Form 2.3-3 Operating Test Review Worksheet (JPMs)

Facility: Quad Cities												Exam Date: 01/30/2023
1	2	3	4	5 JPM Errors							6	7
JPM # or Title	Type (S/P/A)	ALT (Y/N)	LOD (1–5)	LOD	REF	IC	TSK	CUE	CS	TL	U/E/S	Explanation
(SRO/CO1, A1.1) Authorization of OT	A	N/A	2								~~E~~ S	NRC: • Provide an "answer key" showing how the LS-AA-119 Attachment 1 is expected to be filled out. Response: Done and added as attachment 1 in the JPM.
(SRO/CO2, A1.2) Determine CCST Heater Req'ts	A	N/A	2								~~E~~ S	NRC: • Change the initiating cue to "document the results of your review on this cue sheet" (or something similar) instead of "inform the shift manager". Response: Initiating cue revised for documentation and still includes informing SM.
(SRO/EC, A2) Review SBLC Pump Flow Rate Test	A	N/A	3					~~X~~			~~U~~ S	NRC: • Revise the task standard to say "Review … and identifies the inoperability of Subsystem 'A' and both Subsystems separately". • Change the initiating cue to "document the results of your review on this cue sheet" (or something similar) instead of "notify the shift manager". ○ Delete the end of the initiating cue "if applicable, of any actions required…" • The cue before Step H.6.f is leading. If anything, the evaluator should only say – "I understand that your review of the SBLC Pump Flow Rate Test is complete and you have documented your results and recommended action." Response: Task standard revised. Initiating cue revised for documentation and still includes informing SM. The cue prior to H.6.f has been removed. To address the removal and ensure both errors are discovered the initiating cue portion has been revised "Review the SBLC PUMP FLOW RATE TEST (partial for 1A pump) **in its entirety** and determine the operability status of the SBLC system."
(SRO/RC, A3) SJAE Rad Monitor Evaluation	A	N/A	3								~~E~~ S	NRC: • Revise the initiating cue to – "Determine the status of 1-1705-3B-3B SJAE RAD MON 2, document recommended/required actions, and forward them to the Shift Manager for review." • Provide an "answer key" showing how the QCOP 1700-02 Attachment A is expected to be filled out. Response: Initiating cue revised. Key added as attachment in JPM.

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Facility: Quad Cities												Exam Date: 01/30/2023
1 JPM # or Title	2 Type (S/P/A)	3 ALT (Y/N)	4 LOD (1–5)	5 JPM Errors LOD	REF	IC	TSK	CUE	CS	TL	6 U/E/S	7 Explanation
(SRO/EP, A4) Classify Hostile Action Event	A	N/A	3								~~E~~ S	NRC: • Provide an "answer key" showing how the NARS form is expected to be filled out. • Add a place to document the time that the NARS form is submitted. • If there is no release in progress (Block #5), should Blocks #6 through #9 be considered "critical" to successful completion of the JPM? Response: "Answer Key" inserted as attachment 1 in JPM. Added space for documenting time. Steps #6-9 are no longer critical since there is no release in progress.
a. CRD Weekly Exercise (Uncoupled Rod) **(ALT PATH)**	S	Y	3								S	
b. FWLC System to Local Single Element	S	N	3								~~E~~ S	NRC: • Revise step F.1.d to add "(approx. 2 in below indicated Reactor water level)" at the end of the Standard description. • Revise step F.1.f to add "(approx. 1 in above indicated Reactor water level)" at the end of the Standard description. Response: Recommended changes made.
c. Adjust Turbine Generator Load Set	S	N	2								S	
d. Control Reactor Pressure with RCIC (Steam Drain Line High Level) **(ALT PATH)**	S	Y	3								~~E~~ S	NRC: • Is there a consequence to leaving AO 1-1301-32 OPEN when starting RCIC? o If so, revise the JPM to add a critical step to CLOSE it. o If not, revise the Unit Supervisor cue (about closing it) to say something like "take your recommended action". Response: No, there is no safety significance for leaving the 32 valve open. I changed the cue for the US.
e. Energize 480 VAC Bus 15 (Normal Feed Breaker Fails) **(ALT PATH)**	S	Y	3				~~X~~				~~U~~ S	NRC: • The Task Standard is not accurate. Revise it to read "Re-energize Bus 15 and Bus 16 per QOA 6700-01. Bus 15 via the 15-16 crosstie and Bus 16 via the normal feed." (or something similar) Response: Task Standard Rewritten.

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Facility: Quad Cities												Exam Date: 01/30/2023
1 JPM # or Title	2 Type (S/P/A)	3 ALT (Y/N)	4 LOD (1–5)	5 JPM Errors LOD	REF	IC	TSK	CUE	CS	TL	6 U/E/S	7 Explanation
f. IRM NOT FULL IN Position Rod Block Functional Test	S	N	2								~~E~~ S	NRC: • Provide an "answer key" showing how the Attachment A is expected to be filled out. Response: This is added to evaluator note.
g. SBGT Monthly Op Test (Heater Failure After S/D) **(ALT PATH)**	S	Y	3					~~X~~			~~U~~ S	NRC: • The first cue before Step H.2.s is leading. ○ Delete "If the operator does not discover the failure within that time, report via an EO in the field that 'There is smoke issuing from the 1/2B train of the SBGTS.'" ○ ~~Revise the failure criteria statement to "Failure to identify that the heater is still running within 30 seconds is grounds for failure of this JPM."~~ Response: I do not believe the cue is leading. It does not make a decision for the operator in any way. It is stated in the initial conditions of the JPM that there is an EO in the field stationed at the train. The operator has already failed the JPM in this instance, so you could say it is unnecessary as a cue. I will remove it on that premise as you recommend. You are informing them of a realistic issue that could occur from their failure to follow procedural guidance. It is operationally valid.
i. Depressurize the Scram Air Header	P	N	3								S	
j. Start 1/2B CR HVAC (FCV Failure) **(ALT PATH)**	P	Y	3								S	
k. Energize B RPS with Normal Power	P	N	3								S	

Form 2.3-3 Instructions for Completing the JPM Table

1. Enter the JPM number and/or title.

2. Enter the type of JPM—(S)imulator, (P)lant, or (A)dministrative.

3. Enter (Y)es or (N)o for an Alternate Path JPM.

4. Rate the level of difficulty (LOD) of each JPM using a scale of 1–5 (easy–difficult). A JPM containing less than two critical steps, a JPM that tests solely for recall or memorization, or a JPM that involves directly looking up a single correct answer is likely LOD = 1 (too easy). Conversely, a JPM with over 30 steps or a JPM that takes more than 45 minutes to complete is likely LOD = 5 (too difficult).

5. Check the appropriate block for each JPM error type, using the following criteria:

    - LOD = 1 or 5 is unsatisfactory (U).

    - REF: The JPM lacks required references, tools, or procedures (U).

    - IC: The JPM initial conditions are missing or the JPM lacks an adequate initial cue (U).

    - CUE: The JPM lacks adequate evaluator cues to allow the applicant to complete the task, or the evaluator cues are subjective or leading (U).

    - TSK: The JPM lacks a task standard or lacks completion criteria for a task standard (U).

    - CS: The JPM contains errors in designating critical steps, or the JPM lacks an adequate performance standard for a critical step (U).

    - TL: The JPM validation times are unreasonable, or a time-critical JPM lacks a completion time (U).

6. Mark the JPM as unsatisfactory (U), satisfactory (S), or needs enhancements (E). A JPM is (U) if it has one or more (U) errors as determined in step 5. Examples of enhancements include formatting, spelling, or other minor changes.

7. Briefly describe any JPM determined to be unsatisfactory (U) or needing enhancement (E). Save initial review comments and detail subsequent comment resolution so that each exam bound JPM is marked by a satisfactory (S) resolution on this form.

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 1			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
1 Pressurize the RCIC Steam Line						S	
2 Load Increase to 100% Power						~~E~~ S	NRC: • Typo – Delete "in" between "Withdraws control rods" and "to raise FCL…". • Can the simulator operator tell when the 2nd control rod is selected? ○ If so, revise the Lead Evaluator Note to be a Sim Op Note. Response: Fixed.
3 RBM 8 Fails Upscale						~~E~~ S	NRC: • Add a Lead Evaluator Note after the end of Event 3 to "return to Event 2". Response: Done.
4 1D Drywell Cooler Fan Trip						S	
5 Loss of RPS B						~~E~~ S	NRC: • Does the different font in the middle of the page signify something? ○ If not, make the fonts the same. Response: Fixed.
6 1D MSL Break Inside the Drywell						~~E~~ S	NRC: • Critical Task #1 needs to be more descriptive. Revise as follows: ○ With a reactor scram required and the reactor not shutdown, (1a) Inject Boron BEFORE 110 °F in the Torus -OR- (1b) Insert Rods (all or all but one) BEFORE exceeding Primary Containment design limits [these must be measurable values]. Response: Changed to recommendation with the exception of not including the "all, or all but one" portion of rods. The intent is not to perform full shutdown it is to reduce power. Rod movement is still an observable measurable objective.
7 Electric ATWS (Failure of RPS Channel A)						S	
8 Both Loops of Drywell Sprays Fail to Operate						S	

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 1			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
9 RPV Blowdown Prior to Exceeding PSP Limit				~~X~~		~~U~~ S	NRC: • Critical Task #2 is written as a conditional statement. Revise as follows: o With a steam leak inside primary containment, (2a) Spray the Drywell and Torus BEFORE exceeding PSP -OR- (2b) Initiate RPV Blowdown BEFORE exceeding PSP. Response: Fixed.

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 2			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
1 Swap SSMP Feed Breaker to Bus 24-1						S	
2 1A Service Water Pump Degrades						S	
3 Reactor Feed Pump Vent Fan Trip with Standby Fan Auto-Start Failure						S	
4 1B Core Spray Room Cooler Low Flow						S	
5 APRM 5 Fails High / Control Rod Scrams and Sticks at Position 10						~~E~~ S	NRC: • Revise the SIM OP Note to fail the APRM at the Lead Evaluator's direction. ○ Related comment. Response: Done.
6 Instrument Air Leak						~~E~~ S	NRC: • Should the SIM OP Note about deleting the IA02 malfunction be moved to just after the 1A and U2 IA Compressors are started? Response: Moved.
7 Main Condenser Vacuum Leak / Emergency Power Reduction / SCRAM						~~E~~ S	NRC: • Typo – Change "insert a 100% hydraulically lock" to "insert a 100% hydraulic lock". Response: Fixed.

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 2			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
8 ½ Core Hydraulic ATWS				X		~~E~~ S	NRC: • Critical Task #1 needs to be more descriptive. Revise as follows: o With a reactor scram required and the reactor not shutdown, (1a) Inject Boron BEFORE 110 °F in the Torus -OR- (1b) Insert Rods (all or all but one) BEFORE exceeding Primary Containment design limits [these must be measurable values]. • Critical Task #3 needs to have more detail included in the clarification section: o Identify exactly what "either of the reactor power or level thresholds is not met …" means. o Identify exactly what "if both conditions are met …" means. o Every effort should be made to ensure that the expediency of a Critical Task is NOT subjective… The time to Terminate & Prevent should be tied to consequential action if it is done too early or too late… Determine what happens in each instance and make that the timeliness criteria. Response: Changed as follows: During a high power ATWS (>5%) with and RPV level above -35", TERMINATE AND PREVENT INJECTION (with the exception of boron, CRD, and RCIC) into the RPV per QGA 101 within 148 seconds. Clarification: This critical task is not met if injection (except for RCIC, boron, and CRD) has not been terminated and prevented within 145 seconds. These actions are typically met when both hydraulic FRVs and the AO LFFRV are closed. To prevent or mitigate the consequences of any large irregular neutron flux oscillations induced by neutronic/ thermal hydraulic instabilities, RPV water level is lowered sufficiently below the elevation of the feedwater sparger nozzles within 148 seconds, based on fuel analysis. This places the feedwater spargers in the steam space providing effective heating of the relatively cold feedwater and eliminating the potential for high core inlet subcooling. If injection is restarted before RWL drops to -35", this task is also not met. The timing of this evaluation is dependent upon execution of the level control leg of QGA 101, however must be complete within 145 seconds due to power oscillations that would cause fuel damage.

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 3			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
1 Swap EHC Pumps						S	
2 Raise Reactor Power with Rods and Recirc						S	
3 Recirc Master Speed Demand "RAISE" Pushbutton Sticks						S	
4 SJAE Suction Valves Fail Closed						S	
5 3E ERV Acoustic Monitor Failure						S	
6 HPCI Spurious Initiation						S	
7 1B Condensate Pump Trip with Standby Pump Auto-Start Failure						S	
8 LOCA (1A Recirc Pump Discharge Line Break)						~~E~~ S	NRC: • Critical Task #2 action endpoint needs to be BEFORE ADS System Actuation: o Revise the end of the Clarification to read "… setpoint(s) and ADS initiates". Response: Per QGA 100, RPV Control, with the automatic ADS timer initiated, INHIBIT ADS BEFORE ADS setpoint(s) is(are) reached and ADS initiates.
9 Loss of Reactor Feed Pumps						S	
10 TAF / RPV Blowdown						S	

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 4			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
1 Revers Main Condenser Flow						S	
2 1B ASD Cell Failure/Bypass						~~E~~ S	NRC: • At the bottom of Page 14 it says “Event 2 Continued” … Should that be “End of Event 2”? Response: Yes. Changed.
3 1B Stator Cooling Water Pump Degrades						S	
4 1C RFP Oil Leak and Bearing Failure / Emergency Power Reduction						S	
5 Secure 1C RFP and a Condensate or Condensate Booster Pump						S	
6 Flow Converter 2 Fails High						S	

Form 2.3-3 Operating Test Review Worksheet (Scenarios)

Facility: Quad Cities			Scenario: 4			Exam Date: 01/30/2023	
1 Scenario Event ID/Name:	2 Scenario event errors					3 U/E/S	4 Explanation
	Realism/ Credibility	Performance Standards	Verifiable Actions	Critical Task	TS		
7 Earthquake / Recirc Pumps Trip / HPCI Steam Line Break / RWCU Line Break				~~X~~		~~U~~ S	NRC: • Critical Task #1 is not bounded. Revise CT1 to: ○ "Given an operating reactor plant with the loss of both reactor recirculation pumps, take actions to scram the reactor and exit Instability Region I BEFORE an Automatic Reactor Scram due to OPRM instabilities." ○ Ray said he staggered the Recirc Pump trips. That could still be a problem. I think it would be clearer to trip recirc pumps then have a 15 second delay before the other things happen. That way, the ATC has an opportunity to achieve the CT as written. Response: Changed first bullet per recommendation. The Scenario change to a 15 second delay between the Recirc pump trips accomplished two things for us: 1) It allows the largest level transient to occur and resettle prior to the second recirc pump trip (We ran the recirc pump trip from the scenario's conditions and timed the level transient which is how we came up with the 15 second delay). The second trip comes at a reduced power level => no turbine trip from a level transient. 2) It also affords the crew the opportunity to demonstrate plant control by issuing Scram Criteria. If we just added a delay to the steam leaks without staggering the recirc pump trips, we would still have a large level transient that could cause the crew to unfairly not have an opportunity to meet the critical task as written.
8 HPCI and RWCU Isolation Valves Fail to Close						S	
9 RPV Blowdown (2 Areas Above Max Safe Temperature)						~~E~~ S	NRC: • Why is 10 minutes the right number for CT2? Response: It is not. We have revised this to state: With a primary system discharging into the reactor building and the discharge unable to be isolated, INITIATE an emergency depressurization when two or more areas of the same parameter (radiation, temperature, or water levels) are above max safe IAW QGA 300 and appropriate RPV blowdown leg BEFORE an additional area reaches a Max Safe Value in the same parameter.

Form 2.3-3 Instructions for Completing the Scenario Table

1. For each scenario, enter the scenario event names and descriptions.

2. Review the individual events contained in each scenario, and identify and mark event errors:

   - The scenario guide event description is not realistic/credible—unsatisfactory (U).

   - The scenario guide event description lacks adequate crew/operator performance standards—needs enhancement (E).

   - The scenario guide event description lacks verifiable actions for a credited normal event, reactivity event instrument/component malfunction, or technical specification (TS) event (or a combination of these) (U).

   - The scenario guide event description incorrectly designates an event as a critical task (i.e., a noncritical task labeled as critical or a critical task labeled as noncritical). This includes critical tasks that do not meet the critical task criteria (i.e., the critical task does not have a measurable performance standard) (U).

   - The scenario guide event description incorrectly designates entry into TS actions when not required or does not designate entry into TS actions when required (U).

3. Based on the outcome in step 2, mark the scenario event as unsatisfactory (U), satisfactory (S), or needs enhancements (E). An event is (U) if it has one or more (U) errors as determined in step 2. Examples of enhancements include formatting, spelling, or other minor changes.

4. Briefly describe any scenario event determined to be unsatisfactory (U) or needing enhancement (E). Save initial review comments and detail subsequent comment resolution so that each exam bound scenario event is marked by a satisfactory (S) resolution on this form.