ES-301 **Operating Test Review Worksheet** **Form ES-301-7**

Facility: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 **Exam Date: NOVEMBER 1 – 10, 2021**

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-A-N-1 Reportability Determination	COO1 2.1.2 (4.4) N,R	2										S	NRC: None. Response: JPM is SAT as written.
SRO-A-N-2 Limitorque MOV and COV Operations Review	COO2 2.1.18 (3.8) D,R	3										S	NRC: Changed Applied K/A to 2.1.18 from 2.1.23 for Exam balance of coverage (oversampling). **From 2017 NRC Retake Exam.** Response: JPM is SAT as written.
SRO-A-N-3 Review Calc'd Drywell Leakage; Determine TSs	EC 2.2.40 (4.7) D,R	3										S	NRC: **From 2019 NRC Exam.** Response: Updated Validation time to 15 minutes. JPM is SAT.
SRO-A-N-4 Review CCSW Activity Calculation	RC 2.3.14 (3.8) P,D,R	2							X			~~E~~ S	NRC: Changed Applied K/A to 2.3.11 from 2.3.14 for Exam balance of coverage (oversampling). **From 2020 NRC Exam.** Correct JPM ADMIN outline for previous use. Based on Note (Cue) provided following Step 2, Note should be modified or Step 6 should be removed. Added the correct Dilution Flow value to the KEY Calculated CCSW sample activity limit. Response: Updated outline. Step 6 deleted. JPM is now SAT.
SRO-A-N-5 Determine Emergency Classification	EP 2.4.40 (4.4) ~~P~~ D,R	3										~~E~~ S	NRC: Changed Applied K/A to 2.4.40 from 2.4.41 for Exam balance of coverage (oversampling). **From 2019 NRC Exam.** Correct JPM ADMIN outline for previous use. Response: Updated outline. JPM is now SAT.
RO-A-N-1 Review Acoustic Monitor Accept. Criteria	COO1 2.1.7 (4.4) D,R	3										S	NRC: None. Response: JPM is SAT as written..
RO-A-N-2 Deter. Isolation Points for a Clearance Order	EC 2.2.41 (3.5) M,R	3						X				~~E~~ S	NRC: Modify Task Standard to match the Initiating Cue. Response: Removed EPN Sheet and modified Initiating Cue. JPM is now SAT.

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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		
RO-A-N-3 Perform Calc. for Rad Disch. to River	RP 2.3.11 (3.8) D,R	3							X			~~E~~ S	NRC: Provided revised Calculation acceptance ranges for Steps 2-5. Response: Acceptance criteria for calculations updated. JPM is now SAT.
RO-A-N-4 Handling of Personnel Emergencies	EP 2.4.11 (4.0) D,R	3										S	NRC: None. Response: JPM is SAT as written.

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Simulator/ In-Plant JPMs	1 Safety Function 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		
S-N-a (SBLC) Injection with Pump Failure	SF 1 211000 A4.08 A,D,EN,S	3			X							~~U~~ S	NRC: Step 2 should be considered Critical since the step sets up the alternate path actions and is required to meet the Task Standard. Response: Annotated Step 2 as a critical step. JPM is now SAT.
S-N-b (FW) Alternate Water Inject Using LPCI X-Tie	SF 2 295031 EA1.01 N,E,L,S	2										S	NRC: Due to coordination issues with running concurrently with other Simulator JPM, changed the injection path from "Div 1" to "Div 2". Response: JPM is SAT.
S-N-c (MNSTM) Alt Depress. Using MSL Drains	SF3 239001 A4.02 D,E,L,S	2										S	NRC: Why are I/Cs 3-5 required? Response: Removed Initial Condition 5; ICs 3 and 4 left in. JPM is now SAT
S-N-d (HPCI) Press Control w/ Aux Oil Pump Failure to Start	SF4 206000 A1.08 A,D,EN,S	3										S	NRC: None. Response: JPM is SAT as written
S-N-e (PCIS) Verify Gr2 Iso w/ Incomplete Isolation	SF5 223002 A4.01 A,D,EN,L,S	2			X							~~U~~ S	NRC: A portion of Step 2 should be considered Critical since the step sets up the alternate path actions and is required to meet the Task Standard. Also, why are AO 2-1601-61 and 1601-62 open bullets? Response: Added NOTE prior to step 2 to explain what valves are critical. JPM is now SAT.
S-N-f (AUXPWR) X-Tie Bus 28 to Bus 29 (RO-Only)	SF6 262001 A4.01 D,S	3			X							~~E~~ S	NRC: Step 6 should not be considered Critical based on the Note prior to the step states that this step may be simulated. Consider allowing the EO reset the UV locally. Response: Changed JPM to have EO reset UV locally. JPM is now SAT..
S-N-g (TBCCW) TBCCW Swap with Pump Failure	SF8 400000 A2.01 A,N,E,S	2						X				~~E~~ S	NRC: Consider removing Step 8 and inform the applicant that the JPM is complete following acknowledgement of the report that 2A TBCCW pump is running. (Alt Path) Response: Added cues for EO tasks in plant, and removed Step 8. JPM is SAT.

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Simulator/ In-Plant JPMs	1 Safety Function 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		
S-N-h (SBGT) Shutdown SBGT	SF9 261000 A4.06 D,EN,S	3										S	NRC: Due to coordination issues with running concurrently with other Simulator JPM, changed the affected Train from "A" to "B". Response: JPM is SAT.
S-N-i (CRD) Locally Pull Fuses to Reset ATWS/ARI Cir.	SF1 295037 EA1.03 D,E,EN	2										S	NRC: None. Response: JPM is SAT as written.
S-N-j (DC) Swap 125VDC Battery Charger	SF6 263000 A4.01 D,R	2										S	NRC: None. Response: JPM is SAT as written.
S-N-k (EDG) Swapping 2/3 EDG Cooling Water Flow	SF8 264000 G2.1.29 A,D,EN,P,R	3						X				~~E~~ S	NRC: Changed Applied K/A to 2.1.29 from 2.1.20 for Exam balance of coverage (oversampling). **From 2020 NRC Exam.** Why was Step 9 removed from the previous 'bank' JPM (acknowledging the DCW pump lock-out alarms)? If appropriately removed, subsequent steps should be re-numbered: if not appropriately removed, re-insert the Step [non-Critical] and Cue. Response: Reinserted Step 9 to JPM. Erroneously erased Step 9 prior to submittal. JPM is SAT as written.

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.

Scenario: 2 (80% Rx Power)									
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-BOP (Normal) SWC Pump Swap for Maint.								S	
2-ATC-SRO (C) CRD Pump Swap due to Grinding Noise							X	S	
3-ATC (Reactivity) Emergent Load Drop								S	
4-BOP-SRO (I/TS) HPCI Spurious Initiation					X			S	
5-ATC-SRO (C/TS) Control Rod Drift					X			S	
6-BOP-SRO (C) Bus Duct Blower Trips								S	
7-ALL (Major) RFP High Vibes-Man Scram with Recirc Leak						X		S	(PC-1.1)
8-BOP-SRO (C) Failure of EDG to Auto Start						X		S	(RPV-1.5)
9-ALL (Major) ED on RPV Lvl ↓, Recirc Leak, & Loss of All RFPs						X	X	S	(RPV1.1) This event has not been Modified at all?
9	**0**	**0**	**0**	**0**	**2**	**3**	**7**	**S**	

Scenario: 3 (Low Power-MODE 2 Start-Up: Free Sample)									
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-BOP (Normal Transfer MCC 28/7-29/7 from Bus 28 to Bus 29							X	S	
2-ATC (Reactivity) Raise Rx Power with Control Rods								S	
3-ATC-SRO (C/TS) Flow Control Valve Fails Closed					X			S	
4-BOP-SRO (C) Circ Water Pump Trip on Over Current								S	
5-ATC-SRO (C) RFP Swap due to Oil Leak								S	
6-BOP-SRO (C/TS) ERV Spurious Opening					X		X	S	
7-ALL (Major) Manual Scram - Loss of All SW						X		S	(RPV-5.1) Scram-Reset-Scram will be successful.
8-ALL (Major) ATWS (Hyd) with ARI Unsuccessful Manual Rod Drive						X	X	S	(RPV-5.4) Hi DW Press generates the ADS Timer initiation.
8	**0**	**0**	**0**	**0**	**2**	**2**	**5**	**S**	

Scenario: 4 (70% Rx Power)									
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-BOP (Normal) Load U2 EDG onto Bus 24-1								S	
2-ATC (Reactivity) Raise Power with Recirc Flow								S	
3-ATC-SRO (C/TS) Flow Converter Failure					X			S	
4-BOP-SRO (C) RBCCW Pump Trip on Over Current								S	
5-ATC-SRO (C) IRM Fails Downscale								S	
6-BOP-SRO (I/TS) IC Spurious Isol, Incomplete					X			S	
7-ALL (Major) Manual Scram Stm Leak in DW								S	
8-BOP-SRO (C) GEN Fails to Auto Trip								S	If manual action is not taken, the GCBs will not trip on reverse power.
9-ALL (Major) ED on Exceeding PSP due to Stm Leak & Loss of Buses 23-1 & 28						X X		S S	(PC-1.3) (RPV-2.3) 2B ERV fails to open.
9	**0**	**0**	**0**	**0**	**2**	**2**	**9**	**S**	

Instructions for Completing This Table:

Use this table for each scenario for evaluation.

1 List each individual scenario event.

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, pre-identified 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.

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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
ILT-N-2	9	0	2	0	3	0	0	S	
ILT-N-3	8	0	2	0	2	0	0	S	
ILT-N-4	9	0	2	0	2	0	0	S	

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:

a. 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.

b. 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)

c. CT. Check that a scenario includes at least two pre-identified 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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Facility: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 **Exam Date: NOVEMBER 1 – 10, 2021**

OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	0	4	5		
Sim/In-Plant JPMs	11	2	3	6		
Scenarios	3	0	0	3		
Op. Test Totals:	23	2	7	14	9%	SAT Submittal

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.

1. 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.

2. 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.

3. Enter totals for (E)nhancements needed and (S)atisfactory JPMs and scenarios from the previous tables. This task is for tracking only.

4. Total each column and enter the amounts in the "Op. Test Totals" row.

5. Calculate the percentage of the operating test that is (U)nsatisfactory (Op. Test Total Unsat.)/(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 ≤ 20%
   - unsatisfactory, if "Op. Test Total" "% Unsat." is > 20%

6. 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).