

ES-301

## Administrative Topics Outline

Form ES-301-1

Facility: <u>Vogtle 1 &amp; 2</u>		Date of Examination: <u>06/10/2019</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO		Operating Test Number: <u>2019-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	<p><b>a. V-NRC-JP-14005-ILT22: Determine Available Shutdown Margin Following a Failed Control Rod Operability Test</b></p> <p><b>Description:</b> Unit 2 is at 100% reactor power. During control rod operability testing, two control rods in a group fail to move when demanded. In response to the failed control rod operability test, the applicant will be directed to determine the available Shutdown Margin for the given conditions using 14005-2, "Shutdown Margin and keff Calculations," and to determine if the required Acceptance Criteria are met.</p> <p>G2.1.43 RO 4.1</p>
Conduct of Operations	R, M	<p><b>b. V-NRC-JP-00012-ILT22: Determine On-Shift Manning Requirements for a Given Crew of Licensed and Non-Licensed Operators</b></p> <p><b>Description:</b> Both units are at 100% reactor power during a holiday weekend. Some operators are on vacation and others are out due to illness. Given a list of operators who have arrived to take the shift and their license status and qualifications, the applicant will be required to determine if the minimum shift manning requirements are met by completing Figure 1 of 00012-C, "Shift Manning Requirements."</p> <p>G2.1.05 RO 2.9*</p>
Equipment Control	R, D	<p><b>c. V-NRC-JP-14405-ILT22: Perform Boron Injection Flow Path Verification in Response to Equipment Failure</b></p> <p><b>Description:</b> Unit 1 is at 100% reactor power with 1HV-8801A, BIT Discharge Isolation, tagged out due to a failed surveillance. Subsequently, 1FV-121, Charging Flow Control, fails closed, which leads to a total loss of charging. Using the given conditions and data provided, the applicant will be directed to complete Figure 1 of surveillance 14405-1, "Boron Injection Flow Path Verification During Operation," and determine if the Acceptance Criteria are met in order to verify that two boron injection flow paths are available.</p> <p>G2.2.12 RO 3.7</p>

<p>Radiation Control</p>	<p>R, M</p>	<p><b>d. V-NRC-JP-00930-ILT22: Assess Radiological Conditions, Calculate Projected Dose to Determine Lowest Dose Route, and Determine if Task Can be Performed Without Exceeding the Task Dose Limit</b></p> <p><b>Description:</b> An operator will be dispatched to manually open an MOV in the Unit 1 RHR Pump Room. The applicant will be given two possible routes to the valve, the radiological conditions associated with each route, and the time required to complete the task. Two maps will also be provided that include the RHR 'A' Heat Exchanger Room and the RHR 'A' Pump Room, so the applicant must select the correct dose rate. The applicant will then be directed to calculate the lowest dose route based on the projected dose to the operator and determine if the task can be performed without exceeding the established dose limit.</p> <p>G2.3.12 RO 3.2</p>
<p>Emergency Plan</p>	<p>N/A</p>	<p>N/A</p>
<p>NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).</p>		
<p>* Type Codes &amp; Criteria:</p> <ul style="list-style-type: none"> <li>(C)ontrol room, (S)imulator, or Class(R)oom</li> <li>(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes)</li> <li>(N)ew or (M)odified from bank (≥ 1)</li> <li>(P)revious 2 exams (≤ 1; randomly selected)</li> </ul>		

Facility: <u>Vogtle 1 &amp; 2</u> Examination Level: RO      SRO <input checked="" type="checkbox"/>		Date of Examination: <u>06/10/2019</u> Operating Test Number: <u>2019-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	<p><b>a. V-NRC-JP-14005-ILT22: Determine Available Shutdown Margin and Evaluate Tech Spec / TRM Required Actions</b></p> <p><b>Description:</b> Unit 2 is at 100% reactor power. During a control rod operability test, two control rods in a group fail to move when demanded. In response to the failed control rod operability test, the applicant will be required to calculate the available Shutdown Margin for the given conditions using 14005-2, "Shutdown Margin and keff Calculations." The applicant will then be required to determine the applicable Tech Spec / TRM Required Actions.</p> <p>G2.1.43    SRO 4.3</p>
Conduct of Operations	R, M	<p><b>b. V-NRC-JP-13009-ILT22: Determine Boration Requirements with the Boric Acid Storage Tank Out of Service and Evaluate Tech Spec / TRM Required Actions</b></p> <p><b>Description:</b> Unit 2 is in Mode 5 when the BAST is taken out of service due to a high boron concentration. A boration of the RCS is necessary, so the applicant will be directed to calculate the volume of boric acid and the total charging time required using 13009-2, "CVCS Reactor Makeup Control System." The applicant will be given pictures of Integrated Plant Computer screens to gather data necessary to complete the calculations. Based on the BAST out of service and completed surveillance data provided, the applicant will determine if there are any Tech Spec / TRM Required Action Statements to enter.</p> <p>G2.1.23    SRO 4.4</p>

<p>Equipment Control</p>	<p>R, D</p>	<p><b>c. V-NRC-JP-10008-ILT22: Determine Tech Spec LCO Requirements for a Failed Steam Generator Pressure Instrument</b></p> <p><b>Description:</b> With Unit 1 at 100% reactor power, one SG pressure instrument fails. Using the conditions provided, the Tech Specs, and the Tech Spec Bases, the applicant will be required to determine all applicable Tech Spec LCOs and to complete an LCO/TR Status Sheet using 10008-C, "Recording Limiting Conditions for Operation."</p> <p>G2.2.23 SRO 4.6</p>
<p>Radiation Control</p>	<p>R, M</p>	<p><b>d. V-NRC-JP-NMP-EP-144-ILT22: Assess Radiological Conditions, Calculate Projected Dose, and Determine if Responders can Complete Emergency Tasks</b></p> <p><b>Description:</b> During a General Emergency, responders have been identified to perform lifesaving duties. The applicant will be given information about each responder, the dose rates associated with the lifesaving tasks, and the time required to complete the tasks. The applicant, serving as the Emergency Director, will be directed to calculate the projected dose for each task and to determine if the available responders can complete the tasks without exceeding the authorized emergency exposure limits in accordance with NMP-EP-144, "Protective Actions."</p> <p>G2.3.04 SRO 3.7</p>
<p>Emergency Plan</p>	<p>R, M</p>	<p><b>e. V-NRC-JP-NMP-EP-141-ILT22: Classify an Emergency Event and Complete the Emergency Notification Form</b></p> <p><b>Description:</b> Using the conditions provided that lead to a plant event, the applicant will be directed to determine the highest emergency classification level for the event using NMP-EP-141, "Event Classification." WebEOC will not be available, which will require the applicant to manually complete NMP-EP-142-F01, "Emergency Notification Form (ENF)." This JPM is time critical.</p> <p>G2.4.41 SRO 4.6</p>

NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).

\* Type Codes & Criteria:

- (C)ontrol room, (S)imulator, or Class(R)oom
- (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes)
- (N)ew or (M)odified from bank (≥ 1)
- (P)revious 2 exams (≤ 1; randomly selected)

Facility: Vogtle 1 & 2 Date of Examination: 06/10/2019  
 Exam Level: RO  SRO-I  SRO-U  Operating Test Number: 2019-301

Control Room Systems:\* 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U

System / JPM Title	Type Code*	Safety Function
<p><b>a. V-NRC-JP-13009-ILT22: Initiate Emergency Boration in Response to Three Stuck Control Rods</b></p> <p><b>Description:</b> Unit 1 reactor tripped and is now stable in Mode 3. The crew is performing 19001-1, "Reactor Trip Response," and determines three controls rods failed to fully insert. Per 19001-1, emergency boration is required. The applicant will be directed to initiate emergency boration using 13009-1, "CVCS Reactor Makeup Control System." After starting a Boric Acid Transfer Pump, the applicant will not be able to open 1HV-8104, Emergency Borate Valve. After determining that 1HV-8104 will not open, the applicant will be required to initiate the emergency boration from the BAST through the normal charging flow path.</p> <p><b>(RO / SRO-I / SRO-U)</b></p> <p>024AA2.02 RO 3.9 SRO 4.4</p>	<p>A, L, M, S</p>	<p>1</p>
<p><b>b. V-NRC-JP-13006-ILT22: Place Safety Grade Charging in Service Using CCP 'B'</b></p> <p><b>Description:</b> Unit 1 is in Mode 3. 1FV-121, Charging Flow Control, failed closed, which resulted in a loss of charging. Per 18007-C, "Chemical and Volume Control System Malfunction," and Operations Management, Safety Grade Charging will be used for RCS inventory control. The applicant will be directed to place Safety Grade Charging in service using CCP 'B' at a flow rate of 30 gpm using 13006-1, "Chemical and Volume Control System."</p> <p><b>(RO / SRO-I)</b></p> <p>022AA1.01 RO 3.4 SRO 3.3</p>	<p>L, M, S</p>	<p>2</p>

<p><b>c. V-NRC-JP-19013-ILT22: Transfer ECCS Pumps to Cold Leg Recirculation</b></p> <p><b>Description:</b> Unit 1 reactor trip and SI occurred due to a large break LOCA. The RWST level lowers until the RWST LO-LO LEVEL alarm (29%) is received, so the applicant will be directed to transfer all ECCS pumps (RHR pumps, SIPs, and CCPs) to the cold leg recirculation mode using 19013-1, "Transfer to Cold Leg Recirculation." 1HV-8811B, Containment Sump to RHR Pump 'B', will not automatically open, so the applicant will have to stop RHR pump 'B', close 1HV-8812B, RWST to RHR Pump 'B', open 1HV-8811B, and then re-start RHR pump 'B'.</p> <p><b>(RO / SRO-I)</b></p> <p>011EA1.11 RO 4.2 SRO 4.2</p>	A, D, EN, L, S	3
<p><b>d. V-NRC-JP-19012-ILT22: Isolate Accumulators During Post-LOCA Cooldown</b></p> <p><b>Description:</b> Unit 1 reactor was tripped in response to a LOCA, and a cooldown and depressurization were performed. Adequate RCS subcooling and pressurizer level are available to isolate the SI Accumulators. The applicant will be directed to isolate the SI Accumulators using 19012-1, "Post-LOCA Cooldown and Depressurization." Accumulator #4 Isolation valve will not close from the Control Room, which will require the applicant to vent the non-isolable Accumulator #4.</p> <p><b>(RO / SRO-I)</b></p> <p>WE03EA1.01 RO 4.0 SRO 4.0</p>	A, D, EN, L, S	4P
<p><b>e. V-NRC-JP-13130-ILT22: Place Containment Hydrogen Monitors in Service</b></p> <p><b>Description:</b> Unit 1 reactor trip and SI occurred due to a LOCA. EOP actions are in progress in response to the event, so the applicant will be required to place the Containment Hydrogen Monitors in service using 13130-1, "Post-Accident Hydrogen Control." Containment Hydrogen Monitor 'A' will be placed in service, then, when placing Containment Hydrogen Monitor 'B' in service, the "Common Failure" light will illuminate, which will require the applicant to return Containment Hydrogen Monitor 'B' to Standby.</p> <p><b>(RO / SRO-I / SRO-U)</b></p> <p>028A4.03 RO 3.1 SRO 3.3</p>	A, D, EN, L, S	5

<p><b>f. V-NRC-JP-13427-ILT22: Discontinue Parallel Operation by Removing DG1A from Bus 1AA02</b></p> <p><b>Description:</b> Unit 1 is at 100% reactor power. DG1A was slow started and paralleled with RAT '1A', the normal power source to 4160 VAC 1E bus 1AA02, for a post-maintenance test. The test is complete so the applicant will be required to discontinue parallel operation by transferring the remaining load to RAT '1A' and removing DG1A from bus 1AA02 using 13427A-1, "4160 VAC Bus 1AA02 1E Electrical Distribution System." When the applicant begins the DG1A load reduction, ALB35-D06 DG1A GEN UNDER FREQ will be received in conjunction with indication of low bus frequency. The Annunciator Response Procedure will direct the applicant to verify bus frequency is low and then trip the DG1A output breaker and stop the DG1A engine.</p> <p><b>(RO / SRO-I / SRO-U)</b></p> <p>064A2.02 RO 2.7 SRO 2.9</p>	A, N, S	6
<p><b>g. V-NRC-JP-18038-ILT22: Perform Control Room Actions Prior to Evacuation</b></p> <p><b>Description:</b> A fire in the Unit 1 Control Room requires an evacuation per 18038-1, "Operation from Remote Shut Down Panels." The fire is causing potential equipment degradation, and there is a threat to personnel safety. The applicant is directed to perform the 18038-1 Control Room actions required prior to evacuation that include tripping the reactor, tripping the RCPs, tripping the MFPs, and isolating main steam and main feedwater. The applicant will also shift charging pump suction to the RWST.</p> <p><b>(RO / SRO-I)</b></p> <p>068AA1.23 RO 4.3 SRO 4.4</p>	D, S	8
<p><b>h. V-NRC-JP-19253-ILT22: Respond to Containment High Radiation</b></p> <p><b>Description:</b> Unit 1 reactor trip and SI occurred due to a large break LOCA. While performing the recovery actions for the loss of reactor coolant, the containment area radiation monitors exceed 755 mr/hour, which meets the YELLOW path entry criteria on the Containment CSFST. To respond to the high containment radiation, the applicant will be required to perform the actions of 19253-1, "Response to High Containment Radiation Level," to isolate containment and to place the required containment ventilation units in service.</p> <p><b>(RO)</b></p> <p>WE16EA1.01 RO 3.1</p>	D, EN, L, S	9 <b><u>RO ONLY</u></b>

In-Plant Systems:* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
<p><b>i. V-NRC-JP-13610-ILT22: Reset the TDAFW Pump Trip and Throttle Valve Following an Overspeed Trip</b></p> <p><b>Description:</b> Unit 1 reactor tripped due to a loss of main feedwater. Following the reactor trip, no MDAFW pump would start and the TDAFW pump experienced a mechanical overspeed trip due to a misaligned trip mechanism. Maintenance has re-aligned the trip mechanism and the TDAFW pump is ready to be reset. The applicant will be directed to reset the TDAFW pump trip and throttle valve using 13610-1, "Auxiliary Feedwater System."</p> <p><b>(RO / SRO-I / SRO-U)</b></p> <p>WE05EA1.01 RO 4.1 SRO 4.0</p>	D, E, EN, L	4S
<p><b>j. V-NRC-JP-13431-ILT22: Startup 120 VAC 1E Vital Inverter Following Corrective Maintenance</b></p> <p><b>Description:</b> On Unit 2, Inverter 2BD1I2 that supplies 120 VAC 1E Vital Instrument bus 2BY1B tripped due to voltage fluctuations. 18032-2, "Loss of 120 VAC Instrument Power," was entered. Electrical Maintenance completed repairs and is ready to re-energize the inverter. Battery 2BD1B is connected to 125 VDC 1E bus 2BD1. The applicant will be directed to startup inverter 2BD1I2, which is powered by 2BD1, using 13431-2, "120 VAC 1E Vital Instrument Distribution System."</p> <p><b>(RO / SRO-I)</b></p> <p>057AA1.01 RO 3.7* SRO 3.7</p>	E, M	6
<p><b>k. V-NRC-JP-18030-ILT22: Respond to a Loss of Spent Fuel Pool Level</b></p> <p><b>Description:</b> Unit 1 has experienced a loss of Spent Fuel Pool (SFP) level, and the crew is performing the actions of 18030-C, "Loss of Spent Fuel Pool Level or Cooling." Makeup to the SFP has been initiated, but SFP level continues to lower. In response to the lowering level, the applicant will be required to shut down the in-service SFP cooling and skimmer pumps and close their associated suction and discharge valves using 18030-C.</p> <p><b>(RO / SRO-I / SRO-U)</b></p> <p>036AA1.04 RO 3.1 SRO 3.7</p>	D, E, R	8
<p>* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.</p>		



* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	$\geq 1 / \geq 1 / \geq 1$ (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: Vogtle 1&2		Exam Date: June 2019											
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 A1a	G2.1.43	3										E	2 Stuck Rod SDM Is determining acceptance criteria an RO function (i.e., should it be a critical step)? <i>Acceptance criteria provided to the RO in Initial Conditions. Step is now critical.</i>
RO A1b	G2.1.5	3										E	Shift Staffing Could the second question affect the way that they look at the first question? Perhaps we could just ask the first question and ask to explain any holes if any? Then filling each position with a qualified body would each be critical steps. I'm not sure this second question adds any value. Is this task a normal RO function? <i>Revised as suggested.</i>
RO A2	G2.2.12	2			X							E	Boron Injection Flow Path Verification I'm not sure how this JPM has more than 1 critical step. This is also borderline for EC. Will they understand that the valve is tagged closed? How will they get the initial information about the status of the system? Are they to assume normal lineups? <i>Made correct filling out of the datasheet critical too. Initial Conditions state that only two valves out of expected condition.</i>
RO A3	G2.3.12	1										U	Assess rad conditions and determine if task can be completed. Kind of simplistic. Could we strengthen by asking the HP requirements to enter? Elsewhere I have seen this modified to require some kind of knowledge of the location of equipment? <i>Changing as requested. Still need to see final version.</i>
SRO A1a	G2.1.43	3				X						E	Review SDM calculation with TS/TRM implications Make the SROs do the calculation and then make the TS call. <i>Changed as requested.</i>
SRO A1b	G2.1.5	2				X						E	Shift Staffing with TS/TRM implications Similar comment to RO B above. The SRO question seems more appropriate for a written. Why is this adequate for an SRO JPM? <i>Rewritten. Need to see final version.</i>
SRO A2	G2.2.23	2					X					E	Determine TS LCO for SG Instrument LCO How is this significantly different than what they are required to do in the scenarios?

													How different is this from a failed instrument during the scenarios? Is this too much overlap? Scenario 2 Event 1 is only potential for this. Let's talk about this operator aid and how it exists in the plant. This is different because they are required to fill out the paperwork. The licensee inadvertently took this out of TS. They placed it in the bases until they could correct. The SRO will need to find this information in order to complete JPM sat.
SRO A3	G2.3.13	2	X										E Evaluate rad conditions to determine if emergency responders can complete tasks Maybe 2.3.4 Fix the grammar "Responder John is a NOT a volunteer". Changed as requested.
SRO A4	2.4.41	3											E Classify an event and complete ENF Why would they mark "Drill" Is this critical? Licensee wants this as a critical step.
Simulator/In-Plant JPMs	1 Safety Function and K/A												
A	1	2		X									E Initiate EB Would it be acceptable to use one of the other two alternative methods? Perhaps we could fail those paths, so this won't be an option. Modified as suggested.
B	2	3											E Place safety grade charging in service Step 12 appears critical Could we make the standard look more like the cue or vice versa? If the standard says "Close both valves" the cue should look like "Closes both valves (closing either valve meets the critical aspect)". Step 12 is not critical. Step is performed in case AOV leaks by. Comment on standard verbiage accepted.
C	3	3											E Transfer ECCS Pups to Cold Leg Recirc Will the CCPs trip off on RWST level? If so, how long would it take? Is that a failure? Yes, but at several hours. Should not get there if making adequate process.
D	4P	2	X										E Isolate accumulators during post-LOCA C/D This does not appear to meet alternate path criteria. When the applicant enters the simulator, the lack of light indication tells him that the A accumulator cannot be isolated. This looks more like a Safety Function 3 than 4 Modified and corrected. Need to see it in simulator to fully evaluate. Need to review safety function after observing in the simulator.
E	5	3											S Place containment hydrogen monitors in service JPM 2 (JPM 11) Applicant opens 1HV-2792A and OR 1HV-2792B Revised as suggested.
F	6	3						X					E Divorce DG1A from bus 1AA02 Is an emergency stop the right thing to do? Once it is divorced from the bus, a normal stop would make sense. Not certain step 3 is critical

																Is "protect DG1A from exceeding its administrative operating limits" a critical step; Is "from operating unloaded, which can create a fire hazard due to combustion byproduct buildup in the exhaust system." An immediate concern and therefore a critical step  Deleted note in that stated that emergency shutdown is expected due to carbon build-up concerns. Shutting down EDG is critical. Either method of S/D is ok. If the emergency shutdown we may have to ask why they chose that method if it is not obvious.
G	8	3													S	Perform CR actions prior to an evacuation
H	9	2													S	Respond to Containment High Rad
I	4S	3													S	Reset the TDAFW Pump Trip and Throttle Valve Following an Overspeed Trip
J	6	3													S	Startup 120 VAC 1E Vital Inverter Following Corrective Maintenance
K	8	2													S	Respond to a Loss of Spent Fuel Pool Level

**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.

ES-301

Operating Test Review Worksheet

Facility: Vogtle 1&2			Scenario: 1 (IC 50%)						Exam Date: June 2019	
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							X	S	Raise Power 2017 Scenario 5 Event 1 Similar to Scenario 4 Event 1. Need to use on different people.	
2					X		X	S	Pzr PORV PV-455 fails open 2017 Scenario 2 Event 1 Similar to Scenario 3 event 9. Need to use on different people.	
3								S	HDP #1 trips	
4							X	S	VCT Level, LT-185 fails high 2017 Scenario 6 Event 1	
5					X		X	S	1AA002 (1E 4160V) faults. 1A EDG starts but cannot tie on. 2015 Scenario 3 Event 4	
6								S	Control rod withdrawal casualty	
7								S	LOCA upon Rx trip (Major)	
8						X	X	S	Containment mini-purge valves fail to auto close 2017 Scenario 1 event 9	
9						X	X	S	B CSP fails to auto start Similar to 2015 Scenario 2 Event 11	
10							X	S	B RHR pump trips. Enter loss of recirc 2015 Scenario 2 Event 10	

Facility: Vogtle 1&2		Scenario: 2 (IC 100%)							Exam Date: June 2019	
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					X		X	S	PZR Level LT-459 fails low 2017 Scenario 6 Event 3? RO manual charging control	
2							X	S	Restore normal letdown 2017 Scenario 5 Event 5 RO manual control letdown	
3					X		X	S	PR N41 lower detector fails high 2017 Scenario 3 Event 2 RO manual rod control	
4							X	S	NSCW #2 pump trips 2017 Scenario 4 vent 3	
5					X		X	S	Control rod K-14 drops 2017 Scenario 4 Event 4	
6						X	X	S	A EHC pp trips 2017 Scenario 4 Event 2	
7								S	Control rod D-4 drops. Rx trip.	
8							X	S	Main Gen output breakers fail to auto open 2017 Scenario 4 Event 8	
9						X		S	Pzr safety PSV-8010A fails open (Major)	
10								S	Containment Isolation Phase A fails to actuate	







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Operating

Facility: Vogtle 1&2			Scenario: 5					Exam Date: June 2019		
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							X	S	SD B MDAFW pp and place in STBY 2015 Scenario 1 Event 1	
2							X	S	Raise Rx power to MODE 1 2017 Scenario 1 Event 2	
3								S	#1 TPCW pp trips. STBY fails to auto start	
4					X		X	S	RWST sludge mixing line breaks 2017 Scenario 5 Event 3	
5					X	X	X	S	Pzr pressure, PT-455, fails high 2017 Scenario 5 Event 2	
6							X	S	LD isolation valve, LV-460, fails closed RO Manually control charging 2015 Scenario 4 Event 5	
7						X	X	S	#2 ACCW pp fails with stby OOS 2017 Scenario 2 Event 2	
8						X		S	#3 SG faults outside containment before MSIV (major)	
9							X	S	NCP fails to auto trip on SI 2017 Scenario 4 Event 7	
10							X	S	SLI fails to auto actuate 2015 Scenario 5 Event 9	

**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  $\geq 2$  for each scenario. (ES-301, D.5.d)
- In column 7, preidentified CTs should be  $\geq 2$  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	10	0	2	0	2	0	0	S	No manual control of automatic functions	
2	10	0	3	0	2	0	0	S		
3	9	0	2	0	2	0	0	S		
4	9	0	3	0	2	0	0	S		
5	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.

<b>Site name:</b>		<b>Exam Date:</b>				
<b>OPERATING TEST TOTALS</b>						
	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	0	5	4		
Sim./In-Plant JPMs	11	0	5	6		
Scenarios	5	0	0	5		
<b>Op. Test Totals:</b>	25	0	10	25	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.

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 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).

Facility: <b>Vogtle 1&amp;2</b>		Date of Exam: <b>June 2019</b>																
Tier	Group	RO K/A Category Points											SRO-Only Points					
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2	G*	Total		
1. Emergency and Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6	
	2	2	1	2	N/A			1	1	N/A			2	9	2	2	4	
	Tier Totals	5	4	5	N/A			4	4	N/A			5	27	5	5	10	
2. Plant Systems	1	3	2	3	2	2	2	3	3	3	3	2	28	3	2	5		
	2	1	1	0	1	1	1	1	1	1	1	1	10	0	1	2	3	
	Tier Totals	4	3	3	3	3	3	4	4	4	4	3	38	4	4	8		
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		3		1		3			2	2	1	2	

- Note:
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outline sections (i.e., except for one category in Tier 3 of the SRO-only section, the "Tier Totals" in each K/A category shall not be less than two). (One Tier 3 radiation control K/A is allowed if it is replaced by a K/A from another Tier 3 category.)
  2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points, and the SRO-only exam must total 25 points.
  3. Systems/evolutions within each group are identified on the outline. Systems or evolutions that do not apply at the facility should be deleted with justification. Operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
  4. Select topics from as many systems and evolutions as possible. Sample every system or evolution in the group before selecting a second topic for any system or evolution.
  5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
  6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
  7. The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
  8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' IRs for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above. If fuel-handling equipment is sampled in a category other than Category A2 or G\* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. (Note 1 does not apply). Use duplicate pages for RO and SRO-only exams.
  9. For Tier 3, select topics from Section 2 of the K/A catalog and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

G\* Generic K/As

\* These systems/evolutions must be included as part of the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan. They are not required to be included when using earlier revisions of the K/A catalog.

\*\* These systems/evolutions may be eliminated from the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan.

ES-401		PWR Examination Outline						Form ES-401-2	
		Emergency and Abnormal Plant Evolutions—Tier 1/Group 1 (RO/SRO)							
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
000007 (EPE 7; BW E02&E10; CE E02) Reactor Trip, Stabilization, Recovery / 1					X		007EA2.02; Ability to determine or interpret the following as they apply to a reactor trip: Proper actions to be taken if the automatic safety functions have not taken place.	4.6	
000008 (APE 8) Pressurizer Vapor Space Accident / 3		X					008AK2.02; Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Sensors and detectors.	2.7	
000009 (EPE 9) Small Break LOCA / 3			X				009EK3.24; Knowledge of the reasons for the following responses as they apply to the small break LOCA: ECCS throttling or termination criteria.	4.1	
000011 (EPE 11) Large Break LOCA / 3	X						011EK1.01; Knowledge of the operational implications of the following concepts as they apply to the Large Break LOCA : Natural circulation and cooling, including reflux boiling.	4.1	
000015 (APE 15) Reactor Coolant Pump Malfunctions / 4						X	015G2.1.32; Ability to explain and apply system limits and precautions.	4.0	
000022 (APE 22) Loss of Reactor Coolant Makeup / 2			X				022AK3.03; Knowledge of the reasons for the following responses as they apply to the Loss of Reactor Coolant Makeup: Sequence of events for manually tripping reactor and RCP as a result of an RCP malfunction.	3.7	
000025 (APE 25) Loss of Residual Heat Removal System / 4	X						025K1.01; Knowledge of the operational implications of the following concepts as they apply to Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation.	3.9	
000026 (APE 26) Loss of Component Cooling Water / 8						X	026G2.4.35; Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.	4.0	
000027 (APE 27) Pressurizer Pressure Control System Malfunction / 3			X				027AK3.01; Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: Isolation of PZR spray following loss of PZR heaters.	3.5	
000029 (EPE 29) Anticipated Transient Without Scram / 1	X						029EK1.05; Knowledge of the operational implications of the following concepts as they apply to the ATWS: definition of negative temperature coefficient as applied to large PWR coolant systems.	2.8	
000038 (EPE 38) Steam Generator Tube Rupture / 3					X		038EA2.14; Ability to determine or interpret the following as they apply to a SGTR: Magnitude of atmospheric radioactive release if cooldown must be completed using steam dumps or if atmospheric reliefs lift.	3.3	
000040 (APE 40; BW E05; CE E05; W E12) Steam Line Rupture—Excessive Heat Transfer / 4		X					WE12EK2.2; Knowledge of the interrelations between the (Uncontrolled Depressurization of all Steam Generators) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.	3.6	
000054 (APE 54; CE E06) Loss of Main Feedwater / 4					X		054AA2.05; Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): Status of MFW pumps, regulating and stop valves	3.5	
000055 (EPE 55) Station Blackout / 6				X			055A1.07; Ability to operate and monitor the following as they apply to a Station Blackout: Restoration of power from offsite.	4.3	
					X		055A2.01; Ability to determine or interpret the following as they apply to a Station Blackout: Existing valve positioning on a loss of instrument air system.	3.7	

000056 (APE 56) Loss of Offsite Power / 6					X		056AA2.34; Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Rod bottom lights.	3.6	
000057 (APE 57) Loss of Vital AC Instrument Bus / 6				X			057AA1.04; Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: RWST and VCT valves.	3.5	
000058 (APE 58) Loss of DC Power / 6						X	058G2.2.42; Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	
000062 (APE 62) Loss of Nuclear Service Water / 4						X	062G2.1.32; Ability to explain and apply system limits and precautions.	3.8	
000065 (APE 65) Loss of Instrument Air / 8						X	065G2.4.9; Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.	3.8	
000077 (APE 77) Generator Voltage and Electric Grid Disturbances / 6						X	077G2.1.25; Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	
(W E04) LOCA Outside Containment / 3		X					WE04EK2.2; Knowledge of the interrelations between the (LOCA Outside Containment) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.	3.8	
(W E11) Loss of Emergency Coolant Recirculation / 4						X	WE11EA2.2; Ability to determine and interpret the following as they apply to the (Loss of Emergency Coolant Recirculation): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	3.4	
(BW E04; W E05) Inadequate Heat Transfer—Loss of Secondary Heat Sink / 4					X		WE05EA1.1; Ability to operate and / or monitor the following as they apply to the (Loss of Secondary Heat Sink): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	4.1	
K/A Category Totals:	3	3	3	3	3/3	3/3	Group Point Total:		18/6

**ES-401**

**3**

**Form ES-401-2**

ES-401 PWR Examination Outline Form ES-401-2									
Emergency and Abnormal Plant Evolutions—Tier 1/Group 2 (RO/SRO)									
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
000001 (APE 1) Continuous Rod Withdrawal / 1						X	001G2.4.18; Knowledge of the specific bases for EOPs.	4.0	
000003 (APE 3) Dropped Control Rod / 1	X						003AK1.04; Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Effects of power level and control position on flux.	3.1	
000005 (APE 5) Inoperable/Stuck Control Rod / 1									
000024 (APE 24) Emergency Boration / 1									
000028 (APE 28) Pressurizer (PZR) Level Control Malfunction / 2						X	028G2.4.47; Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	4.2	
000032 (APE 32) Loss of Source Range Nuclear Instrumentation / 7						X	032AA2.08; Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation: Testing required if power lost, then restored.	3.1	



000033 (APE 33) Loss of Intermediate Range Nuclear Instrumentation / 7											
000036 (APE 36; BW/A08) Fuel-Handling Incidents / 8							X		036G2.2.42; Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	
000037 (APE 37) Steam Generator Tube Leak / 3											
000051 (APE 51) Loss of Condenser Vacuum / 4											
000059 (APE 59) Accidental Liquid Radwaste Release / 9							X		059G2.4.30; Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	
000060 (APE 60) Accidental Gaseous Radwaste Release / 9				X					060AA1.01; Ability to operate and/or monitor the following as they apply to the Accidental Gaseous Radwaste: Area radiation monitors.	2.8	
000061 (APE 61) Area Radiation Monitoring System Alarms / 7											
000067 (APE 67) Plant Fire On Site / 8							X		067AA2.14; Ability to determine and interpret the following as they apply to the Plant Fire on Site: Equipment that will be affected by fire suppression activities in each zone.	4.3	
000068 (APE 68; BW A06) Control Room Evacuation / 8											
000069 (APE 69; W E14) Loss of Containment Integrity / 5											
000074 (EPE 74; W E06 & E07) Inadequate Core Cooling / 4		X							WE07EK2.1; Knowledge of the interrelations between the (Pressurized Thermal Shock) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.4	
000076 (APE 76) High Reactor Coolant Activity / 9			X						076AK3.06; Knowledge of the reasons for the following responses as they apply to the High Reactor Coolant Activity: Actions contained in EOP for high reactor coolant activity.	3.2	
000078 (APE 78*) RCS Leak / 3											
(W E01 & E02) Rediagnosis & SI Termination / 3			X						WE01EK3.3; Knowledge of the reasons for the following responses as they apply to the (Reactor Trip or Safety Injection/Rediagnosis): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.	3.5	
(W E13) Steam Generator Overpressure / 4							X		WE13EA2.1; Ability to determine and interpret the following as they apply to the (Steam Generator Overpressure): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	2.9	

(W E15) Containment Flooding / 5	X							WE15EK1.3; Knowledge of the operational implications of the following concepts as they apply to the (Containment Flooding): Annunciators and conditions indicating signals, and remedial actions associated with the (Containment Flooding).	2.8	
(W E16) High Containment Radiation /9										
(BW A01) Plant Runback / 1										
(BW A02 & A03) Loss of NNI-X/Y/7										
(BW A04) Turbine Trip / 4										
(BW A05) Emergency Diesel Actuation / 6										
(BW A07) Flooding / 8										
(BW E03) Inadequate Subcooling Margin / 4										
(BW E08; W E03) LOCA Cooldown—Depressurization / 4										
(BW E09; CE A13**; W E09 & E10) Natural Circulation/4										
(BW E13 & E14) EOP Rules and Enclosures										
(CE A11**; W E08) RCS Overcooling—Pressurized Thermal Shock / 4										
(CE A16) Excess RCS Leakage / 2										
(CE E09) Functional Recovery										
(CE E13*) Loss of Forced Circulation/LOOP/Blackout / 4										
K/A Category Point Totals:	2	1	2	1	1/2	2/2	Group Point Total:			9/4

ES-401	PWR Examination Outline Plant Systems—Tier 2/Group 1 (RO/SRO)											Form ES-401-2		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
003 (SF4P RCP) Reactor Coolant Pump								X				003A2.03; Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Problems associated with RCP motors, including faulty motors and current, and winding and bearing temperature problems.	2.7	
004 (SF1; SF2 CVCS) Chemical and Volume Control					X							004K5.30; Knowledge of the operational implications of the following concepts as they apply to the CVCS: Relationship between temperature and pressure in CVCS components during solid plant operation.  X 004G2.1.25; Ability to interpret reference materials, such as graphs, curves, tables, etc.	3.8 4.2	
005 (SF4P RHR) Residual Heat Removal		X										005K2.01; Knowledge of bus power supplies to the following: RHR pumps.	3.0	
006 (SF2; SF3 ECCS) Emergency Core Cooling					X							006K5.04; Knowledge of the operational implications of the following concepts as they apply to ECCS: Brittle fracture, including causes and preventative actions.  X 006G2.2.40; Ability to apply Technical Specifications for a system.	2.9 4.7	
007 (SF5 PRTS) Pressurizer Relief/Quench Tank							X					007A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRTS controls including: Maintaining quench tank water level within limits.	2.9	
008 (SF8 CCW) Component Cooling Water				X								008K4.09; Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: The "standby" feature for the CCW pumps.  008A2.03; Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High/low CCW temperature.	2.7 3.2	
010 (SF3 PZR PCS) Pressurizer Pressure Control						X						010K6.01; Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: Pressure detection systems.	2.7	
012 (SF7 RPS) Reactor Protection	X											012K1.05; Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: ESFAS.  X 012G2.1.30; Ability to locate and operate components, including local controls.	3.8 4.4	
013 (SF2 ESFAS) Engineered Safety Features Actuation									X			013A3.01; Ability to monitor automatic operation of the ESFAS including: Input channels and logic.	3.7	
022 (SF5 CCS) Containment Cooling			X									022K3.02; Knowledge of the effect that a loss or malfunction of the CCS will have on the following: Containment instrumentation readings.  022A3.01; Ability to monitor automatic operation of the CCS, including: Initiation of safeguards mode of operation.	3.0 4.1	



103 (SF5 CNT) Containment							X						103A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the containment system controls including: Containment pressure, temperature, and humidity.	3.7	
							X						103A2.05; Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Emergency containment entry.	3.9	
053 (SF1; SF4P ICS*) Integrated Control															
K/A Category Point Totals:	3	2	3	2	2	2	3	3/3	3	3	2/2	Group Point Total:		28/5	

ES-401 PWR Examination Outline Form ES-401-2														
Plant Systems—Tier 2/Group 2 (RO/SRO)														
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
001 (SF1 CRDS) Control Rod Drive											X	001G2.1.32; Ability to explain and apply system limits and precautions.	4.0	
002 (SF2; SF4P RCS) Reactor Coolant											X	002A4.02; Ability to manually operate and/or monitor in the control room: Indications necessary to verify natural circulation from appropriate level, flow, and temperature indications and valve positions upon loss of forced circulation.	4.3	
011 (SF2 PZR LCS) Pressurizer Level Control		X										011K2.02; Knowledge of bus power supplies to the following: PZR heaters.	3.1	
014 (SF1 RPI) Rod Position Indication								X				014A2.04; Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS; and (b) based on those on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Misaligned rod.	3.9	
015 (SF7 NI) Nuclear Instrumentation									X			015A3.04; Ability to monitor automatic operation of the NIS, including: Maximum disagreement allowed between channels.	3.3	
016 (SF7 NNI) Nonnuclear Instrumentation														
017 (SF7 ITM) In-Core Temperature Monitor							X					017A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ITM system controls including: Core exit temperature.	3.7	
027 (SF5 CIRS) Containment Iodine Removal														
028 (SF5 HRPS) Hydrogen Recombiner and Purge Control								X				028A2.03; Malfunctions or operations on the HRPS; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: The hydrogen air concentration in excess of limit flame propagation or detonation with resulting equipment damage in containment.	3.4	
029 (SF8 CPS) Containment Purge				X								029K4.02; Knowledge of design feature(s) and/or interlock(s) which provide for the following: Negative pressure in containment.	2.9	
033 (SF8 SFPCS) Spent Fuel Pool Cooling														
034 (SF8 FHS) Fuel-Handling Equipment											X	034G2.1.25; Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	
035 (SF 4P SG) Steam Generator														
041 (SF4S SDS) Steam Dump/Turbine Bypass Control						X						041K6.03; Knowledge of the effect of a loss or malfunction on the following will have on the SDS: Controller and positioners, including ICS, S/G, CRDS.	2.7	
045 (SF 4S MTG) Main Turbine Generator				X								045K5.23; Knowledge of the operational implications of the following concepts as they apply to the MT/B System: Relationship between rod control and RCS boron concentration during T/G load increases.	2.7	
055 (SF4S CARS) Condenser Air Removal														
056 (SF4S CDS) Condensate														
068 (SF9 LRS) Liquid Radwaste														

071 (SF9 WGS) Waste Gas Disposal																								
072 (SF7 ARM) Area Radiation Monitoring																								
075 (SF8 CW) Circulating Water																								
079 (SF8 SAS**) Station Air	X																			079K1.01; Knowledge of the physical connections and/or cause-effect relationships between the SAS and the following systems: IAS.		3.0		
086 Fire Protection																				X	086G2.2.36; Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.		4.2	
050 (SF 9 CRV*) Control Room Ventilation																								
K/A Category Point Totals:	1	1	0	1	1	1	1	1	1/1	1	1	1/2	Group Point Total:										10/3	

Facility:		Date of Exam:				
Category	K/A #	Topic	RO		SRO-only	
			IR	#	IR	#
1. Conduct of Operations	2.1.32	Ability to explain and apply system limits and precautions.	3.8			
	2.1.38	Knowledge of the station's requirements for verbal communications when implementing procedures.	3.7			
	2.1.44	Knowledge of RO duties in the control room during fuel handling, such as responding to alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.	3.9			
	2.1.1	Knowledge of conduct of operations requirements.			4.2	
	2.135	Knowledge of the fuel-handling responsibilities of SROs.			3.9	
	Subtotal		3		2	
	2.2.13	Knowledge of tagging and clearance procedures.	4.1			
	2.2.14	Knowledge of the process for controlling equipment configuration or status.	3.9			
	2.2.43	Knowledge of the process used to track inoperable alarms.	3.0			
	2.2.44	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	4.2			
	2.2.20	Knowledge of the process for managing troubleshooting activities.			3.8	
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	
	Subtotal		3		2	
3. Radiation Control	2.3.12	Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.2			
	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	
	2.3.					
	2.3.					
	2.3.					
	2.3.					
Subtotal		1		1		
4. Emergency Procedures/Plan	2.4.6	Knowledge of EOP mitigation strategies..	4.7			
	2.4.25	Knowledge of fire protection procedures.	3.3			
	2.4.39	Knowledge of RO responsibilities in emergency plan implementation.	3.9			
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.			4.4	
	2.4.28	Knowledge of procedures relating to a security event (non-safeguards information).			4.1	
	2.4.					
Subtotal		3		2		
Tier 3 Point Total			10	10	7	7





Facility: Vogtle 1 & 2		Date of Exam: 06/10/2019		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>			
Item Description				Initials			
				a	b*	c*#	
1.	Questions and answers are technically accurate and applicable to the facility.			WS	WS	WS	
2.	a.	NRC K/As are referenced for all questions.			WS	WS	WS
	b.	Facility learning objectives are referenced as available.			WS	WS	WS
	c.	Correct answer explanation and distractor analysis provided (ES-401, D.2.g)			WS	WS	WS
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			WS	WS	WS	
4.	The sampling process was random and systematic. (If more than four RO or two SRO questions were repeated from the last two NRC licensing exams, consult the NRR/NRO OL program office).			WS	WS	WS	
5.	Question duplication from the licensee screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate.  ___ The audit exam was systematically and randomly developed, or ___ the audit exam was completed before the license exam was started, or ___ the examinations were developed independently, or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication, or ___ other (explain).			WS	WS	WS	
6.	Bank use meets limits (no more than 75% from the bank, at least 10% new, and the rest new or modified); enter the actual RO/SRO-only question distribution(s) at right.	Bank	Modified	New	—	N/A	—
		13 (17.3%) / 5 (20%)	43 (57.3%) / 15 (60%)	19 (25.3%) / 5 (20%)	WS	WS	WS
7.	Between 38 and 45 questions of the questions on the RO exam and at least 13 questions of the questions on the SRO-only portion of the exam are written at the comprehension/analysis level (see ES-401, D.2.c); enter the actual RO/SRO-only question distribution(s) at right.	Memory		C/A	—	N/A	—
		36 (48%) / 11 (44%)		39 (52%) / 14 (56%)	WS	WS	WS
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			WS	WS	WS	
9.	Question content conforms to specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			WS	WS	WS	
10.	Question psychometric quality and format meet the guidelines in Appendix B.			WS	WS	WS	
11.	The exam contains the required number of one-point, multiple-choice items; the total is correct and agrees with the value on the cover sheet.			WS	WS	WS	
				Printed Name / Signature		Date	
a.	Author	William Burans / Willie Burans			05/20/19		
b.	Facility Reviewer (*)	Ken Jenkins / Ken Jenkins			05/21/19		
c.	NRC Chief Examiner (#)	James Baptist / James Baptist			05/29/19		
d.	NRC Regional Supervisor	Eugene Guthrie / Eugene Guthrie			5/29/19		
Note:	* The facility reviewer's initials or signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initials items in Column "c"; chief examiner concurrence is required.						

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
1	F	2												M	S	001G2.1.32 001
2	H	2												M	S	002A4.02 001 Change second question to SRV #2 and #3 can/cannot be operated in from QMCB. <b>Changed as suggestions</b>
3	H	3												M	S	003A2.03 001 Are these pump trip setpoints required knowledge for an RO? If so, the question is OK. We would just need to ensure that there is a statement that they should assume the temperature rates of change remain constant. <b>Changed as suggested. Verified RO knowledge</b>
4	H	2										X		M	S	003AK1.04 001 K/A is not really met here. The K/A is looking for what happens to power and flux on a dropped rod. So perhaps something about what you have to do with the turbine to get T <sub>avg</sub> at program. Maybe a question about whats going on with AFD or QPTR. I know this was a pre-submittal, but lets talk about this. <b>Revised as requested</b> <b>Since the K/A seems to want to consider power level maybe the second part could ask “ the flux shift would/would not be larger at 50%”?</b> <b>Changed first part to will/will not lower Main Turbine Load</b>
5	H	3												M	S	004K5.30 001 Is there any way an applicant could appeal that the temp changes within RHR does affect total flow and therefore 1FV-618 would modulate? The question is not bound by time (i.e. 15 min.) <b>Changed to 1TV-130 as a direct impact to temperature change.</b>

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 a 1 (easy) to 5 (difficult); questions with a difficulty between 2 and 4 are acceptable.
- Check the appropriate box if a psychometric flaw is identified:
  - “Stem Focus”: The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
  - “Cues”: The stem or distractors contain cues (e.g., clues, specific determiners, phrasing, length).
  - “T/F”: The answer choices are a collection of unrelated true/false statements.
  - “Cred. Dist.”: The distractors are not credible; single implausible distractors should be repaired, and more than one is unacceptable.
  - “Partial”: One or more distractors are partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by the stem).

4. Check the appropriate box if a job content flaw is identified:
- “Job Link”: 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).
  - “Minutia”: 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).
  - “#/Units”: The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
  - “Backward”: The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those K/As that are designated “SRO-only.” (K/A and license-level mismatches are unacceptable.)
6. Enter question’s source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet the criteria of Form ES-401, Section D.2.f.
7. Based on the reviewer’s judgment, is the question, as written, (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any “U” status ratings (e.g., how the Appendix B psychometric attributes are not being met).

ES-401

2

Form ES-401-9

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
6	H	3				X								B	S	005K2.01 001 Since SI is reset on one train and not on the other, does this make distractors A and D not plausible? <b>Updated as required to meet K/A and make SAT</b>
7	F	3												B	S	006K5.04 001
8	F	2											X	N	S	007A1.01 001 This strays a bit too far from the K/A. Having the main part of the question deal with tailpipe temperatures instead of the tank is a bit of a K/A stretch. A simpler question might be “PRT pressure is/is not maintained automatically AND PRT level is/is NOT maintained automatically”. <b>Updated as requested</b>
9	F	2												M	S	008AK2.02 001 I see no references were planned to be provided. Is this information expected to be memorized by the applicants? Level is fundamental. <b>Expected RO knowledge</b>
10	H	3												M	S	008K4.09 001
11	H	3												M	S	009EK3.24 001 Could we change the first question to “... RCS SCM does/does not lower”? <b>Updated as requested</b>
12	H	3												M	S	010K6.01 001
13	F	2												B	S	011EK1.01 001 <b>this one doesn't really appear to be modified from the original, just rewording is rearranged.</b>
14	H	2												N	S	011K2.02 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only				
																	This doesn't appear to be a bank. Maybe modified or new. <b>Correctly classified</b>
15	F	3												N	S		012G2.1.30 001
16	H	2												B	S		012K1.05 001 I'm having trouble with the first question. Why exactly would someone mistakenly think that a loss of a bus would keep the RTB from opening? Take this to the extreme, would a total loss of power result in the reactor trip breakers still being closed? I know that this is a bank question, I probably just need help getting through it. <b>Changed as requested, significantly modified</b>
17	H	2												M	S		013A3.01 001
18	H	2												N	S		015A3.04 001
19	F	3												B	S		017A1.01 001 Is the first part RO knowledge without Table 3.3.3-1? <b>SNC verified TS table is RO knowledge.</b>
20	H	2				X								M	S		022A3.01 001 Since both EDGs start, why would the different coolers behave differently? Distractors A and D are not plausible. <b>Changed as required.</b>
21	H	4							X				X	N	S		022AK3.03.001 Is the knowledge for the second question RO knowledge? I agree that they should know that the procedure would require them to know that they needed to put excess letdown in service. But is it reasonable to expect them to know that reactor power needs to be reduced because of that? This seems pretty deep in the procedure. Maybe if we asked something at an overall procedural strategy level instead. However, if the facility representative states that this would be required RO knowledge, it would be acceptable. The first question might be better if we just asked if the valve did/did not close ...Let's discuss. <b>Changed Mwt to 100%, less minutia, RO knowledge</b>
22	H	2												B	S		022K3.02 001
23	H	3												M	S		025AK1.01 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
24	H	2												M	S	026A4.01 001
25	F	2												M	S	026K4.01 001
26	F	3		X										N	S	027AK3.01 001 By having the low pressuser PORV Block alarm come in, you are telling the applicant that pressure is low, Therefore sprays must be open and since no other parameters are given, DNBR S entered.  This one might be as simple as changing the second question to whether or not they need to close the PORV.  <b>Modified as requested. SAT</b>
27	F	2												M	S	028A2.03 001 Given dilution as a solution, does that look too obvious? If instead we gave them a choice of “the preferred method is/ is not to place recombiner in service”, would that be more discerning? <b>Not Modified, rationalized as procedurally accurate.</b>
28	H	3		X		X								N	S	028AG2.4.47 001 If the applicant miscalculated the expected level and determined that the controller was working properly, why would he/she choose that backup heaters were on? If the backup heaters are on, is it logical that pressure would be stable?  <b>Modified as suggested.</b>
29	F	3											X	M	S	029EK1.05 001 Is this an RO level question? It’s pretty detailed knowledge of the procedure. It’s a good question and meets the K/A. <b>SNC verified RO knowledge regarding 5%. Modified for clarity</b>
30	F	2												M	S	029K4.02 001 Distractor analysis comment: Containment Penetration rooms are maintained at a positive pressure in order to prevent leaks from the Containment Building into the Auxiliary Building” does not seem very plausible. Get rid of this part. <b>Modified</b>
31	F	2												M	S	036AG2.2.42 001 Is this information required to be known from memory for the ROs? <b>Modified as suggested</b>
32	F	2				X								M	S	038EA2.14 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only				
																	How credible is the option of 19033-2, "Post-SGTR Cooldown Using Steam Dump" at minimizing release? Perhaps just toggle on 19033-2 will or will not minimize release. <b>Modified as suggested</b>
33	F	2												M	S		039K1.08 001
34	H	2												B	S		041K6.03 001
35	H	2												M	S		045K5.23 001
36	H	3							X					N	S		055EA1.07 001 Is this RO knowledge? <b>Modified as suggested</b>
37	H	3												N	S		056AA2.34 001 Would the MG set bkrs still be closed after losing power to this much of the elec system? <b>Modified for clarity</b>
38	H	3												B	S		057AA1.04 001
39	H	2												N	S		058AG2.2.42 001 If 1BY2B is auto energized, wouldn't that imply that the diesel would start. So is discriminator C possible? Is this really an RO question? It might be better to ask if the EDG will start. <b>Modified as suggested</b>
40	H	2												M	S		059A2.12 001 Let's change the first question a bit. Give them that SG level is at 83%. Then make the first question The Main turbine has/has not automatically tripped. <b>Modified as suggested</b>
41	F	2												M	S		059A4.03 001 Can we reword the first question to state "In order to place the first MFW pump in AUTO at least one BFRV or MFRV is/is not required to be in AUTO" <b>Modified as suggested</b>
42	F	3												M	S		060AA1.01 001 Move the procedure title after the question and before the answers (general comment) <b>Modified as suggested</b>
43	H	3												M	S		061A3.01 001
44	H	3		X										N	S		061G2.2.39 001 On the first question, is it logical to ask if you have to close a bunch of valves on a pump that may be destroying itself prior to stopping it? I think we need

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only				
																	to reword the first question without distracting from the second <b>Modified as requested</b>
45	H	2												M	S		062A1.01 001 Is the 7000 KW limit required to be memorized by ROs? <b>SNC verified RO knowledge</b>
46	H	2												M	S		062A3.01 001
47	H	3												M	S		062AG2.1.32 001 Is this RO knowledge. <b>Modified as suggested</b>
48	H	2												M	S		063A2.01 001
49	H	2		X										M	S		064K6.07 001 B is not plausible. If the EDG meets TS than it better start. The second part of the question meets the K/A. <b>Modified as requested</b>
50	F	2												B	S		065AG2.4.09 001 Doesn't really look like this meets the definition of modified. <b>SAT</b>
51	F	2												N	S		073K1.01 001 What's the difference between "high" and "intermediate" alarm? <b>Explained SAT. No change</b>
52	F	3												M	S		076AK3.06 This is ok as long as it is expected that your ROs are required to know the TS limits by heart. <b>Modified as suggested</b>
53	H	2												M	S		076K3.01 001
54	H	2												N	S		078A4.01 001 Is it credible that IA will be isolated from all containment? <b>Resolved ok</b>
55	F	2												N	S		078K2.02 001
56	F	2												B	S		079K1.01 001
57	F	2												M	S		103A1.01 001 Is knowing when to use the orifice RO knowledge? <b>SNC yes</b>
58													X		S		G2.1.32 001 Current guidance states that Tier 3 questions shall not be an extension of tier 1 or 2 questions. This is an RHR question. I'm not 100% certain that a Tier 3 question can be written. <b>We can discuss. Modified as required. New Question</b>



Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
59	F	2												N	S	G2.1.38 001
60								X							S	G2.1.44 001 Is the RO really going to suspend fuel movement or will he defer this responsibility to the SRO? Now if the RO is on the phones with the refuelers, I might buy this. I would focus on his NI responsibilities. <b>Changed as suggested. Verified RO duties at VOG</b>
61	F	2												N	S	G2.2.14 001 I get a little confused by the first question. Could we change it to "... tag indicates that the component is/is not available ..." <b>Modified as suggested</b> Current condition needs simplified. <b>Clarified by SNC</b>
62	F	2		X		X								M	S	G2.2.43 001 I'm ok with the first question, but the second question seems to be answered by the title of the attachment. Could you change the second question to ask if it needs to be logged immediately or only if it will exceed the end of the shift? <b>Modified as requested</b>
63															S	G2.2.44 001 <b>G2.2.13</b> Current guidance states that Tier 3 questions shall not be an extension of tier 1 or 2 questions. This is a CVCS question. I'm not 100% certain that a Tier 3 question can be written. We can discuss. <b>New Question</b>
64									X					M	S	G2.3.12 001 The second part appears to be minutia. Couldn't we ask about who needs to authorize entry instead? <b>Modified as suggested</b>
65	F	2												M	S	G2.4.06 001 Close to a Tier 1 question, but general enough.
66	F	2												N	S	G2.4.25 001
67	F														S	G2.4.39 001 K/A is not really met here. If it is an RO responsibility, then you could ask about how to communicate to outside agencies or what their paperwork responsibilities are. If they really don't ave any EP responsibilities, let's consider a different K/A. <b>Modified as suggested. SNC verified RO is ERO communicator</b>
68	H	2												M	S	WE01EK3.03 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
69	H	2		X										M	S	WE04EK2.02 001 If the last step performed asks if the RHR valves are closed, why would the applicants think that the next valves to close are SI valves? An easy fix would be to delete the third bullet and reverse the questions. The indication question would need slightly reworded to ask when if RHR is required to be isolated, then the breakers will/will not be required to be closed (or words to that affect) <b>Modified as suggested.</b>
70	H	3												M	S	WE05EA1.01 001
71	F	2												M	S	WE07EK2.01 001 Is this RO knowledge? <b>Modified</b>
72	H	3												B	S	WE11EA2.02 001
73	H	2												M	S	WE12EK2.02 001
74	H	3												M	S	WE13EA2.01 001 We need to modify the second question a little. Since steam is not allowed to be dumped until level is reduced, the second question needs to say when allowed to dump steam ... <b>Modified</b>
75	F	3												M	S	WE15EK1.03 001 Is the liner really plausible? Maybe toggle on componenets instead.
76	H	3												M	S	001AG2.4.18 001 For the second part distractor “to limit depressurization” gives away too much information and makes the distractor much less plausible. Delete that part of the distractor and this will be OK. Can we guarantee that the SR trip will be bypassed? Does the procedure make this happen or allow it to happen. <b>Confirmed procedure ok</b>
77	H	2												M	S	004G2.1.25 001 EAL Call If TS is met, will there be an EAL call?
78	H	2												N	S	006G2.2.40 001
79	H	2												N	S	007EA2.02 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only				
																	I know that this was considered SAT on the early submittal, but we still need to put the distractor analysis in this document too.
80	H	3												M	S		008A2.03 001 Original early submittal comment was The first question is not really related to the question stem. Generically, you cannot throttle CCW flow to the RHR HX. How about you change the question to have both trains of RHR in service, then have the fault. Then ask if temperature can be controlled by throttling on the B train CCW. I think the second question can then be asked as written. Modifications made as suggested. Current question appears SAT.
81													X			S	014A2.04 001 K/A is about rod misalignment. This question is about rod tripability. <b>Modified as requested</b>
82	H	3												X	M	S	015AG2.1.32 001 Generic comment. Move procedure title to after question and before answers.  I'm going to need convincing that this is at the SRO level. I read the comments how you need detailed knowledge of 13003-1 Fig 1 to get this knowledge. This looks like RO knowledge though. As far as if the plant needs tripped before the pump. An RO should know what the max power is that a RCP can be tripped without tripping the plant first. <b>Swapped out. New Question SAT</b>
83	F	2													N	S	026AG2.4.35 001
84	F	3													M	S	032AA2.08 001 This is as close to the K/A as we can get and not test minutia
85	H	>1													M	S	034G2.1.25 001
86	H	2													M	S	054AA2.05 001 The answers to the first question have too much information. By adding "by FWI" or "when verifying FWI valves closed" you are giving them ideas as to why the valves might be closed. <b>Modified as suggested.</b>
87	H	2													M	S	055EA2.01 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
88	H	3												M	S	059AG2.4.30 001
89			X					X					X		S	067AA2.14 001 This doesn't appear to meet the K/A. The K/A is looking for equipment affected in a particular fire suppression activities. In this case, if you want to ask what the crew must do due to this fire that would work. The second question does not appear to be related to the first question at all. <b>Modified during ATL visit with SNC</b>
90	F	2												M	S	073A2.01 001 Consider each statement individually. Need to work on wording of first sentence. Maybe "An alternate method to re-establish the release without the rad monitor is/is not available."  Can we change the second distractor to make this to limit the dose to occupants on-site. <b>Modified as suggested.</b>
91	H	3												N	S	077AG2.1.25 001 Generic comment: move TS titles to below question and above the answers.
92	H	2												B	S	086G2.2.36 001 Under the current condition bullet, add the word "ONLY" to the end of the sentence. <b>Modified during ATL visit with SNC</b>
93	H	3												M	S	103A2.05 001 This is a weak SRO match. Could we improve the level by asking if being in TS 3.6.2 would prohibit starting up the plant to get into Mode 3 while repairs were underway? The TS would need to be provided. <b>Modified as suggested</b>
94	F	3												M	S	G2.1.01 001
95	F	3												M	S	G2.1.35 001 Could we change Duty Reactor Engineer to Shift Manager. The RE has no license therefore the plausibility is greatly lowered. <b>Modified as suggested</b>
96	F	2												M	S	G2.2.20 001
97	F	2												M	S	G2.2.21 001
98	F	2												M	S	G2.3.04 001

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
99	H	2												B	S	G2.4.22 001 Generic comment: move procedure titles
100	F	3												B	S	G2.4.28 001 Generic comment. Move procedure section names below question