

Columbia Generating Station  
October 2002 Initial Licensed Operator  
Operating Test Review  
Reviewer: Ryan Lantz  
Chief Examiner: Tom Stetka

## 1) Admin Section

### Senior Operator

- SA.1-1JPMr0

The applicant may argue the load can be moved, since the LCS states that crane travel over fuel assemblies stored in the fuel storage pool shall be within the limits of Fig. 1.9.2-1. The given load is within those limits, if the load is moved over the pool less than about 3 inches above the water surface. The JPM key says the load cannot be moved, and I assume it is because the load must be lifted over the handrail, which is probably about 3 -4 feet tall. The applicant can argue that the handrail is not above any assemblies, and for some distance into the pool, there are no assemblies. This would seem to be a reasonable interpretation, otherwise Figure 1.9.2-1 should not allow any lifts that would only be allowed if carried less than the rail height.

Also, the JPM is very simple otherwise. Consider not giving the reference as part of the cue. This would increase the complexity by requiring the applicant to find the appropriate reference. I would also have the initial conditions be verifiable in the simulator (CR ventilation, rad monitors operable) so minimal cuing would be needed, and this is another evaluation area.

- SA.1-2JPMr0

Change the initiating cue simply to “You are the offgoing CRS/RO. Given the initial conditions and using the simulator in freeze, prepare for and conduct a turnover with the examiner as the oncoming CRS/RO. There are no malfunctions other than those given in the initial conditions. The examiner will cue you on areas that will be simulated. Complete any required documentation to support the turnover.”

This allows the applicant to show his knowledge of how to conduct a turnover, and the examiner has flexibility to discuss the turnover and simulate areas, such as the board walkdowns. Otherwise, the task is very simple, and only focuses on the ability to fill blanks on a form.

- BA.2JPMr0

I see no reason to give the reference in the cue. Change the cue to read: “Using plant drawings, explain the purpose of....”

- SA.3JPMr0

This task is too simple as given. The task should not cue that an Increased Exposure request is needed. The situation (valve flushing) should be evaluated by the applicant as the individual's supervisor, for approval or authorization, to test if he recognizes the task will result in exceeding administrative control limits. Then, it can be asked what must be done to complete the valve flushing? Can this operator perform the flush, or must another operator be identified

who will not exceed dose limits?

- SA.4JPMr0

The time critical nature should be clarified. In the initiating cue, the applicant should be requested to determine if an emergency classification change is required, and if so, complete a CNF form as needed. He should also be told that the task is time critical for both identifying the classification change and completing the form. (15 minutes to declare the SAE, and 15 minutes to complete the form)

### Reactor Operator

- RA.1-1JPMr0

The task is too simple if the applicant is told what references to use. In the initiating cue, remove reference to PPM 3.1.2 and the power to flow map. Simply state “Given the initial conditions as stated, determine if it is allowable to enter the Area of Increased Awareness.” Justify your answer.

- No comments for questions RA.3-1, .3-2, .4-1, .4-2.

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Also, the JPM is very simple otherwise. Consider not giving the reference as part of the cue. This would increase the complexity by requiring the applicant to find the appropriate reference. I would also have the initial conditions be verifiable in the simulator (CR ventilation, rad monitors operable) so minimal cuing would be needed, and this is another evaluation area.

### **RESOLUTION**

JPM revised clarify intent and prevent confusion. References removed from cue.

- SA.1-2JPMr0

Change the initiating cue simply to “You are the offgoing CRS/RO. Given the initial conditions and using the simulator in freeze, prepare for and conduct a turnover with the examiner as the oncoming CRS/RO. There are no malfunctions other than those given in the initial conditions. The examiner will cue you on areas that will be simulated. Complete any required documentation to support the turnover.”

This allows the applicant to show his knowledge of how to conduct a turnover, and the examiner has flexibility to discuss the turnover and simulate areas, such as the board walkdowns. Otherwise, the task is very simple, and only focuses on the ability to fill blanks on a form.

### **RESOLUTION**

JPM revised to incorporate the suggested changes.

- BA.2JPMr0

I see no reason to give the reference in the cue. Change the cue to read: “Using plant

drawings, explain the purpose of.....”

### **RESOLUTION**

JPM revised to incorporate the suggested changes.

- SA.3JPMr0

This task is too simple as given. The task should not cue that an Increased Exposure request is needed. The situation (valve flushing) should be evaluated by the applicant as the individual’s supervisor, for approval or authorization, to test if he recognizes the task will result in exceeding administrative control limits. Then, it can be asked what must be done to complete the valve flushing? Can this operator perform the flush, or must another operator be identified who will not exceed dose limits?

### **RESOLUTION**

Completely revised JPM to involve a dose release in lieu of a planned exposure. Revision acceptable.

- SA.4JPMr0

The time critical nature should be clarified. In the initiating cue, the applicant should be requested to determine if an emergency classification change is required, and if so, complete a CNF form as needed. He should also be told that the task is time critical for both identifying the classification change and completing the form. (15 minutes to declare the SAE, and 15 minutes to complete the form)

### **RESOLUTION**

JPM revised to incorporate the suggested changes.

### **Reactor Operator**

- RA.1-1JPMr0

The task is too simple if the applicant is told what references to use. In the initiating cue, remove reference to PPM 3.1.2 and the power to flow map. Simply state “Given the initial conditions as stated, determine if it is allowable to enter the Area of Increased Awareness.” Justify your answer.

### **RESOLUTION**

Following review of the JPM with the licensee, no changes were considered to be necessary.

- No comments for questions RA.3-1, .3-2, .4-1, .4-2.

APPENDIX E - REGION IV OPERATING TEST JOB PERFORMANCE MEASURE QUALITY REVIEW MATRIX											
JPM#	1. Dyn (D/S)	2. LOD (1-5)	3. Attributes					4. Job Content Errors		5. U/E/S	6. Explanation (See below for instructions)
			IC Focus	Cues	Critical Steps	Scope (N/B)	Over- lap	Job- Link	Minutia		
B.1a	D	2								S	Is Step 4 critical? What happens if controller adjusted to 80% open? <b>WILL CHECK</b> For Step 7, what is the acceptable range of flows? Step 8 procedure step should be 5.1.14. <b>This JPM is Safety Function 9 NOT 5.</b>
B.1b	D	2								S	Step 4 has the incorrect procedure specified. It should be PPM 2.5.7 Main Turbine Generator. Should there be a range (e.g., 70 psig)? <b>WILL CHECK</b>
B.1c	D	2								S	If Step 2 is critical, why isn't Step 1 also critical? Per 1021 App C, Step 4 is not critical. Should Step 7, Substep 3 also be critical?
B.1d	D	3								E	Should the cue contain the procedure number and section to be used to startup RCIC or is this an expected action to be done from memory? <b>WILL REVIEW</b> Step 8, Substep a, has the wrong valve number - should be RCIC-V-45. Why is Step 6 crit? <b>WILL MAKE NOT CRIT</b>
B.1e	D	3								S	Step 1 is not a critical task (appears to be a simple verification step). Step 5 needs clarification <b>AGREE</b>
B.1f	D	2								S	I don't believe Step 5 is critical? Why couldn't you leave the controller is manual? Not concerned with a constant rod drive speed. <b>NOT CRITICAL - WILL CHANGE</b>
B.1g	D	3								E	Step 1 - the procedure step should be 5.3.8. For Step 8, need to know what expected drywell pressure should be and what is the expected system response - how long would it take to see a change in drywell pressure and how rapidly would pressure fall? For Step 10, how long to get to 0.5 psig and what is the target ROA purge supply and SGT flow rates? <b>WILL REVIEW AND CHANGE Step 10 TO CLARIFY CUE AND MAKE SHORTER</b>
B.2a	S	3								S	Step 8 - should this step contain a cue, since this was given as part of the initial conditions? <b>WILL MAKE AN EXAM NOTE</b>
B.2b	S	2								S	Step 3, BOLD critical steps and add cue RE: UV, UF,lights and POWER OUT light.
B.2c	D	3								S	For Step 2, should the examiner cue read, "HPSC-P-2 is running"? For Steps 4 & 5, include annunciator noun name for drop 1.1, 3.1, 6.8. For Step 8, how do the operators verify the air start motors are disengaged - include this as a note in the cue (since this is a critical task). Step 7, BOLD CT. Step "6s" <b>OK FOR ALL</b>
Spare LR258	S	3								E	The JPM Setup Information and the Student Information Sheet/Cue needs to be corrected. The cue talks about venting Control Rod 30-03, but the cue tells the candidate to inform the CRS when Rod 26-11 venting is complete. Need to change Rod 26-11 to Rod 30-03 in both locations. <b>WILL CORRECT</b>
Spare LR208	S	2								S	I don't believe Step 2 is critical, because it is already open and is simply a verification step. <b>AGREE</b>

#### Instructions for Completing Matrix

This form is not contained in or required by NUREG-1021. Utilities are not required or encouraged to use it. The purpose of this form is to enhance regional consistency in reviewing operating tests. Additional information on these areas may be found in Examination Good Practices Appendix D. Check or mark any item(s) requiring comment and explain the issue in the space provided.

1. Determine whether the task is dynamic (D) or static (S). A dynamic task is one that involves continuous monitoring and response to varying parameters. A static task is basically an system reconfiguration or realignment.
2. Determine level of difficulty (LOD) using established 1-5 rating scale. Levels 1 and 5 represent inappropriate (low or high) discriminatory level for the license being tested.
3. Check the appropriate box when an attribute weakness is identified:
  - The initiating cue is not sufficiently clear to ensure the operator understands the task and how to begin.
  - The JPM does not contain sufficient cues that are objective (not leading).
  - All critical steps (elements) have not been properly identified.
  - Scope of the task is either too narrow (N) or too broad (B).
  - Excessive overlap with other part of operating test or written examination.
4. Check the appropriate box when a job content error is identified:
  - Topics not linked to job content (e.g., disguised task, not required in real job).
  - Task is trivial and without safety significance.
5. Based on the reviewer's judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
6. Provide a brief description of problem in the explanation column. Provide conclusion on whether JPM SET criteria satisfied (i.e., number/distribution of safety functions, A.3 and A.4 integrated with parts B/C, Admin topics per section meet ES).

<b>APPENDIX E - REGION IV OPERATING TEST JOB PERFORMANCE MEASURE QUALITY REVIEW MATRIX (COMMENT RESOLUTION)</b>											
JPM#	1. Dyn (D/S)	2. LOD (1-5)	3. Attributes					4. Job Content Errors		5. U/E/S	6. Explanation (See below for instructions)
			IC Focus	Cues	Critical Steps	Scope (N/B)	Over- lap	Job- Link	Minutia		
B.1a	D	2								S	The JPM was replaced because original JPM was used on audit examination.
B.1b	D	2								S	Step 4 revised to reference correct procedure. A hydrogen range is not needed, however, a load reduction range was added.
B.1c	D	2								S	Steps 1, 2 and 4 changed to not critical. Step 7, Substep 3 changed to critical.
B.1d	D	3								S	Procedure number and section for RCIC startup added to cue. Step 8, Substep a, valve number corrected. Step 6 changed to not critical.
B.1e	D	3								S	New JPM due to audit exam overlap.
B.1f	D	2								S	Changed Step 5 to a non-critical step.
B.1g	D	3								S	Step 1 procedure step corrected. For Step 8, as a result of discussions with the licensee, the length of time is dependent on control settings and, therefore, cannot be stated as a specific value. Step 10 was changed to clarify the cue.
B.2a	S	3								S	Step 8 changed to an exam note.
B.2b	S	2								S	Revised Step 3.
B.2c	D	3								S	Examiner cue "HPSC-P-2 is running" added to Step 2. Annunciator titles added to Steps 4 and 5. For Step 8, air start motors failure to disengage narrative added. Renumbered steps such that old Step 7 is now Step 8 and CT made bold.
Spare LR258	S	3								S	JPM corrected to indicate that the affected control rod is 30-03.
Spare LR208	S	2								S	Changed Step 2 to not critical.

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2. Determine level of difficulty (LOD) using established 1-5 rating scale. Levels 1 and 5 represent inappropriate (low or high) discriminatory level for the license being tested.
3. Check the appropriate box when an attribute weakness is identified:
  - The initiating cue is not sufficiently clear to ensure the operator understands the task and how to begin.
  - The JPM does not contain sufficient cues that are objective (not leading).
  - All critical steps (elements) have not been properly identified.
  - Scope of the task is either too narrow (N) or too broad (B).
  - Excessive overlap with other part of operating test or written examination.
4. Check the appropriate box when a job content error is identified:
  - Topics not linked to job content (e.g., disguised task, not required in real job).
  - Task is trivial and without safety significance.
5. Based on the reviewer's judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
6. Provide a brief description of problem in the explanation column. Provide conclusion on whether JPM SET criteria satisfied (i.e., number/distribution of safety functions, A.3 and A.4 integrated with parts B/C, Admin topics per section meet ES).



<b>APPENDIX N - REGION IV OPERATING TEST SCENARIO REVIEW MATRIX (COMMENT RESOLUTIONS)</b>										
Scen Set	1 ES	2 TS	3 Crit	4 IC	5 Pred	6 TL	7 L/C	8 Eff	9 U/E/S	10 Explanation (See below for instructions)
1									S	Changed to reflect the 5 CTs. Added time line. Scenario details revised to specify which EOP the crew is in.
2									S	Changed to reflect 3 CTs. Added time line. Power reduction position identified. Scenario details revised to specify which EOP the crew is in.
3									S	Changed to reflect 4 critical tasks. Added time line. End of scenario is not marked. Scenario details revised to specify which EOP the crew is in. Added high vibs on recirc pump as the credible preceding event for the large break LOCA.
Spare 1									S	Changed to reflect 2 critical asks. Added time line. Added TS details in Event 2. This scenario could conflict with scenario 1 because of the earthquake.
Spare 2									S	Made a new scenario because scenario was used on audit exam.

## APPENDIX N - REGION IV OPERATING TEST SCENARIO REVIEW MATRIX (COMMENT RESOLUTIONS)

### Instructions for Completing Matrix

This form is not contained in or required by NUREG-1021. Utilities are not required or encouraged to use it. The purpose of this form is to enhance regional consistency in reviewing operating test scenario sets. Additional information on these areas may be found in Examination Good Practices Appendix D. Check or mark any item(s) requiring comment and explain the issue in the space provided.

1. ES: ES-301 checklists 4, 5, & 6 satisfied.
2. TS: Set includes SRO TS actions for each SRO, with required actions explicitly detailed.
3. Crit: Each manipulation or evolution has explicit success criteria documented in Form ES-D-2.
4. IC: Out of service equipment and other initial conditions reasonably consistent between scenarios and not predictive of scenario events and actions.
5. Pred: Scenario sequence and other factors avoid predictability issues.
6. TL: Time line constructed, including event and process triggered conditions, such that scenario can run without routine examiner cuing.
7. L/C: Length and complexity for each scenario in the set is reasonable for the crew mix being examined, such that all applicants have reasonably similar exposure and events are needed for evaluation purposes.
8. Eff: Sequence of events is reasonably efficient for examination purposes, especially with respect to long delays or interactions.
9. Based on the reviewer's judgment, is the scenario set as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
10. Provide a brief description of problem in the explanation column

**APPENDIX N - REGION IV OPERATING TEST SCENARIO REVIEW MATRIX**

Scen Set	1 ES	2 TS	3 Crit	4 IC	5 Pred	6 TL	7 L/C	8 Eff	9 U/E/S	10 Explanation (See below for instructions)
1						X			S	On Form ES-D-1, for events 6, 7 and 8, need to specify which operator will get credit for the failure after "M" for bean count. Appears to be at least 8 critical tasks verses 5 listed on Form ES-301-4 - may be too many. There is no time line. Scenario details need to specify which EOP the crew is in - not clear when they transition. Need necessary procedure pages only.
2						X			S	Appears to be at least 10 critical tasks verses the 3 listed on Form ES-301-4 - too many. There is no time line. Who does the power reduction? Power reduction shows up in Events 2 and 3. For Event 8, two steps are marked as critical, but there is a note that says the actions may not be necessary - need to clarify. Scenario details need to specify which EOP the crew is in - not clear when they transition.
3						X			S	For Event 3, the listed critical tasks does not appear to be a critical task. Appears to be at least 9 critical tasks verses the 3 listed on Form ES-301-4. There is no time line. Scenario details need to specify which EOP the crew is in - not clear when they transition. End of scenario is not marked. What is the credible preceding event for the large break LOCA? <b>Will add high vibs on recirc pump will be preceding event.</b>
Spare 1						X			S	There is no time line. There are 4 critical tasks verses the 2 listed on form ES-301-4. Need TS details in Event 2. This scenario could conflict with scenario 1 because of the earthquake.
Spare 2						X			S	There is no time line. There are 5 critical tasks verses the 3 listed on form ES-301-4. For Event 8, is failure to manually open PCB 4885 really a critical task? This scenario could conflict with scenario 2 because of the ATWAS repeat.

## APPENDIX N - REGION IV OPERATING TEST SCENARIO REVIEW MATRIX

### Instructions for Completing Matrix

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2. TS: Set includes SRO TS actions for each SRO, with required actions explicitly detailed.
3. Crit: Each manipulation or evolution has explicit success criteria documented in Form ES-D-2.
4. IC: Out of service equipment and other initial conditions reasonably consistent between scenarios and not predictive of scenario events and actions.
5. Pred: Scenario sequence and other factors avoid predictability issues.
6. TL: Time line constructed, including event and process triggered conditions, such that scenario can run without routine examiner cuing.
7. L/C: Length and complexity for each scenario in the set is reasonable for the crew mix being examined, such that all applicants have reasonably similar exposure and events are needed for evaluation purposes.
8. Eff: Sequence of events is reasonably efficient for examination purposes, especially with respect to long delays or interactions.
9. Based on the reviewer's judgment, is the scenario set as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
10. Provide a brief description of problem in the explanation column

Columbia Generating Station  
 Oct 2002 Initial Examination  
 Chief Examiner: Tom Stetka  
 Lead Reviewer: Ryan Lantz

ES-401

Written Examination  
 Review Worksheet (**COMMENT RESOLUTION**)

Form ES-401-9 (R8, S1)

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	Back- ward	Q= K/A	SRO Only		
3	H	3										X		S	REVISED STEM.
7	F	2										X		S	NO CHANGE NECESSARY.
8	F	3										X		S	PRIOR NRC
12	H	3										X		S	
14	H	3										X		S	
22	F	2										X		S	
25	H	3										X	Y	S	REVISED STEM TO INCLUDE THAT AN AUTOMATIC SCRAM OCCURRED.
27	H	2										X	Y	S	PRIOR NRC
30	H	2										X		S	
31	F	2										X	Y	S	

(F/H)	(1-5)	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only	U/E/S	Explanation
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:													
	<ul style="list-style-type: none"> <li>· The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).</li> <li>· The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).</li> <li>· The answer choices are a collection of unrelated true/false statements.</li> <li>· More than one distractor is not credible.</li> <li>· One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).</li> </ul>													
4.	Check the appropriate box if a job content error is identified:													
	<ul style="list-style-type: none"> <li>· 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).</li> <li>· 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).</li> <li>· The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).</li> <li>· The question requires reverse logic or application compared to the job requirements.</li> </ul>													
5.	Check questions that are <u>sampled</u> for conformance with the approved K/A and those that are <u>designated SRO-only</u> (K/A and license level mismatches are unacceptable).													
6.	Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?													
7.	At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).													

ES-401

2

Form ES-401-9 (R8, S1)

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	Back-ward	Q=K/A	SRO Only		
40	F	2										X		S	PRIOR NRC
42	H	3										X		S	PRIOR NRC
48	F	2										X		S	
53	F	3										X		S	
60	H	3										X	Y	S	
66	H	3										X	Y	S	REVISED TO MAKE SRO ONLY.
75	H	3										X	Y	S	REVISED STEM TO MAKE SRO ONLY.
79	H	3										X		S	
80	F	2										X		S	
82	H	3										X	Y	S	REVISED TO TIE TO A PROCEDURE AND MAKE SRO ONLY.
88	F	3										X		S	

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	Back- ward	Q= K/A	SRO Only		
90	F	2										X	Y	S	
91	F	2										X		S	REVISED STEM AND DISTRACTORS.
93	F	2										X	Y	S	REVISED DISTRACTORS TO DELETE JIC AND PROVIDE NEW CHOICES.
99	H	4										X		S	
102	F	4										X		S	REVISED STEM AND DISTRACTORS.
104	F	3										X		S	REVISED DISTRACTORS.
105	H	2										X		S	PRIOR NRC
112	H	3										X		S	
120	H	3										X		S	PRIOR NRC

Columbia Generating Station  
 Oct 2002 Initial Examination  
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ES-401

Written Examination  
 Review Worksheet

Form ES-401-9 (R8, S1)

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
3	H	3	X									X		E	Edit Stem..A single failure causes....Isolation. No other failures occur and.... <b>OK WILL CHANGE.</b>
7	F	2										X		E	reference incomplete... answer not responsive to question <b>WILL REVIEW</b>
8	F	3										X		S	PRIOR NRC
12	H	3										X		S	
14	H	3										X		S	
22	F	2										X		S	
25	H	3	X									X	Y	E	Add to stem that Reactor auto - scrambled <b>WILL ADD</b>
27	H	2										X	Y	S	PRIOR NRC
30	H	2										X		S	
31	F	2										X	Y	S	



(F/H)	(1-5)	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only	U/E/S	Explanation
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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: <ul style="list-style-type: none"> <li>• The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).</li> <li>• The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).</li> <li>• The answer choices are a collection of unrelated true/false statements.</li> <li>• More than one distractor is not credible.</li> <li>• One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).</li> </ul>													
4.	Check the appropriate box if a job content error is identified: <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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).</li> <li>• The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).</li> <li>• The question requires reverse logic or application compared to the job requirements.</li> </ul>													
5.	Check questions that are <u>sampled</u> for conformance with the approved K/A and those that are <u>designated SRO-only</u> (K/A and license level mismatches are unacceptable).													
6.	Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?													
7.	At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).													

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Form ES-401-9 (R8, S1)

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		
40	F	2										X		S	PRIOR NRC
42	H	3										X		S	PRIOR NRC
48	F	2										X		S	
53	F	3										X		S	
60	H	3										X	Y	S	
66	H	3										X	N	S	Not SRO Only
75	H	3	X									X	N	E	Reword Stem :...Which of the following would be an expected control air..." <b>WILL CHANGE</b>
79	H	3										X		S	
80	F	2										X		S	
82	H	3										X	N	E	Nor SRO Only <b>WILL TIE TO A PROCEDURE</b>

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	Back- ward	Q= K/A	SRO Only		
88	F	3										X		S	
90	F	2										X	Y	S	
91	F	3	X			X						X		E	Edit Stem.. "Which of the following AUTO actions occur..." And change distractor to fit (delete "auto", delete manual actions in C.) <b>WILL CHANGE</b>
93	F	1				X						X	Y	U	Delete JIC MGR from choices, add facility operational status in choices
99	H	4										X		S	
102	F	4								X		X		E	Rewrite answer and dist D, give setpoints and indications similar to A, <b>OK WILL REWRITE ANSWER</b>
104	F	3				X						<b>N</b>		E	Reference says > 20%, change B to 25, D to 100 <b>OK</b>
105	H	2										X		S	PRIOR NRC
112	H	3										X		S	
120	H	3										X		S	PRIOR NRC

Columbia Generating Station  
 Oct 2002 Initial Examination  
 Chief Examiner: Tom Stetka  
 Lead Reviewer: Ryan Lantz

ES-401

Written Examination  
 Review Worksheet (**COMMENT RESOLUTION**)

Form ES-401-9 (R8, S1)

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	Back-ward	Q=K/A	SRO Only		
1	F	2										Y		S	REVISED DISTRACTORS "C" AND "D" TO BE CREDIBLE.
2	H	3										Y		S	PRIOR NRC
4	F	3												S	PRIOR NRC
5	F	3										Y		S	
6	F	2												S	PRIOR NRC
9	H	3										Y		S	
10	F	2										Y		S	
11	H	3												S	
13	F	2										Y		S	PRIOR NRC
15	F	2										Y		S	PRIOR NRC
16	F	2										Y		S	
17	F	2										Y		S	REVISED TYPO IN JUSTIFICATION.
18	H	3										Y		S	
19	H	2										Y		S	PRIOR NRC
20	H	3										Y		S	
21	H	3												S	PRIOR NRC
23	F	2												S	PRIOR NRC
24	H	3										Y	Y	S	
26	F	3										Y		S	REVISED TO MAKE MORE APPROPRIATE TO ROS.
28	H	3										Y		S	REVISED TO MAKE MORE APPROPRIATE TO ROS.
29	H	3										Y		S	PRIOR NRC

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	Back- ward	Q= K/A	SRO Only		
32	H	3										Y		S	
33	H	3										Y	Y	S	
34	H	2										Y		S	PRIOR NRC
35	F	2										Y		S	
36	H	2										Y		S	
37	H	2										Y		S	
38	F	3										Y		S	REVISED TO PROVIDE K/A MATCH.
39	H	3										Y	Y	S	
41	F	2										Y		S	
43	H	3										Y		S	TYPO CORRECTED.
44	H	3										Y		S	PRIOR NRC
45	H	2										Y		S	
46	H	2										Y		S	
47	F	2										Y		S	
49	F	3										Y		S	
50	H	2										Y	Y	S	
51	F	3										Y		S	REVISED TO CORRECT K/A MATCH.
52	H	3										Y		S	
54	H	3										Y		S	
55	F	2										Y		S	
56	F	2										Y		S	
57	H	3												S	
58	H	1										Y	Y	S	REVISED TO PROVIDE K/A MATCH.
59	H	2										Y	Y	S	PRIOR NRC
61	F	2										Y	Y	S	REVISED TO ADD TS REFERENCE TO BASIS.
62	F	3										Y		S	PRIOR NRC

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	Back- ward	Q= K/A	SRO Only		
63	H	3										Y		S	CHANGED DISTRACTOR "A".
64	F	3										Y		S	
65	F	2										Y		S	CHANGED DISTRACTOR C.
67	H	2										Y		S	REVISED TO MAKE MORE APPROPRIATE TO ROS.
68	H	3										Y		S	
69	H	2										Y		S	REVISED QUESTION TO MATCH K/A.
70	H	2										Y		S	REVISED TO PROVIDE K/A MATCH.
71	F	3										Y	Y	S	
72	F	2										Y	Y	S	REVISED TO MAKE SRO ONLY.
73	F	3										Y		S	PRIOR NRC
74	H	3										Y		S	PRIOR NRC
76	F	2										Y		S	REVISED STEM TO PROVIDE K/A MATCH.
77	H	3										Y	Y	S	PRIOR NRC
78	H	2										Y	Y	S	PRIOR NRC
81	H	2										Y		S	
83	F	3										Y		S	Possibly SRO Only
84	F	2										Y		S	PRIOR NRC
85	H	2										Y		S	REVISED DISTRACTORS TO MINIMIZE DUAL ANSWERS.
86	F	2										Y	Y	S	
87	F	3										Y	Y	S	PRIOR NRC
89	H	3										Y		S	
92	H	2										Y		S	
94	F	2										Y	Y	S	
95	F	3										Y		S	REVISED STEM.
96	H	2										Y	Y	S	REVISED TO BE SRO ONLY.
97	H	2										Y	Y	S	

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	Back- ward	Q= K/A	SRO Only		
98	H	2										Y		S	
100	H	3										Y	Y	S	REVISED TO MAKE SRO ONLY.
101	H	3										Y		S	
103	H	3										Y		S	REVISED TO PROVIDE K/A MATCH.
106	F	3										Y		S	REVISED TO CORRECT JUSTIFICATION STATEMENT.
107	F	3										Y		S	
108	F	2										Y		S	
109	H	2										Y		S	REVISED TO MAKE "B" CREDIBLE.
110	F	2										Y		S	
111	F	2										Y		S	PRIOR NRC
113	H	3										Y		S	PRIOR NRC
114	H	2										Y		S	STEM MODIFIED AND DISTRACTORS "A" AND "C" REVISED.
115	F	2										Y		S	
116	F	2										Y		S	
117	H	3										Y		S	PRIOR NRC
118	F	2										Y		S	PRIOR NRC
119	H	3										Y		S	PRIOR NRC
121	H	3										Y		S	PRIOR NRC
122	H	4										Y		S	PRIOR NRC
123	H	2										Y		S	REVISED TO PROVIDE K/A MATCH.
124	F	2										Y		S	
125	F	4										Y		S	REVISED TO PROVIDE K/A MATCH.
126	H	3										Y		S	possibly SRO Only <b>WILL REVIEW</b>
127	F	2										Y		S	REVISED TO CHANGE DISTRACTOR "A".

Columbia Generating Station  
 Oct 2002 Initial Examination  
 Chief Examiner: Tom Stetka  
 Lead Reviewer: Ryan Lantz

ES-401

Written Examination  
 Review Worksheet

Form ES-401-9 (R8, S1)

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	Back- ward	Q= K/A	SRO Only		
1	F	2				X						Y		E	Why is C, D credible? <b>WILL CHANGE C &amp; D</b>
2	H	3										Y		S	PRIOR NRC
4	F	3												S	PRIOR NRC
5	F	3										Y		S	
6	F	2												S	PRIOR NRC
9	H	3										Y		S	
10	F	2										Y		S	
11	H	3												S	
13	F	2										Y		S	PRIOR NRC
15	F	2										Y		S	PRIOR NRC
16	F	2										Y		S	
17	F	2										Y		S	typo in justification, but D is correct answer <b>OK WILL FIX</b>
18	H	3										Y		S	
19	H	2										Y		S	PRIOR NRC
20	H	3										Y		S	
21	H	3												S	PRIOR NRC
23	F	2												S	PRIOR NRC
24	H	3										Y	Y	S	
26	F	3										Y		S	WHY NOT SRO ONLY? <b>WILL CHANGE</b>
28	H	3										Y		E	Looks like SRO LEVEL <b>WILL REVIEW</b>
29	H	3										Y		S	PRIOR NRC

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	Back- ward	Q= K/A	SRO Only		
32	H	3										Y		S	
33	H	3										Y	Y	S	
34	H	2										Y		S	PRIOR NRC
35	F	2										Y		S	
36	H	2										Y		S	
37	H	2										Y		S	
38	F	3										N		S	PRIOR NRC <b>WILL REVIEW</b>
39	H	3										Y	Y	S	
41	F	2										Y		S	
43	H	3										Y		S	typo in C <b>OK WILL FIX</b>
44	H	3										Y		S	PRIOR NRC
45	H	2										Y		S	
46	H	2										Y		S	
47	F	2										Y		S	
49	F	3										Y		S	
50	H	2										Y	Y	S	
51	F	3										N		S	<b>WILL CHANGE</b>
52	H	3										Y		S	
54	H	3										Y		S	
55	F	2										Y		S	
56	F	2										Y		S	
57	H	3												S	
58	H	1		X								N	Y	U	KA not a good match, handout appears DLU <b>OK, WILL CHANGE</b>
59	H	2										Y	Y	S	PRIOR NRC
61	F	2											Y	E	<b>WILL CHANGE AND ADD TS REF TO BASES</b>
62	F	3										Y		S	PRIOR NRC



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	Back- ward	Q= K/A	SRO Only		
63	H	3				X						Y		E	change A to "Be in Mode 4 in 36 hours" <b>WILL CHANGE</b>
64	F	3										Y		S	
65	F	2				X						Y		E	C not credible as written <b>CHANGE TEMPS TO CD RATES</b>
67	H	2										Y		S	Possibly SRO Only <b>WILL REVIEW</b>
68	H	3										Y		S	
69	H	2										N		S	<b>WILL CHANGE TO MATCH KA</b>
70	H	2										N		S	<b>WILL CHANGE TO MATCH KA</b>
71	F	3										Y	Y	S	
72	F	4										Y	N	S	Why SRO Only? <b>WILL REVIEW/REWRITE TO 55.43.5</b>
73	F	3										Y		S	PRIOR NRC
74	H	3										Y		S	PRIOR NRC
76	F	2										N		U	check fro repeat on prior Q... KA not a good match <b>WILL CHANGE</b>
77	H	3						X				Y	Y	S	PRIOR NRC
78	H	2										Y	Y	S	PRIOR NRC
81	H	2										Y		S	
83	F	3										Y		S	Possibly SRO Only
84	F	2										Y		S	PRIOR NRC
85	H	2				X						Y		E	C can be argued as correct, change level in stem to 65", change C to not refer to a level <b>WILL CHANGE</b>
86	F	2										Y	Y	S	
87	F	3										Y	Y	S	PRIOR NRC
89	H	3										Y		S	
92	H	2										Y		S	
94	F	2										Y	Y	S	
95	F	3	X									Y		E	Reword stem... "which parameter is of most concern?" <b>WILL CHANGE</b>
96	H	2										Y	N	E	Not SRO Only <b>WILL REVIEW</b>
97	H	2										Y	Y	S	

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	Back- ward	Q= K/A	SRO Only		
98	H	2										Y		S	
100	H	3										Y	N	S	Not SRO Only <b>WILL REVIEW AND CHANGE</b>
101	H	3										Y		S	
103	H	3										N		S	<b>WILL CHANGE</b>
106	F	3										Y		S	typo in justification... A, B and "D" <b>WILL FIX</b>
107	F	3										Y		S	
108	F	2										Y		S	
109	H	2				X						Y		S	B is not credible <b>WILL REVIEW</b>
110	F	2										Y		S	
111	F	2										Y		S	PRIOR NRC
113	H	3										Y		S	PRIOR NRC
114	H	2	X									Y		E	Modify stem for first action... A and C are both correct as written <b>WILL REVIEW AND CONSIDER CHANGE</b>
115	F	2										Y		S	
116	F	2										Y		S	
117	H	3										Y		S	PRIOR NRC
118	F	2										Y		S	PRIOR NRC
119	H	3										Y		S	PRIOR NRC
121	H	3										Y		S	PRIOR NRC
122	H	4										Y		S	PRIOR NRC
123	H	2										?		E	PRIOR NRC <b>KA? TIE-IN W/RX PRESS? WILL REVIEW</b>
124	F	2										Y		S	
125	F	4						X	X			N		U	KA not a good match, JOB LINK QUESTIONABLE <b>WILL REVIEW</b>
126	H	3										Y		S	possibly SRO Only <b>WILL REVIEW</b>
127	F	2				X						Y		E	A may also be correct, see reference. <b>WILL CHANGE</b>