

**NRC COMMENTS ON THE OPERATING TEST AND**

**ES-401-9 FOR THE NRC COMMENTS ON THE WRITTEN EXAM**

**AND ES-401-4 - RECORD OF REJECTED K/As**

**FOR THE CLINTON INITIAL EXAMINATION - JANUARY 2004**

Clinton JPM and Scenario Comments  
and RESOLUTION

**SYSTEM JPMS:**

Overall Comments:

- 1) Spell out the KA, rather than just referencing the KA number.
- 2) Separate the Initial Conditions and Initiating Cue.
- 3) Only identify one KA for JPM task.
- 4) Need to identify the initial plant conditions.

**RESET RECIRC FCV LOCKOUT**

- 1) Simulator Setup: Why not "raise" locked flow controller servo error output such that if the operator improperly unlocks the FCV, there will be a significant flow / power increase?
- 2) Only two critical steps. (level of difficulty?)
- 3) JPM does not match A408, better fit to A208

**RESOLUTION:**

- 1) *If the servo error output is not zeroed there will be a power increase.*
- 2) *Level of difficulty accepted based on on-site validation.*
- 3) *KA Ability to manually operate Recirc from control room, acceptable*

**MANUAL STARTUP LPCS LOGIC NOT AVAILABLE (alternate path)**

- 1) Only provided Initiating Cue, need Initial Conditions (ie, of the plant)
- 2) Performance Step 8.1.3, is it critical that the operator identify failure of the LPCS pump to start after A&D pushbutton?
- 3) Step \*4: a) JPM failure if operator opens valve when RCS pressure greater than 472 psig?
- b) Rewrite sentence in "COMMENTS:"
- 4) Step \*5: Why is this step critical? Necessary to obtain required flow?
- 5) Step 6: Critical to restore / maintain RPV level?
- 6) Terminating Cue: Is the task to start the LPCS pump and inject to RPV at full flow, or to restore and maintain RPV level with LPCS?
- 7) Multiple KAs identified. Only identify one (A403 doesn't fit).
- 8) Kind of minimal alternate path because, operator stays in same procedure

**RESOLUTION:**

- 1) *Initial conditions added*
- 2) *Yes but the follow up actions are the critical steps.*
- 3) *In this JPM pressure will be ~ 400 psig.*
- 4) a) *Necessary to maximize flow per cue*  
b) *COMMENT incorrect as observed at OV, COMMENT deleted.*
- 5)&6) *At this point LPCS flow will be max which is the JPM task.*
- 7) *KA now 209001 A4.11 ability to operate and/or monitor system flow.*
- 8) *Acceptable based on OV must change procedure sections base on identifying equipment failure.*

Clinton JPM and Scenario Comments  
and RESOLUTION

**TURBINE ON LINE TESTS (alternate path)**

- 1) Only provided Initiating Cue, need Initial Conditions (ie, of the plant)
- 2) Why is this JPM considered alternate path? The operator identifies failure of the 125 and 24 Vdc backup overspeed trip circuit to reset, informs the CRS, and stops the test.

**RESOLUTION:**

- 1) *Initial Conditions added.*
- 2) *Agree the JPM not alternate path, JPM document changed to Alternate path NO. ( Exam still has correct number of alternate path JPMs)*
- 3) *This JPM removed from SRO(U) test and replaced with, PERFORM CONTAINMENT HYDROGEN PURGE (plant, alternate path)*

**EQUALIZE AROUND AND OPEN MSIVs**

- 1) Step 4, clarify if the operator is going to have to adjust pressure. Critical if pressure has to be adjusted.
- 2) Multiple KAs identified. Only identify one (A402 doesn't fit).

**RESOLUTION:**

- 1) *Step made critical operator will have to adjust pressure.*
- 2) *KA changed to 239001 A4.01 ability to manually operate/monitor MSIVs from control room.*

**PERFORM CONTAINMENT HYDROGEN PURGE (plant, alternate path)**

- 1) JPM identified as a plant JPM; however, the JPM lists simulator setup conditions.
- 2) Alternate path to stop one train and start the other?

**RESOLUTION:**

- 1) *JPM document changed to show this as simulator JPM.*
- 2) *Goal is to Purge containment, when train A fails train B is used.*

**PARALLEL DG 1B WITH OFFSITE POWER (alternate path, time critical?)**

- 1) Is JPM Time Critical? If so, what is the reference and basis for the critical JPM time of 30 minutes?
- 2) Identify Initial Conditions (ie, of the plant).
- 3) Step 8.2.15.2 is critical (differential voltage=circulating current).
- 4) Step 8.2.15.3 is critical (want DG to assume load; if slower, DG could become the load).
- 5) Step 8.2.15.5.2 is critical (reverse power trip if don't get load on DG). Is reverse power trip modeled on simulator (fidelity)?
- 6) Why is CAUTION in the JPM?
- 7) Step 8.2.16.2 and .3 critical?

**RESOLUTION:**

- 1) *JPM not time critical.*
- 2) *Done.*
- 3) *Step 8.2.15.2 is critical*
- 4) *Step 8.2.15.3 is critical*
- 5) *Step 8.2.15.5.2 is critical. The reverse power trip is modeled on simulator.*
- 6) *The CAUTION is in the JPM for examiner info only.*

Clinton JPM and Scenario Comments  
and RESOLUTION

7) Step 8.2.16.2 and .3 are not critical as they will have no effect.

**SHIFT OFFGAS POST TREATMENT PROCESS RADIATION MONITORS**

- 1) Low level of difficulty, no good evaluation of operator competency.
- 2) Multiple KAs identified. Only identify one.

**RESOLUTION:**

*JPM replaced with JPM Defeat RPS Logic Trips.*

**STARTUP THE CONTROL ROOM VENTILATION SYSTEM IN THE HIGH RADIATION MODE  
(alternate path, time critical)**

- 1) A system KA should be used, not a generic one.
- 2) What is the reference and basis for the critical JPM time?

**RESOLUTION:**

- 1) *KA changed to 290003 A4.01 ability to operate/monitor initiate/reset system in control room.*
- 2) *Under LOCA conditions the filters in the Supply Air Train Filters will become exhausted in 20 minutes, therefore switch over to the minimum air damper must be done in 20 minutes of less.*

**VENTING CRD WITHDRAWAL LINES**

- 1) Add ladder and key to unlock ladder to required equipment.

**RESOLUTION:**

- 1) *Done*

**THROTTLING ECCS INJECTION FLOW-HPCS (plant)**

- 1) Identify the Initial Conditions.
- 2) KA is for operating HPCS for low RWL, but JPM is for throttling HPCS flow.

**RESOLUTION:**

- 1) *Initial Conditions added.*
- 2) *KA acceptable, JPM simulates actions after a LOCA water level recovery.*

**DC LOAD SHEDDING DURING A STATION BLACKOUT (plant)**

- 1) JPM requires locating and opening breakers. Low level difficulty.
- 2) Multiple KAs identified. Only identify one.

**RESOLUTION:**

- 1) *Level of difficulty acceptable based on On-site validation, need to enter 2 panels and correctly interpret to shed only Div 1 DC.*
- 2) *Done*

Clinton JPM and Scenario Comments  
and RESOLUTION

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**ADMINISTRATIVE JPMS:**

**CONTROL ROD / POSITION INDICATION OPERABILITY (RO; faulted):**

- 1) Time critical?
- 2) Only 3 steps to perform (two of which are critical), no real verifiable actions. 100% RTP and rod mispositioned one step, what is safety significance? Operator is handed the printouts. Insufficient evaluation of operator analysis, diagnosis, and decision making. Only has to identify mispositioned rod and notify SM. Task is listed as completion of restoration and identification of misaligned rod. Recommend adding some verifiable operator actions or replacing JPM.

**RESOLUTION:**

- 1) *Not time critical.*
- 2) *JPM changed to find mis-positioned rod and reposition the rod.*

**COMPLETE AN SRV ACTUATION REPORT (RO, faulted):**

- 1) Give Initial Conditions.
- 2) Only one critical step (8.1.1) to identify leaking SRV based on tailpipe temperature not returning to normal after actuation.

**RESOLUTION:**

- 1) *Done*
- 2) *Three other steps are critical.*

**DETERMINE EFFECTS OF FAILED RELAY (electrical print reading):**

(Containment Instrument Air Isolation valves will not close on RWL 1 signal)

- 1) Although only one critical step identified, may want to expand statement to include the critical elements that the operator has to identify to be successful.

**RESOLUTION:**

- 1) *JPM expanded and critical steps identified.*

**PREPARE AN EVENT NOTIFICATION WORKSHEET (ENW) FORM**

- 1) This JPM requires no analysis, diagnosis, or decisions. The required information is given in the INITIAL CONDITIONS. All the applicant has to do is plug the information into the worksheet and call the NRC. Replace or enhance procedure.
- 2) KA is "Knowledge of emergency communications systems and techniques." Recommend problem with normal communications, need to use alternate means or the like.
- 3) Can probably get a better admin JPM for the SROs.

**RESOLUTION:**

- 1/2) *JPM rewritten so information to fill out ENW form comes from logs and NARS form.*
- 3) *This will be an RO only JPM.*

Clinton JPM and Scenario Comments  
and RESOLUTION

**DETERMINE AN EP PARS WITH SUBSEQUENT WIND DIRECTION CHANGE (SRO, time critical 14 min):**

1) The JPM focuses the applicant in on Section 9, then a single parameter (wind) is provided which focuses the applicant on the wind direction change. JPM does not require sufficient evaluation of applicant's ability to analyze, diagnose, or make a decision. At least make the applicant fill out the whole form based on initial conditions, then supply another set of "readings" and let the applicant identify any significant, required changes (ie, wind direction).

**RESOLUTION:**

1) JPM changed to "Complete a NARS Form and make the required notifications".

**REVIEW A COMPLETED CONTROL ROD / POSITION INDICATION OPERABILITY SURVEILLANCE (SRO, faulted):**

1) This is same as the RO JPM. Same comments. Why isn't step 3 critical in this JPM? Need to have SRO apply TS LCOs or the like.

**RESOLUTION:**

1) Same changes made to this JPM as to RO version.

**DETERMINE EMERGENCY JOB DOSE AND SELECT WORKER FOR JOB:**

1) Insufficient analysis, diagnosis, and decision making. At least provide a dose history for each worker, include contamination factor(s), differentiate between administrative and CFR limits(?). KA is knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.

**RESOLUTION:**

1) This JPM was replaced with a new JPM "Authorize an emergency dose for a life saving operation".

**REVIEW A COMPLETED SRV ACTUATION REPORT (SRO, faulted):**

1) Basically, same as the RO JPM. Same comments.

2) Two KAs listed, pick one to apply to the JPM.

**RESOLUTION:**

1) There will be errors in both the actuation type and the conclusion.

2) KA is 2.1.32 ability to explain/apply system limits.

**REVIEW AND APPROVE A SAFEGUARDS EVENT NOTIFICATION WORKSHEET (ENW) FOR SECURITY THREAT (faulted):**

1) The reviewer has a 50-50 chance of getting the reportability correct (either "1 hour" or "Log Only") which is provides insufficient test of the applicant's analysis, diagnosis, and decision making. Replace or enhance.

**RESOLUTION:**

1) This JPM was replaced with "Determine actions required for a security threat."

Clinton JPM and Scenario Comments  
*and RESOLUTION*

**SCENARIO 1:**

Event 6 was on the last NRC exam it should be replaced.

**RESOLUTION:**

1) *This event was deleted and a normal event added to replace it.*

**SCENARIO 2:**

Event 4 "a control drifts out" is too much like event 2 "an uncoupled rod" in scenario 1 (uses same procedures)

**RESOLUTION:**

1) *This event was replaced with an inadvertent Recirc Flow Control Valve closure.*

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			
<b>RO EXAM QUESTIONS 1 THROUGH 75</b>																
1N	H	3													S	
2N #	H	5				X				X					U S	<p>First, the correct answer "C" requires that the candidate remember without the aid of a procedure that DC load shed must be completed within one hour.</p> <p>Second, distractor "D", could be correct. With a loss of all AC power and therefore a loss of control room ventilation why couldn't reaching the habitability limit be possible?</p> <p>Third, distractor "A", could be correct. Is the bypass of RCIC leak detection isolation automatic? If not why is "A" incorrect?</p> <p><b>RESOLUTION:</b>                      1) This is consistent with plant expectations.                      2) Clinton has a dedicated blackout power supply for control room ventilation.                      3) Distractor "A" changed</p>

Instructions

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

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

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				
3N #@	H	3							X							U S	<p>First, if there are two DC power source for SRVs or no DC is needed to operate SRVs and that is all that is needed to get this question right, then LOD=1.</p> <p>Second, to know distractors "B" &amp; "C" are wrong the candidate must remember that RCIC and the a temperature transmitter on RWCU is powered from DC bus A rather than busses B or C. Is this level of knowledge expected without the use of plant documents?</p> <p>RESOLUTION:                      1) Answers changed to require more knowledge.                      2) Question consistent with site expectations.</p>
4N #	L	4														S	
5N #	H	2														S	
6N @	H	4	X					X								E S	<p>First, add suppression pool and RCIC suction tank level so there is a bases in the stem for distractor "D" being wrong.</p> <p>Second, change the rector pressure in the stem to 375 pisg so that grater than a 100drg cool down has already occurred and it can not be argued that distractor "C" is also correct.</p> <p>RESOLUTION:                      1) Done                      2) Agree that "C" is wronge as is for stated stem conditions.</p>
7B *@	L	3														S	
8B *	H	4														S	
9N #@	L	2														S	
10B *	L	3														S	
11N #	H? L	2						X								E S	<p>Does the Clinton SAT based training program require ROs to know EOP bases? At most sites this would be an SRO question.</p> <p>Why does the site feel this question is Cog Level L?</p> <p>RESOLUTION:                      1) At Clinton RO SAT training requires knowledge of bases of EOP steps.                      2) Changed Cog Level to L.</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	Back-ward	Q=K/A	SRO Only			
54N	H	3													S	
55B *	H	3													S	
56N	H	3													S	Add noun names the valves in stem. RESOLUTION: OK as is these valves are always referred to by number.
57N @	L	3													S	
58N @	H	3													S	
59N	L	2													S	
60B * @	H	3													S	
61N	L	3													S	
62N	L	4													S	
63N	L	3													S	
64N	L	4													S	
65N # @	H	3						X							U S	Does the Clinton SAT based training program require ROs to know this? At most sites this would be an SRO question. RESOLUTION: At Clinton RO SAT training requires knowledge of T. S. Safety Limits.
66N	L	2													S	
67N @	L	3													S	
68N @	H	4													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			
89N #	H	3												x	U S	Not SRO only. It is an abnormal operating procedure performed by an RO. The RO must have knowledge of his actions and why.  RESOLUTION: Question replaced with a new question with a different randomly selected KA.
90M #	H	2		x											U S	Cue given in the stem in parentheses (recommended min temp 85F), is this required? Also, choices C and D appear non-plausible, for nothing in T/S notes the requirement to verify DG 1C to start.  RESOLUTION: Cue removed from stem. Distractor C changed. Distractor D credible because the requirement to verify DG 1C to start would be correct if only one other DG was inop.
91N	H	3													E S	Part (2) of stem should read what procedure should be entered instead of what action. The choices reflect procedure and not an action.  RESOLUTION: Changes made.
92N #@	L	3													S	
93N *	H? H	3													S	Cog level L memory of T/S bases.  RESOLUTION: Agree cog level H must understand T/S bases and action to correct based on current plant conditions.
94B *@	L	2		x											U S	The answer choices are written verbatim from the procedure, with selected all capital lettering on select answers, gives potential cues and specific determiners, contrary to Appendix B sections C.1.g. Rerword the choices. RESOLUTION: Done
95N #@	L	2													E S	Why is choice C incorrect? Also, consider adding another type of interlock bypass that is incorrect, otherwise the only interlock bypass is the correct answer which appears to be a specific determiner, contrary to Appendix B section C.2.m (2) & (6).  RESOLUTION: Distractor C changed to correct both comments.
96N @	L	1				x									U S	Choices C and D not plausible, if you halt fuel load why would you continue fuel load in other quadrants in the core? Unrealistic, unless provide a condition that you would perform choices C or D. In addition, during fuel loading if any problem occurs you always would stop fuel load. Choice A is a fail safe answer, can be argued to be always correct.  RESOLUTION: Stem conditions changed to make C and D plausible and the correct answer that fuel loading can continue in quadrant 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	Back-ward	Q=K/A	SRO Only		
97N	H	2												S	
98N	H	3												S	
99N	H	3		x										U S	Again specific determiner, contrary to Appendix B section C.2.m(6), i.e., the correct answer is the only one choice different structure than the rest. Also, the correct answer is the only choice that notes RCIC leak is unisolable, whereas, the other three the RCIC leak is isolated. Make one other choice with RCIC leak unisolable.  RESOLUTION: Changes make.
100B *@	L	3		x										U S	Again specific determiner, contrary to Appendix B section C.2.m(6), i.e., the correct answer is the only one choice different structure than the rest, i.e., longer than the other choices. In addition, the format of the choices are set similarly as choices A or B, or all of the above. It does not have the wording "all of the above" but the last choice is the combination of all the other choices. Per Appendix B section C.2.b of NUREG 1021 it is to be avoided. Also, the NOTE in the stem appears unnecessary, why do we need it? It also appears to create a potential a cue to select the correct choice, i.e., "ALL the components needed to authorize access."  RESOLUTION: Distractors changed to address concerns.

# 30 questions initially reviewed

\* 30 questions reviewed for correct KA

@ 30 question reviewed for reference verification

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/1 RO	300000K5.13	Due to insufficient sampling of the K2 category (only one randomly selected) this K/A was randomly deselected to allow the addition of a K2 item.
1/1 RO	295016AA1.02	This specific K/A is not relevant at Clinton Power Station (CPS), the reactor/turbine pressure regulating system is not operated during Control Room Abandonment. Replaced with AA1.08 by random selection from the remaining K/A statements in the 295016 A1 area.
1/2 RO	295036EK2.02	No interrelationship exists between a Secondary Containment High Sump/Area Water Level and the Post Accident Sampling System at CPS, replaced with EK2.01 by random selection from the remaining K/A statements in the 295036 EK2 area.
2/1 RO	300000K4.01	No psychometrically viable question could be developed. Randomly selected K4.03 from the remaining two K/As in the K4 area to replace the deselected K/A.
2/1 RO	239002A2.05	No psychometrically viable question could be developed valves do not close in response to low pressure. Randomly selected A2.03 from the five remaining K/As in the A2 area. A2.03 selected.
1/1 SRO	2.1.30 as applied to 295006	No SRO ONLY knowledge required by 2.1.30 as applied to 295006. Replaced with 2.1.32 as applied to 295006.
1/1 SRO	2.1.30 as applied to 295018	No SRO ONLY knowledge required by 2.1.30 as applied to 295018. Replaced with 2.4.30 as applied to 295018.
2/1 SRO	300000A3.02	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replaced with 300000A2.01.
3 SRO	2.4.31	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 2.4.22
2/2 SRO	290002K1.03	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replaced with 290002A2.06.
2/2 SRO	245000A1.06	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 2.1.32 as applied to 245000.
1/2 SRO	295009AK3.01	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 295009AA2.01.
1/1 SRO	295026EK2.04	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 2.4.4 as applied to 295026.
1/1 SRO	295016AA1.03	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 295016AA2.05.
1/1 SRO	295016AA2.05	No psychometrically viable question consistent with CPS procedures. Replacement K/A is 295016AA2.02.
1/1 SRO	2.4.49 as applied to 295003	Deselected due to limited SRO applicability at CPS. Replaced by random selection with 2.2.22 as applied to 295003.
2/2 RO	215001A2.08	Deselected because only the Reactor Engineers perform operations with the TIPs. The TIPs are stored in the RPV and there are no containment isolations associated with them. Replaced by random selection with 239003A4.03.

2/2 SRO	245000G2.1.32	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 202002G2.2.22.
1/1 SRO	295001K1.04	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 295025EA2.06.
2/1 SRO	259002A2.04	No SRO ONLY knowledge required by this K/A and limited applicability to 10 CFR 55.43. Replacement K/A is 2.1.12 as applied to 211000.