

**NRC COMMENTS TO THE PROPOSED
WRITTEN EXAMINATION, ES-401-9
FOR THE DRESDEN INITIAL EXAM - MARCH 2008**

DRESDEN 2008 EXAM

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
1	F	1		X									Y		B	U	LOD=1; since each choice is a single individual, there is only one logical choice. See Q#-48 Question was replaced with another bank question.
2	H	3											Y		B	S	References should include alarm response procedure for "overcurrent" alarm. Key diagram provided is for Unit 3 (question is U2). Switchyard diagram would have been useful also.
3	F	2											N		N	U S	K/A deals with transfer load from the EDG (i.e., isochronous operation of EDG) to the Grid (synchronous or parallel operation). As written question refers paralleling an unloaded EDG with the grid. Following additional discussion with licensee, it was determined that K/A statement was vague enough that existing question was determined to be acceptable.
4	F	2											Y		N	U S	LOK should be H(igher) since applicant has to make a determination of whether reactor will remain shutdown under all conditions without Boron. See question #57. Following discussion with licensee, it was determined that cognitive level should remain F(undamental), since conditions stated in the question are an application of the definition of Shutdown Margin.
5	H	3											Y		B	E	Change 2 nd bullet to indicated level of 80 inches and slowly rising. Revise distracters as follows: 'B' add "since Drywell temperature is above RPV Saturation Temperature"; 'C' add "since indicated Wide Range RPV water level is above the Minimum Usable Indicating Level" and delete second sentence; 'D' change to "NOT accurate and CANNOT be used for trending since indicated Wide Range RPV water level is below the Minimum Usable Indicating Level" Recommended changes were incorporated.
6	F	3											Y		N	E	Specify level instrument range (i.e., wide, medium, narrow, or fuel zone). Specify reactor status or operating mode. Recommended changes were incorporated.

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S7	H	3										Y		N	S	
8	F	2										Y		B	E	<p>Question explanation and procedure reference specify 7380 amps, but distracters 'C' and 'D' state 7350 amps. Verify runback timing.</p> <p>S <i>Following discussion with licensee, the question was determined to be acceptable as is.</i></p> <p>Delete the "later" from last line of stem and revise the distracters to include different amp values.</p>
S9	F	1										Y		B	U	<p>This is a standard watch-standing practice, of which the applicant should be thoroughly familiar with.</p> <p>E <i>With clarification from licensee and with minor changes to the question (stem was revised to specify that Aux NSO was requesting concurrence), the LOD was found to be greater than 1.</i></p> <p>Change distracter 'A'; to "The Unit Supervisor <u>OR</u> Shift Manager"; change distracter 'D' to The Unit Reactor Operator.</p>
S10	F	2				X						Y		B	U	<p>Distracters 'A', 'B', and 'C' are not credible. A rod drift results from failure of the RMCS or CRDM and not RPIS. There are no automatic rod drive signals, therefore 'B' and 'C' would require a failure of RMCS also.</p> <p>E <i>Distracter 'B' was replaced, and minor changes were made to distracters 'A' and 'C'. Due to the minor changes the U(nsatisfactory) status was change to E(nhancement).</i></p>
11	H	2										Y		B	S	
12	H	3					X					Y		B	U	<p>Distracter 'B' is also correct. One of the stated purposes of DEOP is to limit release of radioactivity to secondary containment and thus the environment. Controlling spread of contamination will help mitigate releases.</p> <p>E <i>Distracter 'B' was replaced with an acceptable distracter.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
13	H	3										Y		B	E	Revise the 2 nd part of distracters 'B' and 'D' to read "will be manually". Given the time frame of the question, there has not been adequate time to state that the IC has been initiated. See Q24. Recommended changes were incorporated.
14	F	2										Y		B	S	
15	H	3										Y		B	S	
16	H	3										N		B	U	K/A asks for impact on Secondary Containment radiation/contamination levels not the Turbine Bldg. Question was replaced with a NEW question (i.e., NOT a Bank question).
S17	H	3										Y		B	S	
S18	H	3										Y		B	S	
19	H	2						X				Y	X	B	U	Distracter 'D' pool level needs to be revised to be less than 17 ft. or the TSGs need to be provided. This is an EOP application process, which is a SRO function. Question was revised to test RO ability to plot Torus Temperature versus Torus Level and Reactor Pressure. The decision on whether or not RPV Depressurization is required was removed. As written, replacement question can be answered without reference to suppression pool level. Recommend replacing question.
S20	F	5						X				Y	Y	B	U S	This is a higher order question since it is an application of Tech Spec (TS). This is a TS action and operators are not required to memorize TS actions greater than one hour. The licensee indicated that the applicant is told that thermal limits must be adjusted as required by Technical Specifications and simply asks which limits must be changed. Additionally the action is proceduralized in a station General procedure and supported by a plant specific objective. Question LOD was determined to be less than 5 and question is applicable to a RO.

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S21	H		X										Y		B	E	Since two pumps immediately restart won't there be flow immediately following breaker closure. Question was modified to ask what would be the earliest time that "rated" flow would be achieved.
22	H	2				X									N	U	Distracters 'A', 'C', and 'D' are not credible distracters. Neither parameter in the stem is monitored as an entry condition for DEOP 100. Question is a direct lookup. Question was replaced with a NEW question (i.e., NOT a Bank question).
S23	H	2											Y		B	E	This is Fundamental knowledge of system realignment. A better distracter ('C' or 'D') might be to have "B" HPU continue to run with auto start of "A", and system realignment to Iso/Recirc Recommended change was made.
24	H	2		X									N		N	U	K/A is ability to determine/Interpret Rx Pressure. Question stem gives a current value and rate of change. Question is actually testing knowledge of Isolation-condenser initiation logic which is very similar to question #13, presenting a double jeopardy situation. Question was replaced with a NEW question (i.e., NOT a Bank question).
S25	H	2	X						X?				Y		B	U	Look a licensee's objective to ensure that this is applicable to a RO. At 100 psig, coolant temperature and flange temperature wouldn't even be on the curve. A loss of shutdown cooling would result in a heatup (i.e., away from the limit). Additionally, per curve, the minimum is 83°F. (typo in References – Tables should be Figures). Reword: From the following, which one is the lowest temperature that will not exceed the Technical Specification LCO limit? A new ability statement was selected the same K/A catalog stem statement (A2) and a new question inserted. Since the same K/A Catalog stem statement was used, no change to the 401-1 category column was necessary.
26	H	2											Y		B	S	Additional reference – EP-AA-113, Personnel Protective Actions

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
27	F	2										Y		B	E	Insert the following "...list of the RWCU valves..." Recommended change was made.
28	F H	3										Y		B	E	LOK should be H(igher) since applicant must know that the UPS is powered from Bus 39 then realize that it has a bump-less transfer. LOK was changed to H(igher)
29	F	2										N		N	U	Selected K/A is related to notification of plant personnel due to changing plant conditions (e.g., pump starts, reactor trip, etc.) Question was replaced with a NEW question (i.e., NOT a Bank question).
30	F	3										N		B	U E	Selected K/A is related to the FACILITY license and not operator licenses. Due to question content, it was decided to retain the question and select a matching K/A statement from the same "Generic" category. Since the same "Generic" category was used, no change to the 401-1 category column was necessary.
S31	F	2					X					Y		B	U	Distracters 'A' and 'C' are partial answers. Due to inability to develop an appropriate question for the selected K/A statement, a new K/A statement was selected from the same "Generic" category and a new question was inserted. Since the same "Generic" category was used, no change to the 401-1 category column was necessary.
S32	H	3										Y		B	S	
S33	H	3										N		N	U S	Selected K/A system is Component Cooling Water. The limitation in the question is related to the interaction between 2/3 DGCWP and CCSW (LPCI service water cooling). The 2/3 DGCW and CCSW systems are open loop service water systems used to cool safety related components. Analysis of the Component Cooling Water System (400000) section of the K/A catalog would indicate that the K/A statements are related to closed loop cooling water systems. Even so, the relationship to closed loop systems is not definitive; therefore, the question was accepted as is.

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S34	F H		X									Y		B	U E	Since there is nothing in the stem to indicate any problem with the U2 EDG, it could be argued that the 2/3 EDG is not required (single failure) therefore answer 'C' would also be correct. LOK was changed to H(igher) since an analysis of the conditions stated in the stem is required. Minor changes were made to eliminate possibility of two correct answers.
35	H	3										Y		B	S	
36	H	4										Y		B	E	Busses don't trip, they lockout or clear. The breakers protecting the bus trip. Recommended change was made.
S37	F	2				X						Y		N	E	Distracter 'A' does not answer the "...and why" part of the question. Not enough information to discount distracter 'A'; as possible answer. Distracter 'A' was modified to address the above concerns.
38	H	3				X						N		B	U	K/A is ability to predict/monitor changes in recirc loop temp due to manipulation of SDC components NOT predict/monitor changes in SDC components due to change in Recirc Loop Temp. Also question the credibility of distracter 'C' since Recirc valves have no interlocks associated with loop temperature or any other loop parameter. Possible double jeopardy with Q# 87. Question was replaced with another bank question.
39	F	3										Y		B	S	
S40	H	2										Y		N	S	
41	H	2										Y		B	S	
42	H	2	X									Y		N	E	Correct answer ('C') and distracter 'D' includes the words "trending as expected" but no trend information is provided in the stem. Recommended changes were made.

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43	H	4	X					X					Y		N	E	<p>The third bullet in stem should probably indicate how soon after the LOCA initiation that the alarm is received. Add some indication to indicate whether the alarm is due to HIGH or LOW tank level.</p> <p>Distracter 'A' is partially correct in that the pump could trip on over-current when the pump seizes. Add "due to low suction pressure" to end of distracters 'A' and 'B'.</p> <p>Recommended changes were made.</p>
S44	H	3	X					X					Y		N	U	<p>What action to take FIRST is subjective. Answer choice 'C' is an automatic action that is expected to occur and it would be self-evident if it did not occur; plus there is no physical action that the NSO could take to ensure that it did occur. Therefore, with a complete loss of IA and pressure dropping, it could be argued that scrambling the reactor (choice 'D') should be the first action.</p> <p>What action(s) is/are....</p> <p>See questions #53 and #64</p> <p>Question was replaced with a NEW question (i.e., NOT a Bank question).</p>
45	F	5	X										Y		N	U E	<p>To state that the examples listed in OP-DR-103-102-1002 step 4.1.5.1.B are "ALL INCLUSIVE LISTS" is a misrepresentation of the purpose of the step. No correct answer.</p> <p>Clarification on the intent of above procedural guidance was provided by the licensee and a minor change was made to the stem. LOD was determined to be less than 5.</p>
46	F	2											Y		N	E	<p>It could be argued that there are no correct answers since there are probably hose stations (i.e., water) located outside the room which could be used.</p> <p>Stem was modified to be applicable to only automatic systems.</p>
S47	F	2											Y		B	S	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only				
48	F	1											Y		N	U E	<p>LOD=1; since each choice is a single individual, there is only one logical choice. See Q#-1</p> <p><i>The licensee indicated that certain procedural steps do not have to be completed by an individual responsible for performing the activity, but in this case the procedure specifies that a QNE must complete the step. Distracters 'B' and 'D' were modified to increase LOD. LOD now determined to be greater than 1.</i></p> <p>Why is this an RO question.</p> <p><i>Site specific objective requires RO to be able to describe the verifications that must be completed to ensure compliance with Technical Specifications prior to refueling operations.</i></p>
49	H	4		?									Y		B	E S	<p>Evaluate for possible cues/double jeopardy with question #76.</p> <p><i>Following discussion with licensee, the question was determined to be acceptable as is.</i></p>
S50	F	3											Y		B	E	<p>What value does the reactor water level bullet provide?</p> <p><i>RPV level information removed from stem.</i></p>
S51	F	2											Y		N	E	<p>Instead of loads powered from busses 24 and 24-1, it may be more plausible to list loads with control power off of Bus 2A-2.</p> <p><i>Recommended changes were made.</i></p>
52	F	5							X				Y		B	U	<p>LOD=5; memorization of individual breaker types and which special tools are needed to manual operation is beyond the required level of knowledge. This evolution would not be performed without a procedure and the procedure specifies the required tools. This might make a good JPM.</p> <p><i>Question was replaced with another bank question.</i></p>
53	F	3	X										Y		N	E	<p>It could be argued that there is no correct answer since starting any available IAC would be appropriate. See questions #44 and #64</p> <p><i>Minor change made to stem to eliminate concern.</i></p>

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
54	F	2	X									Y		N	E	Delete first sentence or reword to indicate that the reactor is shutdown not that the reactor is being shutdown. Recommended change was made.
S55	F	3	X									N		B	U	The first two sentences in the stem are not needed to answer the question. The K/A is to monitor or predict changes in parameters. This component is a static component that does not change position during operation. Question was replaced with another bank question.
56	F	1										Y		N	U E	LOD=1. Additionally the valve symbol for the correct answer doesn't match key in reference drawing. Licensee indicated that question was based on plant specific Operating Experience. Based on discussions it was determined that LOD is greater than 1 and question is acceptable with minor changes made to reference drawing.
57	H	3		X					X			Y		N	U	This question is similar to question #4; possible double jeopardy. If trends and calculations were added just to make this a higher order question they are unnecessary, since applicant has to make a reactor shutdown decision. While a RO must be aware of trend information and should anticipate EOP entry conditions he would probably not have to make this type of calculation on the fly. Question was replaced with a NEW question (i.e., NOT a Bank question).
58	F	2										Y		M	S	
S59	F	3										Y		B	S	
60	F	3										Y		N	E	Revise distracter 'B' to read same as 'A' except Div 1 Recommended change was made.
61	H	3										Y		B	S	

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only				
62	H	3											Y		N	E	Busses don't trip, they lockout or clear. The breakers protecting the bus trip. Recommended change was made.
S63	H		X										Y		B	E	Actuation of these annunciators indicate an SRV has opened, but without being told whether the alarm is locked in or not, one cannot determine if the SRV re-closed or stuck open. Minor change made to stem to eliminate concern.
64	H	2		X									Y		N	U	This is the third question relying DOA 4700-01 for response actions. See questions #44 and #53. Appears trend and calculation was added just to make this a higher order question. Applicant's math skills have already been tested sufficiently. S With replacement of question 44 and clarification provided by licensee, question was determined to be acceptable as is.
65	H	2											Y		N	E	Change the third part of distracter 'B' to "decreasing". Recommended change was made.
66	F	2		X		X							Y		N	U	The word vapor-heads in the stem make distracters 'C' and 'D' implausible. The words "vapor-head" were removed from the stem.
67	F	3											Y		N	S	
S68	H	2											Y		N	S	
S69	F	2					X						Y		B	E	Distracter 'A' is partially correct, in that one of the purposes for running ventilation is to maintain personnel accessibility. Distracter was replaced.
70	H	2											Y		N	S	
71	F	3											Y		N	E	Delete "ensure" from distracter 'A'. Change distracter 'B' to "Reactor is shutdown". Recommended changes were made.

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72	H	3	X									Y		B	E	Need something in the stem to indicate that CRD Pump 2A did not trip on over-current. Need a clarifying statement to indicate that the loss of control power occurred <u>after</u> the pump trip. Recommended changes were made.
73	H	3										Y		B	S	Typo – in distracters 'A' and 'B' insert the word "to" after the word "fails". Does the loss of a single steam or feed flow instrument cause the shift to single element? Typo corrected.
S74	F	5							X			Y		N	U S	This level of detail is beyond what an operator is expected to memorize. With clarification provided by the licensee, it was determined that the level of detail required to answer the question was not minutia and that the LOD was less than 5. The question was determined to be acceptable as is.
75	H	3										Y		N	S	
76	H	3										Y	Y	B	E	See question #49. Reword the stem to correct the tense. Recommended change was made.
77	H	3										Y	Y	B	E	Need to provide the TS 3.5.1 Surveillance requirements pages to permit operability determination; otherwise LOD=5. Provide an indication of how long ago LPCI 'A' pump was taken OOS. Change action for distracter 'A' to restore either LPCI or Core Spray to operable within 7 days of LPCI inoperability. Change distracter 'C' to restore within time remaining in original LCO. Change distracter 'D' to restore within time remaining in original LCO. Recommended changes were made.
78	F	2				X						?	Y	B	E S	How would a loss of pool cooling increase Iodine release. Iodine should be capitalized. Licensee provided an additional reference to support validity of distracter statements. The question was determined to be acceptable as is (with capitalization error corrected).

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79	H	3	X									Y	Y	B	E	Another math test. What is a plausible transient that would cause all LPCI pumps to be unavailable for 7 minutes. Stem was revised to eliminate concern.
80	H	3	X									Y	Y	B	E	Change RPV water level to between -143 inches and -164 inches. Recommended change was made.
81	H	3				X						N	Y	B	U	Distracters 'C' and 'D' are implausible. K/A related to immediate actions. There are none per the DOA. Distracters 'C' and 'D' were changed to pump run-up. The licensee pointed out that while the direction to secure the affected Recirc Pump is a subsequent action, it is to be immediately performed once it is determined that jet pump failure has occurred.
S82	F	2										Y	N	N	S	
83	H	3										Y	Y	B	E	Are flow indicators labeled as to location in system flow-path? (e.g., inlet or outlet flow) Noun name of flow indicator added to eliminate concern.
84	H	2										Y	Y	B	S	Typo in stem "SRMs" Typo corrected.
85	H	3										Y	Y	B	E	Recommend the following changes: Change distracter 'A' to: "Start all available Torus Cooling ONLY"; delete "secure HPCI testing" and "lower pressure...Limit" from distracter 'D'. Recommended changes were made.
86	H	3										Y	Y	B	E S	The comments section states that there is no loss of Containment but stem states that Containment is open. How do you address the actions required by the inadvertent mode change? Clarification added to "Explanation". No changes were made to question itself.

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87	H	3	X			X							Y	Y	N	E	Increasing RWCU flow is one of several options and is not necessarily REQUIRED. Double jeopardy with Q# 38 <i>The word "required" was removed from the question response statement. Question 38 has been replaced, eliminating the double jeopardy concern.</i>
S88	H	2	X			X							Y	Y	N	E	Stem asks for Maximum allowable. None of the distracters correspond to the MAX allowable. Reword stem to ask, "From the following which is the highest reactor pressure that will not exceed a limit." <i>Recommended change was made.</i>
S89	F	2	X										Y	Y	B	E	Reword stem to provide link to system K/A (i.e., Low pool level). For example: Which one of the following provides the bases for the EOP action to maintain Torus water level above -4.5 inches? <i>Recommended change was made.</i>
90	F	3				X			X				N	N	N	U	Distracters 'A' and 'C' are not plausible. If pump flow acceptance criteria is required to be memorized by SRO, then it is would be expected RO knowledge also. First part of question tests acceptance criteria which is knowledge of Tech Specs not necessarily of surveillance procedures. <i>Question was replaced with a NEW question (i.e., NOT a Bank question).</i>
91	F	3											N	Y	N	E	The bases for choosing EOP entry conditions is not necessarily the same as the bases for RPS scram set points. <i>Question was originally revised to replace Tech Spec bases with DEOP bases. Upon further review and discussion it was decided to replace K/A and insert a new question from the bank that was more SRO focused.</i>
92	H	2											Y	Y	N	S	

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S93	F H	2				X							Y	Y	N	U	Should be Higher LOK since applicant must determine appropriate EAL based on plant conditions provided. EAL determination is a direct lookup. The 2nd half of distracters 'B' and 'D' is not plausible. <i>Distracters 'B' and 'D' were revised. Since focus of question is not related to the EAL determination use of EP charts determined to be acceptable. The word "Site" was deleted from distracters 'C' and 'D'.</i>
94	H	2											Y	Y	B	E	If less than one hour times are removed, then distracter 'C' is not credible. <i>Minor change made to distracter 'C' to eliminate concern.</i>
95	H	3											Y	N	N	U	Specified action is an IMMEDIATE action which ROs are required to know. <i>Answer was modified to include determination of operability.</i>
96	F	2											Y	Y	N	U	Direct lookup in procedure. This test item is more appropriate as an Admin JPM. <i>Question was replaced with a NEW question (i.e., NOT a Bank question).</i>
97	H	3											Y	Y	B	S	
S98	F	3											Y	Y	N	S	
99	H	2											Y	Y	N	E	Comments state that NO references are require. DEOP 300-1 is required to determine if MAX NORMAL and/or MAX SAFE values have been exceeded. Revise stem to state "...ALL the <u>EOP</u> procedures...." <i>Associated DEOP will be provided and stem was revised as recommended.</i>
100	H	3											Y	Y	N	E	Move DEOP(s) to stem. <i>Recommended change was made.</i>

Instructions

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

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).
3. Check the appropriate box if a psychometric flaw is identified:
 - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
 - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
 - The answer choices are a collection of unrelated true/false statements.
 - 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).
4. Check the appropriate box if a job content error is identified:
 - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
 - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
 - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
 - The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).
6. Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f.
7. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).