

Facility: Indian Point Unit 3		Exam Date: 10/30/17 – 11/3/17													
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			
	Review ECP	COO, 2.1.37	2.5							X	X			E	Answer key was not updated from a 3 day shutdown. Need more detailed performance standard or completely filled out answer key. Licensee updated – SAT. Updated current Boron concentration.
	Review AOP-SG-1 Leakrate Calculation	COO, 2.3.14 2.1.25	2.5			X				X				E	JPM cue requests required sample frequency, but there is no performance standard (answer) for that question and it is not critical? K/A listed on outline is not a conduct of operations K/A? Licensee updated – SAT. Corrected K/A.
	Review Tagout	EC, 2.2.13	2.5	X						X				E	JPM does not list the CCW print as a reference. Performance standard should state: <u>Boundaries reviewed and errors noted per attached key.</u> Licensee corrected – SAT.
	Review Gas Release	Rad, 2.3.06	2.5	X						X	X			U	Concentration of Noble Gas should say 0.15µci/cc. Performance standard should state: Calculation complete and errors identified <u>per attached key.</u> Calculated numbers and conclusions require revision. Licensee revised initial conditions & answer key – SAT.
	Classify Event	EP 2.4.41	2.5							X				E	Performance standard should state: ...Form completed within the required times <u>per attached key with critical information highlighted.</u> Licensee corrected – SAT.
	Simulator/In-Plant JPMs	1 Safety Function and K/A													
	Plant – Cont. Press Relief	8 403A1.04 029A1.03	2.5							X				E	Ok with safety function, using the Containment Pressure Relief and Purge Systems Operation procedure, Should use a Containment Purge (029) system K/A instead. Containment System (103) is in Safety Function 5, while 029 is in Safety Function 8. Use 029A1.03. Performance standard is unsat as written. State locate and properly manipulate the following equipment: ... Licensee corrected – SAT.

Plant - Lower Level in PRT	5 068A4.02- 007A1.01	2.0						X					E	Ok with safety function 5 if we use a PRT (007) K/A. Use 007A1.01, maintaining quench tank water level volume within limits. 068 is Liquid Waste & safety function 9. Performance standard is unsat as written. State locate and properly manipulate the following equipment: ... Page 6 of 8, step 12 says "Error! Reference source not found. - typo/format issue. Licensee corrected - SAT.
Plant - Locally Operate 32 Atm Steam Dump	4S 000068AA1.01	3.0		X				X					E	Ok with safety function 4S, but referencing a "Control Room Evacuation" AOP K/A. But because this is the required emergency or abnormal in-plant, the control room evacuation AOP is appropriate and operating the atmospheric steam dump valve is listed under 039, MRSS under 4S. This task is clearly removing heat from the core using the secondary and therefore meets the safety function 4S. <u>Cue for step 9 (page 4 of 8, 4.9.6.2) is wrong. Direction is to open valve, cue is backwards.</u> Performance standard is unsat as written. State locate and properly manipulate the following equipment: ... Licensee corrected - SAT.
Sim - Emergency Borate	1 000024A1.20	3.5		X				X					E	Performance standard is unsat, as written it is information that is included as a cue. State locate and properly manipulate the following equipment: <u>Need to state: "alternate path begins" at JPM step 4.</u> <u>Typo, step 8 of JPM, should be FCV-110A, not FCV-1110A.</u> <u>Step 15 should be critical.</u> Change the cue at step 19 to 530°F based on validation week. Licensee corrected - SAT.
Sim - Cold Leg Recirc	2 000024A1.11	3.0						X					E	<u>Need to state: "alternate path begins" at JPM step 21.</u> <u>Performance standard should state: RCS is aligned for cold leg recirculation using RHR.</u> Safety function 2 is ok, ECCS and operate in cold leg recirculation. They used operate and monitor long term cooling. Licensee updated - SAT.
Sim - Adjust R-18 Setpoint	9 073A4.02	2.5											S	Although they are using a Process rad monitor K/A in the instrumentation safety function (7), I believe that safety function 9 is appropriate since R-18 is the rad monitor associated with 068 (Liquid Radwaste) in safety function 9 - Radioactivity Release. Performance standard should state: ... setpoint is reset to <u>1.25EE-3 uci/ml</u> using the RM-23A controller. Licensee updated performance standard - SAT.

<p>Sim – Bleed & Feed</p>	<p>4P WE05A1.01</p>	<p>3.0</p>												<p>S</p> <p>Safety function is correct, 4P, Heat Removal from RCS – Primary. Could use 002, Reactor Coolant A2.04 – loss of heat sinks, but they used WE05A1.01 – Loss of Secondary Heat Sink. We had them change it to 4P instead of 3 Pressure Control. Bleed and feed is a response to a loss of secondary heat sink, but mitigation is the use of PORVs & ECCS (primary heat sink). Step 12 RNO could be utilized? See during prep week. Phase B? <u>Need to state: "alternate path begins" at JPM step 13.</u> Performance step 12 (procedure step 14c needs to include HHSI stop valves open as well. More detail needed in performance standard based on alternate path taken. Licensee corrected – SAT.</p>
<p>Sim – PZR Press Fails High Transfer Buses 1-4 to the Unit Aux Transformer</p>	<p>3 010A202 6 062A4.01</p>	<p>2.5</p>												<p>S</p> <p>JPM replaced due to issues with rate of pressure drop on simulator. Replaced with an electrical safety function (6), transfer buses 1-4 to the Unit Aux Transformer.</p>
<p>Sim – AOP-DC-1 Perform RO-1, BOP Operator Actions – Phase A Failures</p>	<p>6 058A2.03 5 103A3.01</p>	<p>3.0</p>												<p>S</p> <p>JPM replaced due to concerns with the physical location of controls and low LOD. Replaced with Perform RO-1, BOP Operator Actions – Phase A Failures – safety function 5 – Containment Integrity. Considered an alternate path, due to Phase A not actuating automatically or manually and then RNO to manually manipulate equipment.</p>
<p>Sim – Thot failure high</p>	<p>7 016A2.01</p>	<p>2.5</p>												<p>S</p> <p>Task standard needs to be more specific. Stable plant conditions is too generic. Performance step 11 (procedure step 4.145) should have a stated cue: If tavg adjustment is necessary a spare RO will restore Tavg. <u>Error! Bookmark not defined</u> is throughout JPM text, need to fix and ensure original JPM file is ok. Licensee corrected – SAT.</p>

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: Indian Point Unit 3			Scenario: 3 (low power)*					Exam Date: 10/30/17 – 11/3/17	
1	2	3	4	5	6	7	8	9	10
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation
1 Increase Power								S	
2 PZR Level Fails High					x			S	
3 33 Chg Pump Trip					x			S	
4 Loss of 480v bus 5A					x			S	Applicant action for event, page 11 of 16 needs to say start 31 Charging Pump, not 32. Be more specific in applicant's actions section on service water pump configuration and reason for requiring a shutdown. Tech Specs should be discussed as well.
5 SBLOCA						X(2)		S	
6-9 SI failures								S	
10 Degraded Core Cooling						x		S	
10	0	0	0	0	3	3	0	S	Controlling PZR Level failure and 33 Charging Pump trip not used on last two exams.
									* Note that scenario was not used due to potential exam security issue (no actual compromise), new spare written and it was also not used.

Facility: Indian Point Unit 3			Scenario: 4**				Exam Date: 10/30/17 – 11/3/17		
1	2	3	4	5	6	7	8	9	10
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation
1 Start HDTP								S	
2 Power Increase								S	
3 32 RCS Loop Flow Fails low					x			S	
4 Loss of 33 Instrument Bus-SW Pump Trip					x			S	Revised scenario after simulator issues (freeze) with the Loss of 33 Instrument Bus malfunction during prep week. Added SW Pump Trip.
5 32 RCP High Vibs								S	
6 32 CCW Pump Trip								S	Revised scenario after simulator issues (freeze) with the Loss of 33 Instrument Bus malfunction during prep week. Added SW Pump Trip.
6 32 RCP Seal								S	
7/8 32 RCP Trip / ATWS						x		S	
9 SBLOCA						x		S	
10 LOOP after SI Reset						x		S	
10	0	0	0	0	2	3	0	S	RCS flow failure, loss of 33 Instrument Bus RCP Seal / Vib. were not used on last two exams.
									** Revised scenario after simulator issues (freeze) with the Loss of 33 Instrument Bus malfunction during prep week. Added SW Pump Trip.

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:		Exam Date:								
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	7	0	2	0	3	0	0	S		
2	9	1	4	0	2	0	6	S	Licensee corrected first event to only take credit for TS.	
3	10	0	3	0	3	0	0	S		
4	10	0	2	0	3	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 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 9, 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.

Site name: _____ Exam Date: _____

OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	5	1	4	0		
Sim./In-Plant JPMs	10	0	5	5		
Scenarios	4	0	0	4		
Op. Test Totals:	19	1	9	9	5	

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 $\leq 20\%$
 - 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 postscenario 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).