.

c. IF RCS subcooling less than 24°F [38°F ADVERSE], THEN operate ECCS pumps as necessary to restore subcooling.

ACTION/EXPECTED RESPONSERESPONSE NOT OBTAINEDNOTE:

COPS should be armed when RCS WR cold leg temperature is less than 350°F.

22. Check if RHR system should be placed in service:

a. Check the following:

- RCS WR hot leg temperature - LESS THAN 350°F.
- RCS pressure - LESS THAN 350 PSIG.

b. Consult TSC to determine if RHR system should be placed in service by initiating 13011, RESIDUAL HEAT REMOVAL SYSTEM.

a. Go to Step 23.

LO-LP-37112-01-08

Given the following:

- * A primary LOCA outside CNMT
- * The reactor was tripped and SI was manually actuated
- * 19112-C, "LOCA Outside Containment" has been completed
- * Crew has transitioned to 19111-C, "Loss of Emergency Coolant Recirculation" because they were unable to isolate the leak.

Which one of the following choices describes the correct actions to take in 19111-C under these conditions?

- A. Initiate RCS cooldown, verify CNMT cooling units running in low speed, minimize the number CS pumps running based on CNMT and RWST conditions.
- B. Shift CNMT cooling units to fast speed, stop all CS spray pumps and minimize ECCS flow to maintain at least 24 degrees F subcooling.

Step 3 - verify slow speed.

- C. Initiate RCS cooldown, establish one train of ECCS flow to and maintain subcooling > 74 degrees F and start makeup to the RWST.
- ✓ D. **Initiate RCS cooldown, minimize ECCS flow to keep RVLIS full range > 62% and start makeup to the RWST.**

Conflicts with step 21. Conflicts with strategy to limit break flow.

Step 7, 9, and 15

LO-LP-37112-01

Using EOP 19012 as a guide, briefly describe how each step is accomplished.

- C. Initiate RCS cooldown, establish one train of ECCS flow to ~~and~~ maintain subcooling > 74°F and start makeup to the RWST from the Boric Acid System.
- B. Same as 'C' except: start Mkr to RWST from SFP.
- A. Shift CNMT cooling units to fast speed, Initiate ^{R/S} Cooldown, and start mkr to the RWST from the B.A. system.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

74. WE12G2.1.8 001

Operators have entered 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, for Unit 2. While checking steam generator pressure boundaries, the reactor operator noted that Main Feed Isolation Valves (MFIVs) were not closed and could not be closed from the Main Control Room. Main Steam Isolation Valves and Main Feed Regulating Valves were verified to be shut.

Which ONE of the following correctly describes the mitigating actions in accordance with ECA-2.1 that are required to be taken by the operators faced with the open Main Feed Isolation Valves?

- A. Dispatch an operator to take local control of the MFIVs and stroke them shut.
- B. Dispatch an operator to momentarily open breakers 2AD12-08 and 2BD12-08.
- C. Dispatch an operator to locally isolate the air supply to the hydraulic pump on the MFIVs.
- D. Allow the valves to remain open because the Main Feed Regulating Valves and Main Feed Regulating Bypass Valves are closed.

QUESTIONS REPORT
for Vogite 2005-301 Draft

K/A

WE12 Uncontrolled Depressurization of all Steam Generators
G2.1.8 Ability to coordinate personnel activities outside the control room.

K/A MATCH ANALYSIS

The question tests local actions that must be performed during an uncontrolled depress of all SGs. The control room staff must have knowledge of the local actions that are required to be performed in order to have the ability to coordinate the activities. Therefore, the K/A is met because the question tests knowledge that is required in order to have the ability to coordinate activities outside the control room during an uncontrolled depress of all SGs.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See 19121-C, Step 1. Plausible because this is a logical alternative to most valves when they will not operate by normal means from the control room.
- B. Correct. See 19121-C, Step 1.
- C. Incorrect. See 19121-C, Step 1 - brks are to be momentarily opened. Plausible because the hydraulic pump needs air to maintain valves in open position.
- D. Incorrect. See 19121-C, Step 1. Plausible because MFRVs are closed, but procedure still requires that MFRVs be closed.

REFERENCES

- 1. 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, Rev. 23.1, 11/12/2002.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C D A B D A B B A	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		UNCONTROLLED DEPRESS			Cog Level:		MEM 3.8
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

74. WE12G2.1.8 001

Operators have entered 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, for Unit 2. While checking steam generator pressure boundaries, the reactor operator noted that Main Feed Isolation Valves (MFIVs) were not closed and could not be closed from the Main Control Room. Main Steam Isolation Valves and Main Feed Regulating Valves were verified to be shut.

Which ONE of the following correctly describes the mitigating actions in accordance with ECA-2.1 that are required to be taken by the operators faced with the open Main Feed Isolation Valves?

- A. Dispatch an operator to take local control of the MFIVs and stroke them shut.
- B Dispatch an operator to momentarily open breakers 2AD12-08 (~~CB-B52~~) and 2BD12-08 (~~CB-B36~~).
- C. Dispatch an operator to locally isolate the air supply to the hydraulic pump on the MFIVs.
- D. Allow the valves to remain open because the Main Feed Regulating Valves and Bypass Valves are closed.

Feed Reg

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE12 Uncontrolled Depressurization of all Steam Generators
G2.1.8 Ability to coordinate personnel activities outside the control room.

K/A MATCH ANALYSIS

The question tests local actions that must be performed during an uncontrolled depress of all SGs. The control room staff must have knowledge of the local actions that are required to be performed in order to have the ability to coordinate the activities. Therefore, the K/A is met because the question tests knowledge that is required in order to have the ability to coordinate activities outside the control room during an uncontrolled depress of all SGs.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See 19121-C, Step 1. Plausible because this is a logical alternative to most valves when they will not operate by normal means from the control room.
- B. Correct. See 19121-C, Step 1.
- C. Incorrect. See 19121-C, Step 1 - brks are to be momentarily opened. Plausible because the hydraulic pump needs air to maintain valves in open position.
- D. Incorrect. See 19121-C, Step 1. Plausible because MFRVs are closed, but procedure still requires that MFRVs be closed.

REFERENCES

1. 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, Rev. 23.1, 11/12/2002.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C D A B D A B B A	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		UNCONTROLLED DEPRESS			Cog Level:		MEM 3.8
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE12G2.1.8 001

Operators have entered 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, for Unit 2. While checking steam generator pressure boundaries, the reactor operator noted that Main Feed Isolation Valves were not closed and could not be closed from the Main Control Room. Main Steam Isolation Valves and Main Feed Regulating Valves were verified to be shut.

Which ONE of the following correctly describes the mitigating actions that are required to be taken by the operators faced with the open Main Feed Isolation Valves?

- IAW*
- take local control and stroke shut*
- A. Dispatch an operator to manually close valves in the field.
- momentarily*
- B. Dispatch an operator to open breakers 2AD12-08 (CB-B52) and 2BD12-08 (CB-B36) and then re-close the breakers.
- C. Dispatch an operator to open breakers 2AD12-08 (CB-B52) and 2BD12-08 (CB-B36) and leave them in the open position.
- D. Allow the valves to remain open because the Main Feed Regulating valves are closed.
- B/P*

a. Dispatch an operator to locally isolate the air supply to the ~~the~~ hydraulic pump on the MFI V's.

Plausible: If you isolate air they will eventually shut.

QUESTIONS REPORT
for Voglte 2005-301 Draft

K/A

WE12 Uncontrolled Depressurization of all Steam Generators

G2.1.8 Ability to coordinate personnel activities outside the control room.

K/A MATCH ANALYSIS

The question tests local actions that must be performed during an uncontrolled depress of all SGs. The control room staff must have knowledge of the local actions that are required to be performed in order to have the ability to coordinate the activities.

Therefore, the K/A is met because the question tests knowledge that is required in order to have the ability to coordinate activities outside the control room during an uncontrolled depress of all SGs.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. See 19121-C, Step 1. Plausible because this is a logical alternative to most valves when they will not operate by normal means from the control room.
- B. Correct. See 19121-C, Step 1.
- C. Incorrect. See 19121-C, Step 1 - brks are to be momentarily opened. Plausible because the action of opening the breakers will have the desired affect.
- D. Incorrect. See 19121-C, Step 1. Plausible because MFRVs are closed, but procedure still requires that MFRVs be closed.

REFERENCES

1. 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators, Rev. 23.1, 11/12/2002.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C D A B D A B B A	Scramble Range: A - D
Tier:		1			Group:		1
Key Word:		UNCONTROLLED DEPRESS			Cog Level:		MEM 3.8
Source:		N			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

CAUTION: If the TDAFW pump is the only source of feed flow, steam supply to the TDAFW should be maintained from one SG.

NOTE: Foldout page should be continuously monitored and applicable actions taken.

1. Check SGs secondary pressure boundaries:

a. Following valves - SHUT:

- MSIVs
- MFIVs
- BFIVs
- MFRVs
- BFRVs

1. Shut valves.

IF valves can NOT be shut:
THEN dispatch operator to shut valves, one loop or train at a time by:

a. Momentarily open breakers:

UNIT 1

TRAIN A

- 1AD12-08
(CB-B52)

TRAIN B

- 1BD12-08
(CB-B47)

UNIT 2

TRAIN A

- 2AD12-08
(CB-B29)

TRAIN B

- 2BD12-08
(CB-B36)

w/E 12 G 2.1.8

My copy from work @ home

040 Steam Line Rupture – Excessive Heat Transfer

Uncontrolled depressurization of all steam generators – Ability to coordinate personnel activities outside the control room.

Operators have entered 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators for Unit 2. While checking steam generator pressure boundaries, the reactor operator noted that Main Feed Isolation Valves were not closed and could not be closed from the control room. Main Steam Isolation Valves and Main Feed Regulating Valves were verified to be shut.

Which ONE of the following correctly describes the mitigating actions that are required to be taken by the operators faced with the open Main Feed Isolation Valves?

- A. Dispatch an operator to manually close valves in the field.
- B. Dispatch an operator to open breakers 2AD12-08 (CB-B52) and 2BD12-08 (CB-B36) and then re-close the breakers.**
- C. Dispatch an operator to open breakers 2AD12-08 (CB-B52) and 2BD12-08 (CB-B36) and leave them in the open position.
- D. Allow the valves to remain open because the Main Feed Regulating valves are closed.

Distractor Analysis

- A. Incorrect. Plausible because this is a logical alternative to most valves when they will not operate by normal means from the control room.
- B. Correct. See 19121-C, Step 1.
- C. Incorrect. Breakers are only to be momentarily opened.
- D. Incorrect. Plausible because MFRVs are closed, but procedure still requires that the MFRVs be closed.

QUESTIONS REPORT
for Vogtle 2005-301 Draft

75. WE16EK2.1 001

Which ONE of the following correctly describes the automatic actions that occur with respect to a Containment Ventilation Isolation (CVI) signal resulting from a high radiation condition in containment?

- A. Containment purge and containment atmosphere sample lines are isolated.
- B. Containment purge is isolated and electrical penetration area filtration and exhaust system receives a stop signal.
- C. Containment atmosphere sample lines are isolated and the piping penetration area filtration and exhaust system receives a stop signal.
- D. The electrical penetration area and the piping penetration area filtration and exhaust systems receive a stop signal.

K/A

WE16 Containment Radiation

EK2.1 Knowledge of the interrelations between the (High Containment Radiation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A MATCH ANALYSIS

Question tests knowledge associated with the control functions associated with CVI.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. See reference.
- B. Incorrect. Elec Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- C. Incorrect. Pipe Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- D. Incorrect. See "B" and "C" above. Plausible because both rooms are adjacent to containment.

REFERENCES

1. Vogtle ILT Exam Bank, LO-LP-23202-01-03. Used as basis for question.
2. V-LO-TX-32101, Digital Radiation Monitoring System, Rev. 0.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B D C A C C B D A	Scramble Range: A - D
Tier:		1			Group:		2
Key Word:		CONTAINMENT RADIATIO			Cog Level:		MEM 3.0
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

75. WE16EK2.1 001

Which ONE of the following correctly describes the automatic actions that occur with respect to a Containment Ventilation Isolation (CVI) signal resulting from a high radiation condition in containment?

- A. Containment purge and containment atmosphere sample lines are isolated.
- B. Containment purge is isolated and electrical penetration area filtration and exhaust system receives a stop signal.
- C. Containment atmosphere sample lines are isolated and the piping penetration area filtration and exhaust system receives a stop signal.
- D. The electrical penetration area and the piping penetration area filtration and exhaust systems receive a stop signal.

K/A

WE16 Containment Radiation

EK2.1 Knowledge of the interrelations between the (High Containment Radiation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A MATCH ANALYSIS

Question tests knowledge associated with the control functions associated with CVI.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. See reference.
- B. Incorrect. Elec Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- C. Incorrect. Pipe Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- D. Incorrect. See "B" and "C" above. Plausible because both rooms are adjacent to containment.

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Tier:		1			Group:		2
Key Word:		CONTAINMENT RADIATIO			Cog Level:		MEM 3.0
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

QUESTIONS REPORT
for Vogtle 2005-301 Draft

1. WE16EK2.1 001

Which ONE of the following correctly describes the automatic actions that occur with respect to a Containment Ventilation Isolation (CVI) signal resulting from a high radiation condition in containment?

- A. Containment purge and sample lines are isolated. *Containment Atmosphere*
- B. Containment purge is isolated and electrical penetration area filtration and exhaust system receives a stop signal.
- C. Containment *Atmosphere* sample lines are isolated and the piping penetration area filtration and exhaust system receives a stop signal.
- D. The electrical penetration area and the piping penetration area filtration and exhaust systems receive a stop signal.

K/A

WE16 Containment Radiation

EK2.1 Knowledge of the interrelations between the (High Containment Radiation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A MATCH ANALYSIS

Question tests knowledge associated with the control functions associated with CVI.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. See reference.
- B. Incorrect. Elec Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- C. Incorrect. Pipe Pen Room filtration and exhaust not affected by CVI. Plausible because it is partially correct.
- D. Incorrect. See "B" and "C" above. Plausible because both rooms are adjacent to containment.

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1. Vogtle ILT Exam Bank, LO-LP-23202-01-03. Used as basis for question.
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Key Word:		CONTAINMENT RADIATIO			Cog Level:		MEM 3.0
Source:		B			Exam:		VG05301
Test:		R			Author/Reviewer:		MAB/RSB

V-L O-TX-32101
Digital Radiation
Monitoring
System
(DRMS)

NORMAL OPERATIONS

The Digital Radiation Monitoring system is primarily a data acquisition system. It gathers information about plant radiation levels and presents this information in an understandable format to those who must make the decisions based on this data. DRMS allows operators in the main control room to continually monitor the general radiation environment of the plant site and make adjustments to plant operation when needed. Under accident conditions, the radiation data aids the operator in determining the type and extent of the accident. The system also provides similar information to technical support personnel in the Technical Support Center (TSC) and in the Emergency Offsite Facility (EOF) to aid in reducing the radiological consequences of the event.

Although the DRMS is normally operated in the data-acquisition mode (non-interactive mode), the system is also provided with an interactive controls. All interactive tasks (such as testing and recalibrations) are performed by chemistry and I&C personnel.

Chemistry is responsible for performing interactive SRDC and communications console operations, including testing and changing settings. The SRDC and communications console keyboard are normally operated in the disabled (non-interactive) mode: operation of the keyboard will not affect parameters or data currently stored in system memory. To enable the interactive functions of the keyboard, passwords/keys must be used. Chemistry is contacted to perform any keyboard enabled function, such as resetting a high radiation alarm, suppressing an alarm, or setting the time.

The following actions will occur automatically if a high level radiation alarm is actuated on the associated monitor:

- * Containment Vent Effluent (RE-2565A, B, or C) - Containment Ventilation Isolation (CVI); isolation of containment purge and the sample lines for this monitor.
- * Control Room Intake (RE-12116 or 12117) - Control Room Isolation (CRI); places the control room and TSC HVAC in the emergency recirculation mode of operation.
- * Waste Gas Processing System Effluent (ARE-0014) - Isolates gas discharges if a gas release is in progress
- * Fuel Handling Building Effluent (ARE-2532A or B; ARE 2533A or B) - FHB isolation; places the FHB HVAC in the recirculation mode of operation.
- * Waste Liquid Effluent (RE-0018) - Isolates liquid waste release if in progress.
- * Steam Generator Blowdown (RE-0021) - Isolates blowdown
- * Turbine Building Drain (RE-0848) - Re-align TB drains to dirty drain tank.
- * Steam Jet Air Ejector (RE-12839C, D, or E) - Align discharge from direct discharge to environment to discharge through HEPA filter
- * Containment Low Range (RE-0002 or RE-0003) - CVI

LO-LP-23202-01-03

Upon receipt of the CVI signal, initiated by a high containment radiation signal,

- A. **the containment purge and exhaust HVAC isolates.**
- B. the electrical penetration area filtration and exhaust HVAC system stops (in running).
- C. the piping penetration area filtration and exhaust system stops (if running).
- D. the normal auxiliary building supply and exhaust starts (if not running)

LO-LP-23202-01

Describe the sequence of operational events for piping penetration area filtration and exhaust system upon receipt of the CVI signal when initiated by safety injection or by containment high radiation.