

Facility: DAVIS-BESSE NUCLEAR POWER STATION												Exam Date: FEBRUARY 5 – 16, 2018	
Admin JPMs	1 ADMIN Topic and K/A	2 LOD (1-5)	3 Attributes							4 Job Content		5 U/E/S	6 Explanation
			I/C Focus	Cues	Critical Steps	Scope (N/B)	Overlap	Perf. Std.	Key	Minutia	Job Link		
SRO-A1.1	Conduct of Operations 2.1.37 Review a Calculated Shutdown Value	3				B						E S	<p>1) On page 1 of 12 on the JPM Worksheet, the Task Standard says "Reviews and corrects the Shutdown Value calculation to between -1.55%ΔK/K and -1.65%ΔK/K...". Change the above values to "-1.25%ΔK/K and -1.75%ΔK/K". <u>Reason:</u> The present values would not include the ANSWER KEY value of -1.5215%ΔK/K. The revised values are close to what one would obtain by summing all the maximum or minimum values from the applicable steps to get a total Shutdown Value.</p> <p>2) On the JPM Worksheet, step 6: In the STANDARD, for clarity, change from "ΔT = -12" to "ΔT = 520-532 = -12".</p> <p>3) On the JPM Worksheet, step 9: In the STANDARD, change lower limit from "-5.594%ΔK/K" to "-5.574%ΔK/K". <u>Reason:</u> If you add -2.624 from step 7 to -2.95 from step 8, one gets -5.574 for the lower limit.</p> <p>4) On the JPM Worksheet, step 10: In the STANDARD, change lower limit from "-0.088" to "-0.090". <u>Reason:</u> In reviewing Figure 11A, a value of -0.090 is approximately the same distance above the more exact value that 0.084 is below the exact value. <u>Response:</u> Licensee incorporated all corrections annotated above and, based on sensitivities of Figures required, correctly marked which steps were critical steps for completion of the JPM task. JPM is SAT.</p>
SRO-A1.2	Conduct of Operations 2.1.31 Review DB-OP-03006, Misc. Shift Check	3				N						S	<p>1) Step 4 should be critical. Remove COMMENT that step is not Critical. <u>Response:</u> Step marked as Critical and COMMENT removed. JPM is SAT.</p>
SRO-A2	Equipment Control 2.2.18 Review Shutdown Safety Assessment	3				N						S	<p>1) Verify validation time. <u>Response:</u> Adjusted validation time. JPM is SAT.</p>

SRO-A3	Radiation Control 2.3.4 Emergency Dose Authorization	2				M						S	1) Remove individual step cues that Mechanic has not received any Emergency dose, and add statement to Initial Conditions that none have received emergency dose. <u>Response:</u> Cues removed and item added to Initial Conditions. JPM is SAT.										
SRO-A4	Emergency Plan 2.4.44 Determine the Offsite PAR	3				B						S	1) Remove reference to a Containment-to-Annulus leak from Initial Conditions to clarify stem. <u>Response:</u> Removed Initial Condition Statement. JPM is SAT.										
RO-A1.1	Conduct of Operations 2.1.37 Manually Calculate a Shutdown Value	3				B						E S	1) On the JPM Worksheet, step 6: In the STANDARD, for clarity, change from "ΔT = -12" to "ΔT = 520-532 = -12". 2) On the JPM Worksheet, step 9: In the STANDARD, change lower limit from "-5.594%ΔK/K" to "-5.574%ΔK/K". <u>Reason:</u> If you add -2.624 from step 7 to -2.95 from step 8, one gets -5.574 for the lower limit. 3) On the JPM Worksheet, step 10: In the STANDARD, change lower limit from "-0.094" to "-0.090". <u>Reason:</u> In reviewing Figure 11A, a value of -0.090 is approximately the same distance above the more exact value that 0.084 is below the exact value. 4) On the JPM Worksheet, step 12: In the STANDARD, change the limiting values from "-6.50 and -7.50%ΔK/K" to "-6.70 and -7.10%ΔK/K". <u>Reason:</u> The revised values are close to what one would obtain by summing all the maximum or minimum values from the applicable steps to get a total Shutdown Value. <u>Response:</u> Licensee incorporated all corrections annotated above and, based on sensitivities of Figures required, correctly marked which steps were critical steps for completion of the JPM task. JPM is SAT.										
RO-A1.2	Conduct of Operations 2.1.43 Perform a 1/M Plot	3				B						E S	1) In the ANSWER KEY, change the Predicted Critical Positions on page 2 of 4 (as shown below) to agree with the Predicted Critical Positions from the 1/M Plot in the ANSWER KEY on page 1 of 4. Also, include a range of acceptable values for the Predicted Critical Position. <table><tr><td><u>Rod Index</u></td><td><u>Predicted Critical Position</u></td></tr><tr><td>25</td><td>from >300 to 290 (range 280 to 300)</td></tr><tr><td>50</td><td>from 175 to 178 (range 170 to 190)</td></tr><tr><td>75</td><td>from 128 to 125 (range 115 to 135)</td></tr><tr><td>100</td><td>from 111 to 112 (range 100 to 120)</td></tr></table> <u>Response:</u> Licensee made corrections. JPM is SAT.	<u>Rod Index</u>	<u>Predicted Critical Position</u>	25	from >300 to 290 (range 280 to 300)	50	from 175 to 178 (range 170 to 190)	75	from 128 to 125 (range 115 to 135)	100	from 111 to 112 (range 100 to 120)
<u>Rod Index</u>	<u>Predicted Critical Position</u>																						
25	from >300 to 290 (range 280 to 300)																						
50	from 175 to 178 (range 170 to 190)																						
75	from 128 to 125 (range 115 to 135)																						
100	from 111 to 112 (range 100 to 120)																						

RO-A2	Equipment Control 2.2.13 Review a Safety Clearance for CC210 with eSOMS unavailable.	3				B						E S	1) On the JPM Worksheet, for steps 1, 4, and 5: In the COMMENT section, delete the phrase "Step sequence not required for this JPM." <u>Reason</u> : This comment is confusing, since a hang order sequence and a clear removal sequence is required for this JPM. <u>Response</u> : COMMENTS associated with 'Step Sequence,' were removed. JPM is SAT.
RO-A3	Radiation Control 2.3.7 Stay Time Calculation	3				N						S	No Comments

Simulator/In-Plant JPMs	1 Safety Function and K/A												
S1 Manual Latch and PI Reset of Dropped Rod	1	3				N						S	No Comments
S2 Emergency Borate the RCS -Failure of the Reactor to Trip	2	3				N						S	1) Remove step 6 – no required action. <u>Response</u> : Step removed. JPM is SAT
S3 Boron Equalization Between PZR and RCS	3	3				B						S	1) Remove Cue in step 2 as direction is given in the initiating cue. <u>Response</u> : Cue removed. JPM is SAT
S4 Commence Rapid CD of RCS via TBVs and AVVs	4S	3				B						S	No Comments
S5 Recover from Inadvertent SFAS Level 4 Actuation	5	3				B						E S	1) Verify validation time. (None listed on JPM.) 2) Remove step 7 to obtain Shift Manager's permission, as this is given in the initiating cue. 3) Remove step 11 to N/A step for channels not tripped. Mark-up procedure prior to giving to applicant. <u>Response</u> : Licensee incorporated all corrections annotated above. JPM is SAT.

S6 Remove Trans CE1-1 from Service	6	3				N						S	No Comments
S7 Restore a Tripped RPS Channel to Service	7	3				B						S	No Comments
S8 Vacuum and GS Systems Action during a Loss of Inst. Air	8	3				B						S	1) Change Initiating Cue to have Shift Manager direct the applicant to perform Att. 13 "and Then Perform" Att. 11 for Cond System vice directing during JPM after Att. 13 is complete. Response: Licensee incorporated change to initiating cue. JPM is SAT.
P1 Perform Section 1 Att. 7 of OP2000	2	3				B						S	No Comments.
P2 Emergency Shutdown of EDG 1	6	3				B						S	No Comments
P3 Dedicate the EAC to Supply Inst. Air	8	3				B						S	No Comments

Instructions for Completing This Table:

Check or mark any item(s) requiring a comment and explain the issue in the space provided using the guide below.

1. Check each JPM for appropriate administrative topic requirements (COO, EC, Rad, and EP) or safety function requirements and corresponding K/A. Mark in column 1. (ES-301, D.3 and D.4)
2. Determine the level of difficulty (LOD) using an established 1–5 rating scale. Levels 1 and 5 represent an inappropriate (low or high) discriminatory level for the license that is being tested. Mark in column 2 (Appendix D, C.1.f)
3. In column 3, “Attributes,” check the appropriate box when an attribute is **not met**:
 - The initial conditions and/or initiating cue is clear to ensure the operator understands the task and how to begin. (Appendix C, B.4)
 - The JPM contains appropriate cues that clearly indicate when they should be provided to the examinee. Cues are objective and not leading. (Appendix C, D.1)
 - All critical steps (elements) are properly identified.
 - The scope of the task is not too narrow (N) or too broad (B).
 - Excessive overlap does not occur with other parts of the operating test or written examination. (ES-301, D.1.a, and ES-301, D.2.a)
 - The task performance standard clearly describes the expected outcome (i.e., end state). Each performance step identifies a standard for successful completion of the step.
 - A valid marked up key was provided (e.g., graph interpretation, initialed steps for handouts).
4. For column 4, “Job Content,” check the appropriate box if the job content flaw **does not meet** the following elements:
 - Topics are linked to the job content (e.g., not a disguised task, task required in real job).
 - The JPM has meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding and ability to safely operate the plant. (ES-301, D.2.c)
5. Based on the reviewer's judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 5.
6. In column 6, provide a brief description of any (U)nacceptable or (E)nhancement rating from column 5.

Save initial review comments and detail subsequent comment resolution so that each exam-bound JPM is marked by a (S)atisfactory resolution on this form.

Facility: DAVIS-BESSE NUCLEAR POWER STATION					Scenario: 1 (Low Power)				Exam Date: FEBRUARY 5 – 16, 2018
1	2	3	4	5	6	7	8	9	10
Event	Realism/ Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scenario Overlap	U/E/S	Explanation
1-R-ATC									5% power / Mode 1
2-N-BOP									
3-C-BOP							S3-15		
4-T-SRO(O)					X				
5-C-BOP							S2-15		
6-I-BOP(TS)					X				
7-C-ATC							S4-15		* BOP will trip all RCPs vs ATC (validation) if closer. Original stated ATC.
8-M-ALL						X	S4-15		* Annotated which actions from Att. 11 (HPI Flow Balancing) are actually Critical.
9-C-ATC						X			
									Licensee provided better justification, including bounding criteria, to the Critical Tasks. Agreement on the performance measures obtained.
9	0	0	0		2	2	5	S	

Facility: DAVIS-BESSE NUCLEAR POWER STATION						Scenario: 2 (Free Sample)			Exam Date: FEBRUARY 5 – 16, 2018	
1	2	3	4	5	6	7	8	9	10	
Event	Realism/ Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scenario Overlap	U/E/S	Explanation	
1-N-ATC									Maintain 100% Power – Routine Activities	
2-C-BOP(TS)					X					
3-I-ATC							S1-15			
4-C-BOP(TS)					X		S3-16			
5-C-BOP							S3-15			
6-R-ATC										
7-M-ALL						X	S2-16 S1-15		Added NOTE for performance criteria on the Critical Task.	
8-C-ATC						X	S3-16			
									Licensee provided better justification, including bounding criteria, to the Critical Tasks. Agreement on the performance measures obtained.	
8	0	0	0		2	2	3	S		

Facility: DAVIS-BESSE NUCLEAR POWER STATION					Scenario: 3			Exam Date: FEBRUARY 5 – 16, 2018	
1 Event	2 Realism/ Cred.	3 Required Actions	4 Verifiable actions	5 LOD	6 TS	7 CTs	8 Scenario Overlap	9 U/E/S	10 Explanation
1-N-BOP									70% Power with RCP 1-1 Secured
2-C-BOP									
3-C-ATC(TS)					X	X	S3-15		Added NOTE for performance criteria on the Critical Task.
4-C-BOP									
5-R-ATC(TS)					X		S4-16		
6-C-ATC							S3-16		
7-M-ALL							S4-16 S3-15		
8-C-ATC						X	S3-15		Added NOTE for performance criteria on the Critical Task.
									Licensee provided better justification, including bounding criteria, to the Critical Tasks. Agreement on the performance measures obtained.
8	0	0	0		2	2	3	S	

Instructions for Completing This Table:

Use this table for each scenario for evaluation.

- 2 Check this box if the events are not related (e.g., seismic event followed by a pipe rupture) **OR** if the events do not obey the laws of physics and thermodynamics.
- 3, 4 In columns 3 and 4, check the box if there is **no** verifiable or required action, as applicable. Examples of required actions are as follows: (ES-301, D.5f)
- opening, closing, and throttling valves
 - starting and stopping equipment
 - raising and lowering level, flow, and pressure
 - making decisions and giving directions
 - acknowledging or verifying key alarms and automatic actions (Uncomplicated events that require no operator action beyond this should **not** be included on the operating test unless they are necessary to set the stage for subsequent events. (Appendix D, B.3))
- 5 Check this box if the level of difficulty is **not** appropriate.
- 6 Check this box if the event has a TS.
- 7 Check this box if the event has a critical task (CT). If the same CT covers more than one event, check the event where the CT started **only**.
- 8 Check this box if the event overlaps with another event on any of the last two NRC examinations. (Appendix D, C.1.f)
- 9 Based on the reviewer's judgment, is the event as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 9.
- 10 Record any explanations of the events here.

In the shaded boxes, sum the number of check marks in each column.

- In column 1, sum the number of events.
- In columns 2–4, record the total number of check marks for each column.
- In column 5, based on the reviewer's judgement, place a checkmark only if the scenario's LOD is not appropriate.
- In column 6, TS are required to be ≥ 2 for each scenario. (ES-301, D.5.d)
- In column 7, preidentified CTs should be ≥ 2 for each scenario. (Appendix D; ES-301, D.5.d; ES-301-4)
- In column 8, record the number of events not used on the two previous NRC initial licensing exams. A scenario is considered unsatisfactory if there is < 2 new events. (ES-301, D.5.b; Appendix D, C.1.f)
- In column 9, record whether the scenario as written (U)nacceptable, in need of (E)nhancement, or (S)atisfactory from column 11 of the simulator scenario table.

Facility: DAVIS-BESSE NUCLEAR POWER STATION									Exam Date: FEBRUARY 5 – 16, 2018
Scenario	1 Event Totals	2 Events Unsat.	3 TS Total	4 TS Unsat.	5 CT Total	6 CT Unsat.	7 % Unsat. Scenario Elements	8 U/E/S	11 Explanation
1	9	0	2	0	2	0	0	S	This Scenario is a New Scenario and will be performed by all applicants. Scenario is SAT.
2	8	0	2	0	2	0	0	S	Scenario is SAT.
3	8	0	2	0	2	0	0	S	Scenario is SAT.

Instructions for Completing This Table:

Check or mark any item(s) requiring comment and explain the issue in the space provided.

1, 3, 5 For each simulator scenario, enter the **total** number of events (column 1), TS entries/actions (column 3), and CTs (column 5).
This number should match the respective scenario from the event-based scenario tables (the sum from columns 1, 6, and 7, respectively).

2, 4, 6 For each simulator scenario, evaluate each event, TS, and CT as (S)atisfactory, (E)nhance, or (U)nsatisfactory based on the following criteria:

- Events. Each event is described on a Form ES-D-2, including all switch manipulations, pertinent alarms, and verifiable actions. Event actions are balanced between at-the-controls and balance-of-plant applicants during the scenario. All event-related attributes on Form ES-301-4 are met. Enter the total number of unsatisfactory events in column 2.
- TS. A scenario includes at least two TS entries/actions across at least two different events. TS entries and actions are detailed on Form ES-D-2. Enter the total number of unsatisfactory TS entries/actions in column 4. (ES-301, D.5d)
- CT. Check that a scenario includes at least two preidentified CTs. This criterion is a target quantitative attribute, not an absolute minimum requirement. Check that each CT is explicitly bounded on Form ES-D-2 with measurable performance standards (see Appendix D). Enter the total number of unsatisfactory CTs in column 6.

7 In column 7, calculate the percentage of unsatisfactory scenario elements: $\left(\frac{2 + 4 + 6}{1 + 3 + 5}\right) 100\%$

8 If the value in column 7 is > 20%, mark the scenario as (U)nsatisfactory in column 8. If column 7 is ≤ 20%, annotate with (E)nhancement or (S)atisfactory.

9 In column 11, explain each unsatisfactory event, TS, and CT. Editorial comments can also be added here.

Save initial review comments and detail subsequent comment resolution so that each exam-bound scenario is marked by a (S)atisfactory resolution on this form.

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OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	0	3	5		
Sim/In-Plant JPMs	11	0	1	11		
Scenarios	3	0	0	3		
Op. Test Totals:	23	0	4	19	0	

Instructions for Completing This Table:

Update data for this table from quality reviews and totals in the previous tables and then calculate the percentage of total items that are unsatisfactory and give an explanation in the space provided.

- Enter the total number of items submitted for the operating test in the "Total" column. For example, if nine administrative JPMs were submitted, enter "9" in the "Total" items column for administrative JPMs. For scenarios, enter the total number of simulator scenarios.
- Enter the total number of (U)nsatisfactory JPMs and scenarios from the two JPMs column 5 and simulator scenarios column 8 in the previous tables. Provide an explanation in the space provided.
- Enter totals for (E)nhancements needed and (S)atisfactory JPMs and scenarios from the previous tables. This task is for tracking only.
- Total each column and enter the amounts in the "Op. Test Totals" row.
- Calculate the percentage of the operating test that is (U)nsatisfactory ($\text{Op. Test Total Unsat.} / (\text{Op. Test Total})$) and place this value in the bolded "% Unsat." cell.

Refer to ES-501, E.3.a, to rate the overall operating test as follows:
 - satisfactory, if the "Op. Test Total" "% Unsat." is $\leq 20\%$
 - unsatisfactory, if "Op. Test Total" "% Unsat." is $> 20\%$
- Update this table and the tables above with post-exam changes if the "as-administered" operating test required content changes, including the following:
 - The JPM performance standards were incorrect.
 - The administrative JPM tasks/keys were incorrect.
 - CTs were incorrect in the scenarios (not including post scenario critical tasks defined in Appendix D).
 - The EOP strategy was incorrect in a scenario(s).
 - TS entries/actions were determined to be incorrect in a scenario(s).