

Facility: <u>Surry</u>		Date of Examination: <u>8/23/2021</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>SR2021-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,M	Perform manual Calorimetric <i>(1-OPT-RX-003, Sections 6.1 and 6.2 and Attachment 3)</i>
Conduct of Operations	R,N	Determine Core Crew Requirements <i>(OP-AA-100, Attachment 2)</i>
Equipment Control	R,D	Determine Tagout Boundaries <i>(OP-AA-200, 11448-FE-1K, 11448-FM-124A SH2) (Bank JPM from Surry 2010 exam)</i>
Radiation Control	R,M	Verify RWP adequate <i>(Rad Work Permit, VPAP-2101 Section 6.3)</i> <i>(Modified JPM from Surry 2009 exam)</i>
Emergency Plan		
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 and Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs and RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ , randomly selected)		

Facility: <u>Surry</u>		Date of Examination: <u>8/23/2021</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>SR2021-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,N	Review CC PT <i>(1-PT-41.1)</i>
Conduct of Operations	S,M	Authorize Fuel Movement per OSP-ZZ-004 <i>(1-OSP-ZZ-004, Step 6.1.8, ATT 8)</i> <i>(Modified JPM from Surry 2014 exam)</i>
Equipment Control	R,M	Calculate Partial pressure and make TS call <i>(ARP 1B-A6, Attachment 2 and Tech Spec 3.8)</i>
Radiation Control	R,N	Perform Containment Entry Checklist <i>(VPAP-0106 Attachment 1)</i>
Emergency Plan	R,D	Determine PAR <i>(EPIP-1.06)</i>
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 and 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: <u>Surry</u>		Date of Examination: <u>10/04/2021</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>SR2021-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (al)	R,M	Perform a Quadrant Power Tilt Calculation <i>(0-AP-1.00, Attachment 6, Steps 1 – 9)</i>
Conduct of Operations (m)	R,N	Determine Core Crew Requirements <b>(Completed 8/24/21)</b> <i>(OP-AA-100)</i>
Equipment Control (an)	R,M	Review 1-OPT-CH-001, 'A' Charging pump PT
Radiation Control (o)	R,M	Verify RWP adequate <i>(Rad Work Permit, VPAP-2101 Section 6.3)</i> <b>(Completed 8/23/21)</b>
Emergency Plan		
<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 and 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)</p>		

**Surry RO Makeup JPM Summary**

- A.1.a This JPM is modified from the bank JPM performed on the 2017 NRC exam and 2019 Audit exam. A control rod had fully dropped in the core. The crew has entered 0-AP-1.00, ROD CONTROL MALFUNCTION. The applicant is to determine the Quadrant Power Tilt Ratio (QPTR) by performing 0-AP-1.00 Attachment 6, CALCULATION OF EXCORE QUADRANT POWER TILT RATIOS. The critical tasks include: recording the correct normalized detector current from the NI/Rad Monitor info page, calculating the correct upper and lower detector flux tilt ratios, and converting the ratios to "percent flux tilt" values. With a different dropped rod, all detector values will be modified from the bank JPM; the final value for QPTR will also be modified.
- A.1.b. This JPM was administered on 8/24/21.
- A.2 This JPM is modified from the bank JPM performed on the 2017 Audit exam (The bank JPM was for the "B" Charging Pump). This JPM involves review of a completed performance test of the 1A Charging Pump. The critical tasks include identifying the following: an SQC stopwatch used for the PT was out of calibration, a vibration point is in the inoperable range limit, and one MOV exceeds its open stroke time limit. The applicant must also determine that the "A" CH pump does NOT result in a Tech Spec LCO clock.
- A.3 This JPM was administered on 8/23/21.

Facility: Surry Date of Examination: 08/23/2021  
 Exam Level: RO  SRO-I  SRO-U  Operating Test No.: SR 2021-301

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

System/JPM Title	Type Code*	Safety Function
a. Perform AP-3.00 to Emergency Borate the RCS During ES-0.1 (Faulted) [024AA1.17 (3.9/3.9)] (1-AP-3.00)	M/S/A/L	1
b. Transfer the SI System to Cold Leg Recirc [006A3.08 (4.2/4.3)] (1-ES-1.3 Steps 1-5)	M/EN/A/L/S	2
c. Depressurize RCS to minimize SGTR Breakflow [EPE038EA1.04 (4.3/4.1)] (1-E-3, step 19)	D/S/L	3
d. Respond to a Loss of Decay Heat Removal [005A2.03 (2.9/3.1)] (1-AP-27.00, focus on Steps 4 - 13)	M/A/L/S	4P
e. Place Containment H2 Analyzer in service [028A4.03 (3.1/3.3)] (1-E-1 Attachment 2)	D/S/L	5
f. Respond to a #3 EDG Start Failure [064A4.06 (3.9/3.9)] (0-AP-17.05 Steps 1-15, Attachments 2 and 3)	D/S/A/EN	6
g. Adjust the PRNIs IAW 1-OPT-RX-001 [015A1.01 (3.5/3.8)] (1-OPT-RX-001 Attachment 1)	D/S	7
h. Realign MCR Ventilation in AP-22.00 [036G2.1.44 (3.9/3.8)] (0-AP-22.00 Steps 1-10)	N/S	8

In-Plant Systems:\* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U

i. Locally Isolate U2 TDAFW pump. [EPE038G2.1.30 (4.4/4.0)] (2-E-3, Step 3)	D,L,E,R	4S
j. Locally Start an EDG [068AA1.31 (3.9/4.0)] (0-FCA-12.00, Step 31, then back to steps 9-20)	D/E/A/L/EN	6
k. MCR Pressure Bndry Verification in AP-22.00 [036G2.1.44 (3.9/3.8)] (0-AP-22.00, Attachment 1 Step 3)	N/E/L	8

\* 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.

* Type Codes	Criteria for R /SRO-I/SRO-U
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(A)lternate path	5 (4–6)
(C)ontrol room	
(D)irect from bank	6 ( $\leq 9$ )
(E)mergency or abnormal in-plant	3 ( $\geq 1$ )
(EN)gineered safety feature	3 ( $\geq 1$ control room system)
(L)ow-Power/Shutdown	8 ( $\geq 1$ )
(N)ew or (M)odified from bank including 1(A)	5 ( $\geq 2$ )
(P)revious 2 exams	0 ( $\leq 3$ ) (randomly selected)
(R)CA	1 ( $\geq 1$ )
(S)imulator	

Facility: Surry    Date of Examination: 08/23/2021

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

System/JPM Title	Type Code*	Safety Function
a. Perform AP-3.00 to Emergency Borate the RCS During ES-0.1 (Faulted) [024AA1.17 (3.9/3.9)] (1-AP-3.00)	M/S/A/L	1
b. Transfer the SI System to Cold Leg Recirc [006A3.08 (4.2/4.3)] (1-ES-1.3 Steps 1-5)	M/EN/A/L/S	2
c. Depressurize RCS to minimize SGTR Breakflow [EPE038EA1.04 (4.3/4.1)] (1-E-3, step 19)	D/S/L	3
d. Respond to a Loss of Decay Heat Removal [005A2.03 (2.9/3.1)] (1-AP-27.00, focus on Steps 4 - 13)	M/A/L/S	4P
e. Place Containment H2 Analyzer in service [028A4.03 (3.1/3.3)] (1-E-1 Attachment 2)	D/S/L	5
f. Respond to a #3 EDG Start Failure [064A4.06 (3.9/3.9)] (0-AP-17.05 Steps 1-15, Attachments 2 and 3)	D/S/A/EN	6
g. Adjust the PRNIs IAW 1-OPT-RX-001 [015A1.01 (3.5/3.8)] (1-OPT-RX-001 Attachment 1)	D/S	7

In-Plant Systems:\* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U

i. Locally Isolate U2 TDAFW pump. [EPE038G2.1.30 (4.4/4.0)] (2-E-3, Step 3)	D,L,E,R	4S
j. Locally Start an EDG [068AA1.31 (3.9/4.0)] (0-FCA-12.00, Step 31, then back to steps 9-20)	D/E/A/L/EN	6
k. MCR Pressure Bndry Verification in AP-22.00 036G2.1.44 (3.9/3.8)] (0-AP-22.00, Step 11 and Attachment 1 Steps 1-3)	N/E/L	8

\* 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.

* Type Codes	Criteria for R /SRO-I/SRO-U
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(A)lternate path	5 (4–6)
(C)ontrol room	
(D)irect from bank	6 ( $\leq$ 8)
(E)mergency or abnormal in-plant	3 ( $\geq$ 1)
(EN)gineered safety feature	3 ( $\geq$ 1 control room system)
(L)ow-Power/Shutdown	8 ( $\geq$ 1)
(N)ew or (M)odified from bank including 1(A)	4 ( $\geq$ 2)
(P)revious 2 exams	0 ( $\leq$ 3) (randomly selected)
(R)CA	1 ( $\geq$ 1)
(S)imulator	



Facility: <u>Surry</u>		Date of Examination: <u>8/23/2021</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <u>SR 2021-301</u>
Control Room Systems:* 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a. Perform AP-3.00 to Emergency Borate the RCS During ES-0.1 (Faulted) [024AA1.17 (3.9/3.9)] (1-AP-3.00)	M/S/A/L	1
b. Transfer the SI System to Cold Leg Recirc [006A3.08 (4.2/4.3)] (1-ES-1.3 Steps 1-5)	M/EN/A/L/S	2
c. Depressurize RCS to minimize SGTR Breakflow [EPE038EA1.04 (4.3/4.1)] (1-E-3, step 19)	D/S/L	3
In-Plant Systems:* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. Locally Isolate U2 TDAFW pump. [EPE038G2.1.30 (4.4/4.0)] (2-E-3, Step 3)	D,L,E,R	4S
j. Locally Start an EDG [068AA1.31 (3.9/4.0)] (0-FCA-12.00, Step 31, then back to steps 9-20)	D/E/A/L/EN	6
* 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.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power/Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	3 (2-3) 3 (≤ 4) 2 (≥ 1) 2 (≥ 1 control room system) 5 (≥ 1) 2 (≥ 1) 0 (≤ 2) (randomly selected) 1 (≥ 1)	

Facility: Surry Date of Examination: 10/04/2021  
 Exam Level: RO  SRO-I  SRO-U  Operating Test No.: SR 2021-301

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

System/JPM Title	Type Code*	Safety Function
a. Recover a dropped control rod. [APE003 AA1.02 (3.6,3.4)] (0-AP-1.01, steps 14-23),	M/S	1
b. Respond to RCP Seal Failure IAW 1-AP-9.00 [003A2.09 (3.5,3.9)] (1-AP-9.00, 1-E-0)	D/A/S	2
c. Re-establish Normal Letdown following SI [E02.EK3.3 (3.9,3.9)] (1-ES-1.1, step 15)	M/A/L/S	3
d. Condensate pump flr with ATWS [056A2.04, (2.6,2.8)] [029EA1.09, (4.0, 3.6); EA1.13 (4.1,3.9)] (1-OP-CN-001, 5.4.5) (1-FR-S.1, steps 1 - 3)	N/A/S	4S
e. Perform E-0 Attachment 4 [WE14 EA1.3 (3.3/3.8)] (1-E-0, Att 4)	M/L/EN/S	5
f. Load AAC EDG onto 1J bus. [056A3.02 (4.4,4.7)] (0-AP-17.06, steps 1-6)	D/L/S	6
g. Transfer 'A' SF/FF Channels to BLUE following corrective maint. [016A2.01, (3.0,3.1)]. (1-OP-RP-001, Step 5.4.5, AP-53.00)	N/A/S	7
h. Realign MCR Ventilation in AP-22.00 [036G2.1.44 (3.9/3.8)] (0-AP-22.00 Steps 1-10) <b>Completed 8/23/21</b>	N/S	8

In-Plant Systems:\* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U

i. Locally align SW to a Recirc Spray HX [EPE011EA1.11 (4.2, 4.2)] (1-ECA-1.1 step 8c RNO)	N/L/E/R/EN	3
j. Transfer Semi-vital bus power supply [APE056AA2.44 94.3/4.4]] (2-AP-10.05, step 11)	D/E	6
k. Initiate #2 EDG Cardox [086A2.04, (3.3,3.9)] (0-OP-FP-006, 5.1)	N/A/E	8

\* 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.

* Type Codes	Criteria for R /SRO-I/SRO-U

(A)lternate path	5 (4-6)
(C)ontrol room	0
(D)irect from bank	3/ ( $\leq 9$ )
(E)mergency or abnormal in-plant	3 ( $\geq 1$ )
(EN)gineered safety feature	2 ( $\geq 1$ control room system)
(L)ow-Power/Shutdown	4 ( $\geq 1$ )
(N)ew or (M)odified from bank including 1(A)	8 ( $\geq 2$ )
(P)revious 2 exams	0 ( $\leq 3$ ) (randomly selected)
(R)CA	1
(S)imulator	8 ( $\geq 1$ )

### Surry RO Makeup JPM Summary

- a. This is a Modified bank JPM from LORP. A rod is dropped and the applicant will need to recover the rod to the Bank height.
- b. This is a bank, alternate-path, JPM that was last performed on the 2020 Op Eval. This JPM starts by having the applicant perform actions per 1-AP-9.00, RCP ABNORMAL CONDITIONS, for a failed RCP Seal. During performance of this procedure (step 7) a second RCP Seal will fail resulting in Delta P across one stage exceeding 2000 psid. Per Step 5 (Continuous action step) the applicant will be required to trip the reactor and perform 1-E-0.
- c. This is a bank, alternate-path, JPM that was last performed on the 2014 NRC Exam. The non-alternate path version of this JPM was last performed on the 2021 audit. This version will fail to establish normal letdown, requiring excess letdown to be put in service per 1-OP-CH-006.
- d. Condensate pump failure with ATWS. This is a new, alternate-path JPM. The applicant will pre-brief 1-OP-CN-001 for swapping Condensate pumps. The standby Condensate pump is first started followed by securing the designated Condensate pump. The secured pump's discharge check valve sticks open resulting in a total loss of Condensate flow. The applicant will recognize the loss of feedwater and perform AP-21.00 which will direct a reactor trip. The reactor will fail to trip requiring FR-S.1 immediate actions to be performed. Rods will be initially in MAN. At FR-S.1 step 2 the applicant will trip the Turbine. The JPM ends after the applicant performs the immediate actions.
- e. The JPM was last performed on the 2016 NRC exam. A large break LOCA had just occurred, and the applicant will check Phase II and Phase III containment isolation valves have closed. The applicant will identify that 1-RM-TV-100B, 1-CC-TV-105C, and ~~1-IA-TV-101A~~ did not close as required and will close them. Also the applicant identifies that 1-SW-P-5D, SW pump did not start as specified and will start the pump. And finally the applicant will identify that 1-CW-MOV-106C should have closed and closes this valve.
- f. The JPM was last performed on the 2015 Audit exam. A loss of all emergency bus power has occurred on Unit 1. The applicant is given a 10 minute time critical action to load the AAC on the 1J Emergency bus using 0-AP-17.06. The applicant will perform a switch alignment for the 1J Bus, including various components across the control room benchboard, EDG #3 control panel, and

the Vertical board. AMSAC will need to be reset in order to open the "B" MDAFW breaker. Breaker 15J8 will need to be closed within the 10 minutes to meet the time critical action. DRP-0049

- g. This is a new Alternate Path JPM, which will be pre-briefed. It begins with the "A" S/G SGWLCS channels aligned to Channel 4 (all other SGWLCS channels are aligned to Channel 3). Repairs were just completed on an "A" S/G SGWLCS instrument, and the applicant is to align "A" S/G instrumentation to Channel 3 using 1-OP-RP-001. The "A" MFRV will be placed in manual and the associated Steam and Feed flow selector switches will be aligned to Channel 3. When the "A" MFRV is placed back in AUTO, a SGWLCS failure will occur (FF fails high), requiring the applicant to perform the Immediate Actions of 0-AP-53.00 to stabilize "A" S/G Level.
- h. This JPM was administered on 8/23/21.
- i. This is a new JPM. A Large break LOCA has occurred but Recirc Spray SW MOVs did not open as required. This JPM will require the applicant to manually open Recirc Spray MOVs inside the RCA to restore SW to the Recirc Spray Heat Exchangers.
- j. This JPM was last performed on the 2019 Audit exam. A loss of Semi-Vital bus (SVB) occurred on Unit 2 and the team is performing 2-AP-10.05. The applicant will perform step 11 of 2-AP-10.05 to open the 1H feeder breaker, operate the manual SVB throw over switch, then close the 1J feeder breaker to reenergize the SVB.
- k. This is a new JPM. The applicant is responding to a fire in #2 EDG room, with a failure of LP CO2 manual actuation from the Main Control Room. The applicant will perform 0-OP-FP-006 to attempt Manual initiation outside the EDG room using the pushbutton. The applicant must recognize CO2 actuation did not occur, and manually operate the override lever both at the EDG room and by the LP CO2 tank.



Facility: Surry		Date of Exam: 08/23/21										Operating Test No.: SR2021-301					
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		3			4			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
												R	I	U			
RO <input type="checkbox"/> <b>SRO-I1,2</b> <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	1			1											2	1
	NOR	5											1	1	1	1	
	I/C	2,3,4,5			3,5,6								7	4	4	2	
	MAJ	6,7			7,8								4	2	2	1	
	TS	2,4											2	0	2	2	
RO1,3,4 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1										1	1	1	0	
	NOR				1								2	1	1	1	
	I/C		4,5		2,4								6	4	4	2	
	MAJ		6,7		7,8								4	2	2	1	
	TS												0	0	2	2	
RO2 <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U1 <input type="checkbox"/>	RX				1								1	1	1	0	
	NOR			1,5									1	1	1	1	
	I/C			2,3,5	3,5,6								4	4	4	2	
	MAJ			6,7	7,8								4	2	2	1	
	TS												0	0	2	2	
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> <b>SRO-U1</b> <input checked="" type="checkbox"/>	RX	1			1								2	1	1	0	
	NOR	5			1								2	1	1	1	
	I/C	2,3,4,5			2,3,4,5,6								9	4	4	2	
	MAJ	6,7			7,8								4	2	2	1	
	TS	2,4			2,5								4	0	2	2	
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> <b>SRO-U2, U3</b> <input checked="" type="checkbox"/>	RX				1								1	1	1	0	
	NOR			1,5	1								2	1	1	1	
	I/C			2,3,5	2,3,4,5,6								6	4	4	2	
	MAJ			6,7	7,8								4	2	2	1	
	TS				2,5								2	0	2	2	

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the at-the-controls (ATC) and balance-of-plant (BOP) positions. Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (\*) Reactivity and normal evolutions may be replaced with additional I/C malfunctions on a one-for-one basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.
4. For new reactor facility licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: SURRY		Date of Examination: 08/23/2021				Operating Test No.: 2021-301						
Competencies	APPLICANTS											
	RO <input type="checkbox"/>	SRO-I (1,2) <input checked="" type="checkbox"/>	SRO-U <input type="checkbox"/>	RO (1,3,4) <input checked="" type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U <input type="checkbox"/>	RO (2) <input checked="" type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U <input type="checkbox"/>	RO <input type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U (1) <input checked="" type="checkbox"/>
	SCENARIO		SCENARIO		SCENARIO		SCENARIO					
	3	4	3	4	3	4	3	4				
Interpret/Diagnose Events and Conditions	2,3,4,5,6,7	2,3,4,5,6,7,8	2,3,4,5,6,7	2,3,4,5,6,7,8	2,3,4,5,6,7	2,3,4,5,6,7,8	2,3,4,5,6,7	2,3,4,5,6,7,8				
Comply with and Use Procedures (1)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL				
Operate Control Boards (2)	ALL	<input checked="" type="checkbox"/>	ALL	ALL	ALL	ALL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Communicate and Interact	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL				
Demonstrate Supervisory Ability (3)	<input checked="" type="checkbox"/>	ALL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ALL	ALL				
Comply with and Use TS (3)	<input checked="" type="checkbox"/>	2,5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2,4	2,5				
Notes: (1) Includes TS compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.												

**Instructions:**

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Forms ES-303-1 and ES-303-3 describe the competency rating factors.)



Facility: SURRY		Date of Examination: 08/23/2021		Operating Test No.: 2021-301					
Competencies	APPLICANTS								
	RO <input type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U(2,3) <input checked="" type="checkbox"/>	RO <input type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U <input type="checkbox"/>	RO <input type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-U <input type="checkbox"/>
	SCENARIO		SCENARIO		SCENARIO		SCENARIO		
	3	4							
Interpret/Diagnose Events and Conditions	2,3,4,5,6,7	2,3,4,5,6,7,8							
Comply with and Use Procedures (1)	ALL	ALL							
Operate Control Boards (2)		ALL							
Communicate and Interact	ALL	ALL							
Demonstrate Supervisory Ability (3)	ALL								
Comply with and Use TS (3)	2,4								
Notes: (1) Includes TS compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.									

*Instructions:*

*Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Forms ES-303-1 and ES-303-3 describe the competency rating factors.)*

Facility: <b>Surry</b>		Exam Date: <b>August 2021</b>											
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-COO-1	G2.1.19	3										S	
RO-COO-2	G2.1.5	3										E	See attached
RO-EC	G2.2.13	3	x		x							E	See attached
RO-RC	G2.3.7	3										S	
SRO-COO-1	G2.2.12	2						x				E	See attached
SRO-COO-2	G2.1.40	3		x				x				E	See attached
SRO-EC	G2.1.20	2						x				E	See attached
SRO-RC	G2.3.13	2		x				x				E	See attached
SRO-EP	G2.4.41/44	1										U	See attached
Simulator/In-Plant JPMs	1 Safety Function and K/A												
A	1/ 024AA1.17	3										S	
B	2/ 013A4.01	3						x				E	See attached
C	3/ 038EA1.04	3										E	See attached
D	4P/ 005A2.03	3			x							E	See attached
E	5/ 028A4.03	2										S	
F	6/ 064.A4.06	3	x					x				E	See attached
G	7/ 015A1.01	2										S	
H	8/ 036AA1.01	2			x			x				E	See attached
I	4S/ 038 G2.1.30	2					x					E	See attached
J	6/ APE068AA1.31	2						x				E	See attached
K	8/ 036G2.1.44	1			x			x				E	See attached

**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.










**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: **SURRY**

Exam Date: **August 2021**

**OPERATING TEST TOTALS**

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	1	7	1		
Sim./In-Plant JPMs	11	0	8	3		
Scenarios	4	0	5	1		
<b>Op. Test Totals:</b>	24	1	20	5	<b>4%</b>	

**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).

# Surry August 2021 Draft Op Test Comments

## JPM Comments

➤ For ADMIN JPMS:

*During PREP week (July 19-23), can you prepare a classroom with laptops loaded with plant reference disks so we can administer the JPMs to the validators in the same place/setting that we'll be administering during exam week?*

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **RO CONDUCT OF OPS (RO-COO-1): Perform Manual Calorimetric**

1-OPT-RX-003, Reactor Power Calorimetric Using Feed Flow and PCS Computer Points (Manual), Section 6.1, Data Collection, and Section 6.2, Calculating Reactor Power Using Manual Method, and Attachment 3, Calorimetric Data Sheet

- *The JPM is acceptable.*

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

**RO CONDUCT OF OPS (RO-COO-2): Determine Shift Core Crew Composition**  
OP-AA-100, Conduct of Operations

- *The JPM is acceptable.*

# Surry August 2021 Draft Op Test Comments

## **RO EQUIPMENT CONTROL (RO-EC): Determine Tagging Boundaries**

OP-AA-200, Equipment Clearance  
11448-FM-124A, Sheet 2  
11448-FE-1K

- *Critical Steps: Why isn't there some aspect of the tagging SEQUENCE that's critical?*
- *I/C Focus: Does the initiating cue sheet need to include the statement "1-RT-S-1B will not be removed from the system?"*

**7-8-21: Three broad categories for sequence (Breaker-ISV-Vent/Drains). Will include statement on 1-RT-S-1B.**

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **RO RADIATION CONTROL (RO-RC): Verify RWP Adequate**

VPAP-2101, Radiation Protection Program, Section 6.3, External Radiation Exposure Control  
Rad Work Permit

- *The JPM is acceptable.*

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **SRO CONDUCT OF OPS (SRO-COO-1): Review Component Cooling (CC) Water PT**

1-PT-41.1, Component Cooling Water Pumps Performance Test

- *Perf Std: In the overall task standard, and in JPM Step 7, the word “clock” can be enhanced with the detail of the required action. For example:*

***Applicant determines that Specification 3.13.B requires restoring three CCW Pumps to operable within 24 hours. If three pumps cannot be restored to operable within 24 hours, then the reactor must be placed in hot shutdown within the next 6 hours.***

7-8-21: Will incorporate.

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **SRO CONDUCT OF OPS (SRO-COO-2): Authorize Fuel Movement**

1-OSP-ZZ-004, U1 Safety Systems Status List For Cold Shutdown/Refueling Conditions, Attachment 8, Refueling Operations Requirements

*(Proposed setting for JPM topic is static simulator.)*

- *Cue: The title/number of 1-OSP-ZZ-004 probably isn't needed on the task sheet provided to the applicants; this is part of the knowledge the Admin JPM should be testing. It's more operationally valid to ask the SRO applicants to verify plant conditions will / will not support fuel movement (without providing title/number of procedure) because this is the way it would be said to the applicant in the actual plant. Testing the applicants' knowledge of the procedure to reference can be part of this JPM.*

*Suggest deleting the 2<sup>nd</sup> sentence in the first bullet on the cue sheet, and modify the Initiating Cue Statement as follows:*

**You are to verify plant conditions support fuel movement (core offload).**

**If conditions do NOT allow Refueling Operations to begin, then list ALL issues that must be resolved to allow fuel movement to commence.**

**If existing plant conditions support fuel movement then notify the examiner that fuel movement may begin.**

- *Cue: Why does the initial conditions provided to the applicant tell them that 0-RMA-D6, VENT STACK #2 PART ALERT/HI has just alarmed? Won't they be able to see the failed rad monitor while performing Attachment 8?*
- *Perf Std: JPM Step 12 should include the number/title of Tech Spec 3.10-4.*
- *Perf Std: The overall task standard should specify that ONLY the two conditions must be identified; in the overall task standard say that identification of any other conditions constitutes unsatisfactory performance.*
- **7-8-21: Pre-shift checklist would include this procedure; when taking the watch procedure will be at the watch for off-going SRO. Cue will be deleted. Perf Stds corrected.**



# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **SRO EQUIPMENT CONTROL (SRO-EC): Calculate Partial Pressure & Make TS Call**

ARP 1B-A6, CTMT PART PRESS -0.1 PSI CH1, Attachment 2, Calculation of CTMT Air Partial Pressure  
Tech Spec 3.8.D, Containment – Internal Pressure

- *Perf Std: The last bullet in the overall task standard, and the standard for JPM Step 7, should be more specific with respect to the Tech Spec determination. For example:*

***Determines that Tech Spec 3.8.d.1.a is required; restore air partial pressure to within acceptable limits within 1 hour or be in at least Hot Shutdown within the next 6 hours.***

- *Ensure that Tech Spec Figure 3.8-1 is NOT provided to the applicants as part of their initiating cue task sheet package.*

7-8-21: Incorporated both comments.

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **SRO RADIATION CONTROL (SRO-RC): Perform Containment Entry Checklist**

VPAP-0106, Subatmospheric Containment Entry, Attachment 1, Containment Entry Checklist

- *Perf Std: To ensure the Tech Spec piece will be hit on this JPM (the only real SRO piece), we should modify the initiating cue to the applicants (on their task cue sheet), the overall task standard, and the standard for JPM Step 2, to somehow require the applicants to identify that Tech Spec 3.8.B.1.b will be exceeded if the containment entry were performed.*
- *LOD: An applicant can know right away that containment entry isn't allowed solely because of flux mapping going on (radiation danger). To fix this, in the initial conditions, the sentence "Unit 2 flux mapping has just commenced to satisfy a Tech Spec requirement" could be more specific with respect to the surveillance procedure's number/title. Suggest only including the name/number of the surveillance procedure being performed instead of saying "flux mapping". Test the applicants' knowledge that a specific surveillance content involves flux mapping instead of straight out telling them flux mapping is in progress.*
- *Cues: Suggest removing the name/number of VPAP-0106 on the examinee handout, i.e., part of what the JPM could evaluate is whether the applicants know where to go to perform the containment entry. It's okay that part of the applicant handout contains the VPAP-0106 reference, but all other items like the following can be removed from the cue sheet:*

#### Initiating Cues

- ~~A new VPAP-0106 Attachment 1, Containment Entry Checklist has been initiated.~~
  - You have been direct to assume the roles of Responsible Supervisor/Shift Manager for the next Unit 2 Containment entry.
  - Your task is to determine whether or not Unit 2 Containment Entry is permitted. If you identify that containment entry cannot be performed, provide the reason(s) and/or applicable Tech Spec requirements that prohibit entry.
- *Cues: The "attachment" to the cue sheet may not be needed for this JPM; it may provide a cue that there are conflicts to entering the containment.*

7-8-21: Perf Std comment incorporated.

# Surry August 2021 Draft Op Test Comments

## ADMIN JPM Comments

### **SRO EMERGENCY PLAN (SRO-EP): Classify GE and Determine PAR**

EPIP-1.01, Emergency Manager Controlling Procedure, Steps 1 – 3

EAL Matrices

EPIP-1.06, Protective Action Recommendations

- *LOD: There needs to be a plausible distracter where the applicant would conceivably NOT classify the correct event; need to ensure the initial conditions, etc. don't point the applicant to the exact classification. The proposed JPM has no plausible distracter; similar to direct lookup.*
- *The JPM should be re-worked such that all applicants receive both parts of the JPM; we want to avoid a situation where an applicant doesn't get to take both parts of the JPM and situations involving two separate rooms. The 1<sup>st</sup> part of the JPM should only be classifying the event (GE, Site, Alert, NOUE) and the applicants must immediately raise their hand so the examiner can log their completion time and provide them with the Emergency Notification Form. The 2<sup>nd</sup> part of the JPM should be completing the ENF Form, including PAR if applicable.*
- **6-15-21: Revised to make 1<sup>st</sup> part classification, 2<sup>nd</sup> part is PAR only. Both parts time critical. Changed to add initial conditions indications of excessive high RCS activity, U1 ramping off-line. SGTR + SG Safety Valve opens (three fission product barriers). The plausible distracter added is Vent Stack #2  $7 \times 10^7$  (Site Emergency only). KI determination also required.**

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### **JPM A: Emerg Borate RCS per 1-AP-3.00 (SF1: Reactivity Control) (ALT PATH)**

1-AP-3.00, Emergency Boration

- *The JPM is acceptable.*
- *Ensure no overlap with any of the scenarios; do any of the scenarios deal with the boration flow path not working? Audit Exam?*

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### JPM B: Transfer SI to Cold Leg Recirc (SF2: Inventory Control) (ALT PATH)

1-ES-1.3, Transfer to Cold Leg Recirculation, Steps 1 - 5

- *Perf Std: For JPM Steps 14 and 15, add a note to the examiner for why it's critical to CLOSE one valve only after the other valve is FULL open.*
- *Ensure no overlap with LBLOCA Scenario and Audit exam.*

7-8-21: Added basis note to examiner.

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### JPM C: Depressurize RCS to minimize SGTR break flow (SF3: Pressure Control)

1-E-3, SGTR, Step 19

- *The K/A link is incorrect.*

7-8-21: *Still need to fix.*

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### **JPM D: Respond to Loss Decay Heat Removal (SF4P: Heat Removal Primary) (ALT PATH)**

1-OP-ZZ-002, Maintenance of Plant Operations, Section 5.16, Adjusting RHR Temperature

1-AP-27.00, Loss of Decay Heat Removal Capability

- *Critical Steps: Part of what the JPM must evaluate is the applicants' ability to adjust RHR temperature in Section 5.16. JPM Step 1 should have a critical aspect; the examiner should verify that the RCS temperature trend begins to stabilize before continuing with the alternate path portion of the JPM. Can we make Step 1 critical to at least cause RCS temperature trend to go in the right direction?*
- *Perf Std: The initiating cue directs the applicants to stop the lowering RCS trend; however, the standard in JPM Step 1 says the applicant should OPEN the RHR HXS FLOW further. Won't this cause the RCS lowering temperature trend to continue?*

*7-8-21: Re-snap JPM so that temp is stable and first task is to start lowering temperature (critical). Up to examiner how long he waits. New cue will be to lower RCS temperature to a band, then stabilize. JPM Step 1 corrected.*

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### JPM E: Place Containment H2 Analyzer Inservice (SF5: Containment)

1-E-1, Loss of Reactor or Secondary Coolant, Attachment 2, Hydrogen Analyzer Operation

➤ *The JPM is acceptable.*



# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### **JPM F: Respond to #3 EDG Start Failure & Load 1J 4160V Bus (SF6: Electrical) (ALT PATH)**

0-AP-17.05, EDG 3 – Emergency Operations, Steps 1-15, Attachment 2, Auto Start Failure of EDG3 – Contingency Actions

- *Overlap: Does this JPM overlap with In-Plant JPM “J?”*
- *I/C Focus: Do you think the applicants will misinterpret their initiating cue statement to mean they're only responsible for Attachment 2? Will they also understand that they have responsibility for implementing 0-AP-17.05? (The JPM is designed for the applicant to start in Attachment 2 and then go to the body of 0-AP-17.05.)*

#### Initial Conditions

- Unit 1 operating at 100% power.
- The Loss of the “A” RSST has occurred and #3 EDG has failed to start and load on 1J 4160V Bus.
- Starting and loading #3 EDG on the 1J 4160V bus IAW 0-AP-17.05, EDG 3 – Emergency Operations is in progress and is complete through step 3 of Attachment 2.

#### Initiating Cues

- You are the Unit 1 BOP and are to continue with starting and loading of #3 EDG per 0-AP-17.05, starting with Attachment 2 step 4.
  - When you finish the actions necessary to accomplish this, please inform me.
- 
- *At procedure Step 15.c, to raise incoming voltage to 120 volts, If an applicant continues on in the procedure, can the #3 EDG be loaded? We may need to discuss how the EDG will be damaged if the applicant doesn't recognize that incoming voltage can't be raised greater than 113 volts.*

7-8-21: Procedure Step 15.c comment: Breaker can still be closed, but the current is significantly higher. Failure criteria added so that applicant fails JPM if they continue.

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### JPM G: Adjust PRNIs (SF7: Instrumentation)

1-OPT-RX-001, Reactor Power Calorimetric Using PCS Computer Program, Section 6.2, Adjusting NI Channels, Attachment 1, NI Calibration

- *JPM is acceptable.*

# Surry August 2021 Draft Op Test Comments

## Simulator JPMs

### JPM H: MCR pressure boundary verification using AP-22.00 (SF8: Plant Service Systems)

0-AP-22.00, Fuel Handling Abnormal Conditions, Steps 1 – 10

#### TIME CRITICAL JPM

- *The K/A assigned to this JPM topic is APE 036, Fuel Handling Incidents, AA1.01, Ability to operate and/or monitor Reactor Building Containment Purge Ventilation System as it applies to Fuel Handling Incidents. Form ES-401-2 (T1G2) identifies APE 036 as SF8 (Plant Service Systems). However, the following two issues exist:*
  - *In the JPM, the applicants don't operate the Reactor Building Containment Purge Ventilation System; instead, they are tasked with operating the MCR HVAC equipment.*
  - *In the BWR K/A Catalog, the Control Room HVAC System is listed under SF9, Radioactivity Release. [Note: The PWR K/A Catalog is missing the Control Room HVAC topic, as previously identified in OL Feedback Item 401.51.]*

*Suggest re-linking the APE 036 topic to Generic K/A G2.1.44: **“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.”**. By relinking the APE 036 topic to Generic K/A G2.1.44, I think it makes the JPM task a better fit for Safety Function 8.*

- *Critical Steps: Why is the JPM TIME CRITICAL? Is this a typo? IF the JPM is time critical, then the applicants' initiating cue sheet must inform them it's time critical, and the overall task standard must be revised.*
- *Overlap: Does this JPM overlap with In-Plant JPM “k?”*

*7-8-21: Time critical portion deleted. Re-linked.*

# Surry August 2021 Draft Op Test Comments

## IN-PLANT JPMS

### JPM i: Locally Isolate U2 S/G PORV & TDAFW Pump (SF4S: Secondary Heat Removal) (ALT PATH)

2-E-3, SGTR, Step 3

- *Scope: The JPM is alternate path even though its cover sheet is not labeled as an alternate path. IF you desire to use this as an alternate path JPM, THEN we will have too many alternate path JPMS (i.e., we'll have 6, which makes us vulnerable). I didn't think this JPM was supposed to be alternate path?*

*If you make JPM Step 2 work (see below), it'll fix the alternate path issue; however, the JPM will only have two steps in it. Is there something else we could add to it?*

<p><b>STEP 2:</b> <span style="float: right;"><b>CRITICAL STEP</b></span></p> <p style="text-align: center;">Locally close steam supply valve to TD AFW pump. (E-3, step 3d)</p> <p><b>STANDARD:</b></p> <ul style="list-style-type: none"> <li>a) Locates the "A" main <u>steam</u> line in relation to "B" &amp; "C".</li> <li>b) <b>Attempts to close chain valve 2-MS-87. CRITICAL STEP</b></li> </ul> <p><b>EVALUATOR'S NOTE:</b></p> <ul style="list-style-type: none"> <li>• <b>Cue:</b> When the operator attempts to close 2-MS-87, inform him/her that the valve will not move and indicate the valve position is as shown.</li> <li>• <b>If asked:</b> The TDAFWP (2-FW-P-2) is still running.</li> </ul> <p><b>COMMENTS:</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
--	-------------------------------------

7-8-21: Alternate path deleted; chain valve will work. Will add an additional SG to use chain valves to close.

# Surry August 2021 Draft Op Test Comments

## IN-PLANT JPMS

### JPM J: Locally Start EDG (SF6: Electrical) (ALT PATH)

0-FCA-12.00, Fire Contingency Action – EDG Operation, Step 31, then back to Steps 9 - 20

- *Overlap: Does this JPM overlap with Sim JPM “F?”*

# Surry August 2021 Draft Op Test Comments

## IN-PLANT JPMS

### JPM K: MCR Pressure Boundary Verification (SF8: Plant Service System)

0-AP-22.00, Fuel Handling Abnormal Conditions, Step 11 and Attachment 1, MCR Pressure Boundary Verification, Steps 1 - 3

- *LOD: Does the JPM only involve opening the breakers in Step 3? At least everything isn't at the same location and involves different voltages. If this isn't true let me know.*
- *Critical Steps: The critical steps are missing the "CRITICAL STEP" identifier at the beginning of each JPM step.*
- *JPM Step 1: We need to be consistent with ALL evaluators for the following guidance, i.e., the phrase "At the evaluator's discretion." should be eliminated. IF we decide to use the screen shots of the 8 listed  $\Delta P$  indications, then they are missing from the JPM.*

**STEP 1**

Check readings on the following Differential Pressure Indicators - POSITIVE PRESSURE INDICATED (0-AP-22.00 Attachment 1, step 1)

**STANDARD:**

- a) Checks for positive pressure on all listed Differential Pressure Indicators:
  - PDI-VS-100, just inside MCR at Ventilation Panel
  - PDI-VS-101, just inside MCR at Ventilation Panel
  - PDI-VS-200, just inside MCR at Ventilation Panel
  - PDI-VS-201, just inside MCR at Ventilation Panel
  - 1-VS-PDI-118, in U1 Computer Room.
  - 1-VS-PDI-116, near entrance to U1 Computer Room.
  - 2-VS-PDI-216, in U2 Air Handler room.
  - 2-VS-PDI-206, near entrance to U2 Air Handler room.
- b) Determines all pressures are positive with the following two exceptions:
  - **1-VS-PDI-116 indicates zero.**
  - **2-VS-PDI-206 indicates zero.**

**EVALUATOR'S NOTE:**

**Note:** The Applicant may go to Step 2 after identifying the first PDI that does not indicate positive pressure. Determination of the need to locally secure Fans and AHUs satisfies the critical task in this step.

**At the evaluator's discretion:** Attached screen shots of the eight listed Differential Pressure Indicators may be provided to the Applicant.

**If Asked:** Show indication between 0.1 and 0.2 Inches of Water for the following six indicators:

- PDI-VS-100, just inside MCR at Ventilation Panel
- PDI-VS-101, just inside MCR at Ventilation Panel
- PDI-VS-200, just inside MCR at Ventilation Panel
- PDI-VS-201, just inside MCR at Ventilation Panel
- 1-VS-PDI-118, in U1 Computer Room.
- 2-VS-PDI-216, in U2 Air Handler room.

**If Asked:** Show indication of 0.0 Inches of Water for the following two indicators:

- **1-VS-PDI-116, near entrance to U1 Computer Room.**

- *Any breaker panels have to be opened for Ckt 1 & 2 in 1-EP-DB-HVAC and 2-EP-DB-HVAC? We could provide pictures on the panel internals if necessary to avoid opening panel doors during administration of the in-plant JPM.*
- *Overlap: Does this JPM overlap with Sim JPM "H?"*

**SECURE EXAM MATERIAL**

# Surry August 2021 Draft Op Test Comments

7-8-21: On Unit 1 & 2 there are four breakers; applicant has to do eight breakers. For Unit 1, there are two different locations, and breakers are 220V and 480V breakers. We should have pictures.

# Surry August 2021 Draft Op Test Comments

## Scenario Comments

**SECURE EXAM MATERIAL**



# Surry August 2021 Draft Op Test Comments

## NRC Scenario 1: SBLOCA (79% power)

**Event 1 – Raise Power (R-RO/N-BOP)**

**Event 2 – Turb 1<sup>st</sup> Stage PT fails low (BOP + TS SRO)**

[CT: Place rods in manual before 1G-H8 alarms (Rod insertion limit extra low)]

- *We don't need another CT for this scenario; reaching LO-LO Insertion Limit may not be critical task.*
- *Appears that credit should be only for RO; will BOP indeed have to place FRVs in MAN?*

**\*Event 3 – NRHX Outlet TT TE-1144 fails low (RO)**

**Event 4 – Loss of the 1G Screenwell Bus (BOP)**

[CT: Restart CW pumps before auto or manual reactor trip]

**Event 5 – PZR PT-1444 fails high (RO + TS SRO)**

[CT: Control PZR pressure to prevent auto OR manual reactor trip]

**\*Event 6 - MAJOR EVENT #1: Main Feed Pump Trip + ATWS**

[CT: Reduce load OR close MSTVs before PZR Safety Valve Lifts]

- *How long will it take for safety valve to lift with no operator action? Include in scenario.*

**\*Event 7 - MAJOR EVENT #2: SBLOCA**

[CT: Restore HHSI flow prior to RCP Trip Criteria (30°F subcooling)]

- **Malfunction after EOP entry – SI Relay S13A Failure (SI-1867C f-t-o, #1 EDG f-t-s, Trip Vlvs f-t-c, FW-P-3B f-t-s)**
- **Malfunction after EOP entry – 1C Charging Pump trip**

- *RO: 1 reactivity, 2 I/Cs*
- *BOP: 1 normal, 2 I/Cs*
- *SRO: 2 TS*
- *Manual control of auto-function: E3, E5*
- *Instrument/component malfunctions after EOP entry = two*
- *EOPs entered = one (E1)*
- *EOP contingencies = one (FR-S.1)*
- *\*Scenario is significantly modified from 2017 and 2019 exams, IAW ES-301 pg 15, Appendix D pg D-7, and OL Feedback Item 301.20; Events 3, 6, & 7 are "new."*

**SECURE EXAM MATERIAL**

# Surry August 2021 Draft Op Test Comments

## NRC Scenario #3: MSL Header Break & Faulted SG (100%)

Event 1 – Lower Power (R-RO/N-BOP)

**\*Event 2 – PR Channel 1 (N41) Fails LOW (BOP + SRO TS)**

➤ *Typo in scenario guide; still has N44 - - do "find-and-replace" throughout scenario.*

Event 3 – Condensate Pump "A" Trip; Standby f-t-s (BOP)

[CT: Start standby pump before auto or manual reactor trip]

Event 4 – PZR Master Controller Fails Low (pressure rises) (RO + SRO TS)

**\*Event 5 – Momentary Loss of Vital Bus "II" (Inverter Output Bkr Trip) (RO + BOP)**

**\*Event 6 – MAJOR EVENT: MS Header Break and ALL SGs Faulted**

- **\*Malfunction after EOP entry – MDAFW Pump f-t-s after SI**  
[CT: Start one MDAFW Pump before SG WR Level @ 12% (Feed & Bleed Criteria)]  
[CT: Minimize AFW flow rate (but not less than 60 gpm to each SG) if RCS cooldown rate is >100°F/hr before FR-P.1 entry is required]
- **\*Malfunction after EOP entry – "A" FRV f-t-c**
- **Malfunction after EOP entry – 1-CH-MOV-1381 & VS-MOD-103B f-t-c**

- RO: 1 reactivity + 2 I/Cs
- BOP: 1 normal + 3 I/Cs
- SRO: 2 TS
- Manual control of auto-function: E4
- Instrument/component malfunctions after EOP entry = three
- EOPs entered = one (E2)
- EOP contingencies = two (FR-H.1, ECA-2.1)
- \*Scenario is significantly modified from 2017 and 2019 exams, IAW ES-301 pg 15, Appendix D pg D-7, and OL Feedback Item 301.20.

**SECURE EXAM MATERIAL**

# Surry August 2021 Draft Op Test Comments

## NRC Scenario #4: SBLOCA, LBLOCA (5%)

### **Event 1 – Synchronize Generator (R-RO/N-BOP)**

[Surrogate operator controlling FRVs in manual]

- *Pre-brief can help with saving time on this event; need to make sure applicants have ample pre-brief.*

### **Event 2 – CC Rad Monitor Fails; CC-100 vent f-t-c (BOP + SRO TS)**

### **Event 3 – Charging Flow Controller Fails Hi (RO)**

### **Event 4 – EH Pump Trip; Standby f-t-s (BOP)**

[CT: Start Standby EH Pump before auto turbine/reactor trip]

### **Event 5 – CH SW Pump “A” Trip; Standby f-t-s (RO + SRO TS)**

[CT: Start Standby CH SW Pump before 185°F bearing temperature, to prevent loss of pump for LBLOCA]

- *We don't need another CT; losing the SI pump may not be CT*

### **\*Event 6 – Dropped Rod requires manual reactor trip (RO)**

### **\*Event 7 – MAJOR EVENT #1: SBLOCA**

- **Malfunction after EOP entry – LHSI Pumps f-t-s**  
[CT: Start one LHSI Pump before FR-C.1 entry required]

### **Event 8 – MAJOR EVENT #2: LBLOCA**

- **Malfunction after EOP entry – Loss of both CS Pumps**  
[CT: Start one CS Pump within 15 minutes after containment pressure reaches 23 psia-EAL escalation]

- *RO: 1 reactivity + 2 I/Cs*
- *BOP: 1 normal + 2 I/Cs*
- *SRO: 2 TS*
- *Manual control of auto-function: E3*
- *Instrument/component malfunctions after EOP entry = two*
- *EOPs entered = one (E1)*
- *EOP contingencies = one (FR-Z.1)*
- *\*Scenario is significantly modified from 2017 and 2019 exams, IAW ES-301 pg 15, Appendix D pg D-7, and OL Feedback Item 301.20.*

# Surry August 2021 Draft Op Test Comments

## NRC Scenario #5: SGTR (100%)

### Event 1 – PORV Test; Block Valve Breaker Trip (N-RO + SRO TS)

- *Typo, the event description says the BOP will perform; revise to say RO is performing.*

### Event 2 – PZR LT Fails Low (RO + SRO TS)

### Event 3 – “B” SG FRV Controller Fails Low (BOP)

[CT: Control SG level before auto or manual reactor trip]

- *Typo, the event description is missing the critical task information*

### Event 4 – SG “B” PORV Fails Open (BOP)

### \*Event 5 – Isophase Bus Duct Hi Temp- Lower Power (R-RO + N-BOP)

### Event 6 – SGTL- 20 gpm + failure of Air Ejector Rad Monitor auto-swap (RO + BOP)

[CT: Align Air Ejector discharge to containment before SGTR occurs; prevent release to environment]

- *This may not be a CT unless the NOUE release rate is reached with no operator action during subsequent SGTR*
- *Will there be a Tech Spec call for the tube leak?*

### Event 7 – MAJOR EVENT: SGTR – 600 gpm

[CT: Isolate FW Flow to SG before NR level reaches 100%; loading on MS lines]

- \*Malfunction after EOP entry – PZR PORV 1455C will not open

- *RO: 1 normal + 2 I/Cs + 1 normal*
- *BOP: 2 I/Cs + 1 normal*
- *SRO: 2 TS*
- *Manual control of auto-function: E2*
- *Instrument/component malfunctions after EOP entry = one*
- *EOPs entered = one (E3)*
- *EOP contingencies = one (ECA-3.3)*
- *\*Scenario is significantly modified from 2017 and 2019 exams, IAW ES-301 pg 15, Appendix D pg D-7, and OL Feedback Item 301.20.*

Facility: <b>SURRY</b>															Date of Exam: <b>2021</b>			
Tier	Group	RO K/A Category Points												SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A						3	3	N/A	3	18	3	3	6
	2	1	2	1	N/A						1	2		2	9	2	2	4
	Tier Totals	4	5	4	N/A						4	5		5	27	5	5	10
2. Plant Systems	1	1	3	2	3	3	2	3	3	2	3	3	28	3	2	5		
	2	1	1	0	1	1	1	1	1	1	1	1	10	2	1	3		
	Tier Totals	2	4	2	4	4	3	4	4	3	4	4	38		3	8		
3. Generic Knowledge and Abilities Categories				1		2		3		4		10		1	2	3	4	7
				2		2		3		3				1	2	2	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.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
007EK2.03	Reactor Trip - Stabilization - Recovery / 1 SEE LIST OF REJECTED K/As Form ES-401-4	3.5	3.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor trip status panel
008AA1.02	Pressurizer Vapor Space Accident / 3	4.1	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HPI pump to control PZR level/pressure
009EK3.15	Small Break LOCA / 3	3.2	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Closing of RCP thermal barrier outlet valves
011EG2.4.31	Large Break LOCA / 3	4.2	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of annunciators alarms, indications or response procedures
022AA2.01	Loss of Rx Coolant Makeup / 2	3.2	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Whether charging line leak exists
025AA1.18	Loss of RHR System / 4 SEE LIST OF REJECTED K/As Form ES-401-4	2.6	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LPI header cross-connect valve controller and indicators
027AK2.03	Pressurizer Pressure Control System Malfunction / 3	2.6	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controllers and positioners
029EK2.06	ATWS / 1	2.9	3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Breakers, relays, and disconnects.
038EK1.02	Steam Gen. Tube Rupture / 3	3.2	3.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Leak rate vs. pressure drop
054AK3.02	Loss of Main Feedwater / 4	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Matching of feedwater and steam flows
055EG2.1.19	Station Blackout / 6	3.9	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use plant computer to evaluate system or component status.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
057AA2.04	Loss of Vital AC Inst. Bus / 6	3.7	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ESF system panel alarm annunciators and channel status indicators
058AK3.01	Loss of DC Power / 6	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use of dc control power by D/Gs
077AA2.04	Generator Voltage and Electric Grid Disturbances / 6	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VARs outside the capability curve
WE04EA1.3	LOCA Outside Containment / 3	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Desired operating results during abnormal and emergency situations.
WE05EG2.2.37	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment
WE11EK1.3	Loss of Emergency Coolant Recirc. / 4	3.6	4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Annunciators and conditions indicating signals, and remedial actions associated with the (Loss of Emergency Coolant Recir).
WE12EK1.3	Steam Line Rupture - Excessive Heat Transfer / 4	3.4	3.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Annunciators and conditions indicating signals, and remedial actions associated with the (Uncontrolled Depressurization of all Steam Generators).

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
005AA2.03	Inoperable/Stuck Control Rod / 1	3.5	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Required actions if more than one rod is stuck or inoperable
028AK2.03	Pressurizer Level Malfunction / 2	2.6	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Controllers and positioners
032AG2.2.37	Loss of Source Range NI / 7	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Ability to determine operability and/or availability of safety related equipment
033AK3.02	Loss of Intermediate Range NI / 7	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Guidance contained in EOP for loss of intermediate-range instrumentation
060AA2.03	Accidental Gaseous Radwaste Rel. / 9	3.2	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		The steps necessary to isolate a given radioactive-gas leak, using P&IDs
061AK2.01	ARM System Alarms / 7	2.5	2.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Detectors at each ARM system location
067AA1.09	Plant Fire On-site / 8	3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Plant fire zone panel (including detector location)
076AG2.2.12	High Reactor Coolant Activity / 9	3.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Knowledge of surveillance procedures.
WE09EK1.2	Natural Circ. / 4	3.3	3.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Normal, abnormal and emergency operating procedures associated with (Natural Circulation Operations).



KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003A2.02	Reactor Coolant Pump	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP
003K5.03	Reactor Coolant Pump	3.1	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effects of RCP shutdown on T-ave., including the reason for the unreliability of T-ave. in the shutdown loop
004K4.16	Chemical and Volume Control	2.6	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature at which the temperature control valve automatically diverts flow from the demineralizer to the VCT; reason for this diversion
005A1.05	Residual Heat Removal	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Detection of and response to presence of water in RHR emergency sump
006K5.02	Emergency Core Cooling	2.8	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Relationship between accumulator volume and pressure
007A1.03	Pressurizer Relief/Quench Tank	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring quench tank temperature
008G2.4.6	Component Cooling Water	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
010K5.01	Pressurizer Pressure Control	3.5	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Determination of condition of fluid in PZR, using steam tables
012A2.03	Reactor Protection	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Incorrect channel bypassing
013K2.01	Engineered Safety Features Actuation	3.6	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ESFAS/safeguards equipment control
022A2.01	Containment Cooling	2.5	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fan motor over-current

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
022K2.01	Containment Cooling	3.0	3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment cooling fans
026A4.01	Containment Spray	4.5	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CSS controls
039K1.02	Main and Reheat Steam	3.3	3.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Atmospheric relief dump valves
059G2.1.32	Main Feedwater	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to explain and apply all system limits and precautions.
059G2.4.1	Main Feedwater	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
061A1.02	Auxiliary/Emergency Feedwater	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/G pressure
061K6.01	Auxiliary/Emergency Feedwater	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controllers and positioners
062K3.01	AC Electrical Distribution	3.5	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Major system loads
063A4.01	DC Electrical Distribution	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Major breakers and control power fuses
063K3.02	DC Electrical Distribution	3.5	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Components using DC control power
064K6.07	Emergency Diesel Generator	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air receivers

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
073K4.01	Process Radiation Monitoring	4.0	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Release termination when radiation exceeds setpoint
073K4.02	Process Radiation Monitoring SEE LIST OF REJECTED K/As Form ES-401-4	3.3	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Letdown isolation on high-RCS activity
076A3.02	Service Water	3.7	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency heat loads
076K2.01	Service Water	2.7	2.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Service water
078A4.01	Instrument Air	3.1	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pressure gauges
103A3.01	Containment	3.9	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment isolation

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
001A1.08	Control Rod Drive	2.6	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verification that CRDS temperatures are within limits before starting
002K4.10	Reactor Coolant	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Overpressure protection
011K2.02	Pressurizer Level Control	3.1	3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PZR heaters
017A2.02	In-core Temperature Monitor	3.6	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Core damage
041K6.03	Steam Dump/Turbine Bypass Control	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controller and positioners, including ICS, S/G, CRDS
045A4.01	Main Turbine Generator	3.1	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Turbine valve indicators (throttle, governor, control, stop, intercept), alarms and annunciators
055G2.2.44	Condenser Air Removal	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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
056K1.03	Condensate	2.6	2.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MFW
068K5.04	Liquid Radwaste	3.2	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Biological hazards of radiation and the resulting goal of ALARA
072A3.01	Area Radiation Monitoring	2.9	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changes in ventilation alignment

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
G2.1.14	Conduct of operations	3.1	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trip, mode changes, etc.
G2.1.20	Conduct of operations	4.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to execute procedure steps.
G2.2.18	Equipment Control	2.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for managing maintenance activities during shutdown operations.
G2.2.44	Equipment Control	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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
G2.3.11	Radiation Control	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to control radiation releases.
G2.3.5	Radiation Control	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use radiation monitoring systems
G2.3.7	Radiation Control	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to comply with radiation work permit requirements during normal or abnormal conditions
G2.4.1	Emergency Procedures/Plans	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
G2.4.32	Emergency Procedures/Plans	3.6	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operator response to loss of all annunciators.
G2.4.4	Emergency Procedures/Plans	4.5	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
015AA2.01	RCP Malfunctions / 4	3	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cause of RCP failure
026AG2.4.11	Loss of Component Cooling Water / 8	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
040AG2.4.18	Steam Line Rupture - Excessive Heat Transfer / 4	3.3	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the specific bases for EOPs.
056AG2.4.41	Loss of Off-site Power / 6	2.9	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the emergency action level thresholds and classifications.
062AA2.06	Loss of Nuclear Svc Water / 4	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The length of time after the loss of SWS flow to a component before that component may be damaged
065AA2.03	Loss of Instrument Air / 8	2.6	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and isolation of leaks

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
003AG2.4.21	Dropped Control Rod / 1	4.0	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the parameters and logic used to assess the status of safety functions
036AA2.03	Fuel Handling Accident / 8	3.1	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Magnitude of potential radioactive release
037AG2.4.6	Steam Generator Tube Leak / 3	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
068AA2.04	Control Room Evac. / 8	3.7	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/G pressure

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
004G2.4.11	Chemical and Volume Control	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
006G2.4.50	Emergency Core Cooling	4.2	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.
012A2.02	Reactor Protection	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Loss of instrument power
059A2.12	Main Feedwater	3.1	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Failure of feedwater regulating valves
064A2.21	Emergency Diesel Generator	2.6	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Significance and interpretation of opening of ring bus during test



KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
035G2.4.31	Steam Generator SEE LIST OF REJECTED K/As Form ES-401-4	4.2	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of annunciators alarms, indications or response procedures
071A2.05	Waste Gas Disposal	2.5	2.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Power failure to the ARM and PRM Systems
086A2.04	Fire Protection	3.3	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Failure to actuate the FPS when required, resulting in fire damage

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
G2.1.2	Conduct of operations	4.1	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operator responsibilities during all modes of plant operation.
G2.2.1	Equipment Control	4.5	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
G2.2.13	Equipment Control	4.1	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of tagging and clearance procedures.
G2.3.12	Radiation Control	3.2	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.13	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.20	Emergency Procedures/Plans	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
G2.4.5	Emergency Procedures/Plans	3.7	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the organization of the operating procedures network for normal, abnormal and emergency evolutions.

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		R					R- EK2.03		
000008 (APE 8) Pressurizer Vapor Space Accident / 3				R			R- AA1.02		
000009 (EPE 9) Small Break LOCA / 3			R				R- EK3.15		
000011 (EPE 11) Large Break LOCA / 3						R	R- EG 2.4.31		
000015 (APE 15) Reactor Coolant Pump Malfunctions / 4					S		S- AA2.01		
000022 (APE 22) Loss of Reactor Coolant Makeup / 2					R		R- AA2.01		
000025 (APE 25) Loss of Residual Heat Removal System / 4				R			R- AA1.18		
000026 (APE 26) Loss of Component Cooling Water / 8						S	S- AG 2.4.11		
000027 (APE 27) Pressurizer Pressure Control System Malfunction / 3		R					R- AK2.03		
000029 (EPE 29) Anticipated Transient Without Scram / 1		R					R- EK2.06		
000038 (EPE 38) Steam Generator Tube Rupture / 3	R						R- EK1.02		
000040 (APE 40; BW E05; CE E05; W E12) Steam Line Rupture—Excessive Heat Transfer / 4	R					S	R- EK1.3 S- AG 2.4.18		
000054 (APE 54; CE E06) Loss of Main Feedwater / 4			R				R- AK3.02		
000055 (EPE 55) Station Blackout / 6						R	R- EG 2.1.19		
000056 (APE 56) Loss of Offsite Power / 6						S	S- AG 2.4.41		
000057 (APE 57) Loss of Vital AC Instrument Bus / 6					R		R- AA2.04		
000058 (APE 58) Loss of DC Power / 6			R				R- AK3.01		
000062 (APE 62) Loss of Nuclear Service Water / 4					S		S- AA2.06		
000065 (APE 65) Loss of Instrument Air / 8					S		S- AA2.03		
000077 (APE 77) Generator Voltage and Electric Grid Disturbances / 6					R		R- AA2.04		
(W E04) LOCA Outside Containment / 3				R			R- EA1.3		
(W E11) Loss of Emergency Coolant Recirculation / 4	R						R- EK1.3		
(BW E04; W E05) Inadequate Heat Transfer—Loss of Secondary Heat Sink / 4						R	R- EG 2.2.37		
K/A Category Totals: RO 3 3 3 3 3 3 Group Point Total: 18/6									
SRO 3 3									

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									
000003 (APE 3) Dropped Control Rod / 1						S	S-G2.4.21		
000005 (APE 5) Inoperable/Stuck Control Rod / 1					R		R-AA2.03		
000024 (APE 24) Emergency Boration / 1									
000028 (APE 28) Pressurizer (PZR) Level Control Malfunction / 2		R					R-AK2.03		
000032 (APE 32) Loss of Source Range Nuclear Instrumentation / 7						R	R-AG2.2.37		
000033 (APE 33) Loss of Intermediate Range Nuclear Instrumentation / 7			R				R-AK3.02		
000036 (APE 36; BW/A08) Fuel-Handling Incidents / 8						F	S-AA2.03		
000037 (APE 37) Steam Generator Tube Leak / 3						F	S-AG2.4.6		
000051 (APE 51) Loss of Condenser Vacuum / 4									
000059 (APE 59) Accidental Liquid Radwaste Release / 9									
000060 (APE 60) Accidental Gaseous Radwaste Release / 9					R		R-AA2.03		
000061 (APE 61) Area Radiation Monitoring System Alarms / 7		R					R-AK2.01		
000067 (APE 67) Plant Fire On Site / 8				R			R-AA1.09		
000068 (APE 68; BW A06) Control Room Evacuation / 8						S	S-AA2.04		
000069 (APE 69; W E14) Loss of Containment Integrity / 5									
000074 (EPE 74; W E06 & E07) Inadequate Core Cooling / 4									
000076 (APE 76) High Reactor Coolant Activity / 9						R	R-G2.2.12		
000078 (APE 78*) RCS Leak / 3									
(W E01 & E02) Rediagnosis & SI Termination / 3									
(W E13) Steam Generator Overpressure / 4									
(W E15) Containment Flooding / 5									
(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	R						R-EK1.2		
(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:	RO	1	2	1	1	2	2	Group Point Total:	9/4
	SRO					2	2		

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					R			R				R-A2.02 R-K5.03			
004 (SF1; SF2 CVCS) Chemical and Volume Control				R							§	R-K4.16 §-G2.4.11			
005 (SF4P RHR) Residual Heat Removal							R					R-A1.05			
006 (SF2; SF3 ECCS) Emergency Core Cooling					R						§	R-K5.02 §-G2.4.50			
007 (SF5 PRTS) Pressurizer Relief/Quench Tank							R					R-A1.03			
008 (SF8 CCW) Component Cooling Water											R	R-G2.4.6			
010 (SF3 PZR PCS) Pressurizer Pressure Control					R							R-K5.01			
012 (SF7 RPS) Reactor Protection								R F				R-A2.03 §-A2.02			
013 (SF2 ESFAS) Engineered Safety Features Actuation		R										R-K2.01			
022 (SF5 CCS) Containment Cooling		R						R				R-A2.01 R-K2.01			
025 (SF5 ICE) Ice Condenser												N/A			
026 (SF5 CSS) Containment Spray											R	R-A4.01			
039 (SF4S MSS) Main and Reheat Steam		R										R-K1.02			
059 (SF4S MFW) Main Feedwater								§			R	R-G2.1.32 R-G2.4.1 §-A2.12			
061 (SF4S AFW) Auxiliary/Emergency Feedwater						R	R					R-A1.02 R-K6.01			
062 (SF6 ED AC) AC Electrical Distribution			R									R-K3.01			
063 (SF6 ED DC) DC Electrical Distribution			R								R	R-A4.01 R-K3.02			
064 (SF6 EDG) Emergency Diesel Generator						R		§				R-K6.07 §-A2.21			
073 (SF7 PRM) Process Radiation Monitoring				R	R							R-K4.01 R-K4.02			
076 (SF4S SW) Service Water		R									R	R-A3.02 R-K2.01			
078 (SF8 IAS) Instrument Air											R	R-A4.01			
103 (SF5 CNT) Containment											R	R-A3.01			
053 (SF1; SF4P ICS*) Integrated Control												N/A			
K/A Category Point Totals: RD 1 3 2 3 3 2 3 3 2 3 3														Group Point Total:	
SRD														28/5	
														3 2	



Facility: <b>SURRY</b>		Date of Exam: <b>August 2021</b>				
Category	K/A #	Topic	RO		SRO-only	
			IR	#	IR	#
1. Conduct of Operations	2.1.14	Plant-wide announcements	3.1			
	2.1.20	Execute procedure steps	4.6			
	2.1.					
	2.1.2	Operator Responsibilities - all modes			4.4	
	2.1.					
	2.1.					
	Subtotal			2		1
2. Equipment Control	2.2.18	Managing maintenance during SD ops	2.6			
	2.2.44	Interpret CR indications	4.2			
	2.2.					
	2.2.1	Pre-startup procedures			4.4	
	2.2.13	Tagging and Clearance procedures			4.3	
	2.2.					
	Subtotal			2		2
3. Radiation Control	2.3.5	Use rad monig systems	2.9			
	2.3.7	Comply w/ RWPs	3.5			
	2.3.11	Ability to control rad releases	3.8			
	2.3.12	Rad safety principles to licensed duties			3.7	
	2.3.13	Rad safety procedures to licensed duties			3.8	
	2.3.					
	Subtotal			3		2
4. Emergency Procedures/Plan	2.4.1	EOP entry and Immed Action Steps	4.6			
	2.4.4	Recognize abnormal indications - entry EOP/AOP	4.5			
	2.4.32	Loss of all annunciators	3.6			
	2.4.					
	2.4.5	Organization of procedures network			4.3	
	2.4.20	Operational Implications EOP cautions, NOTES			4.3	
	Subtotal			3		2
Tier 3 Point Total			10	10	7	7







Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts:

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. 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.
3. 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).

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	Backward	Q=K/A	SRO Only			
1	H	2	x	x										N	E S	<p>T1G1 007 (Reactor Trip, Stabilization, Recovery) EK2.03: Interrelations between Rx Trip and reactor trip status panel</p> <p>8-21-20: K/A Changed to EK2.02: Interrelations between Rx Trip and breakers, relays, disconnects</p> <ol style="list-style-type: none"> <li>Cue: The list of annunciators in the stem is not necessary to elicit the correct response. Suggest changing the 4<sup>th</sup> bullet in the Initial Conditions stem section to only say: <i>"I&amp;C has placed the associated bistables for "A" Loop Tave and ΔT in Trip."</i> That way, the applicants' knowledge of procedures is tested.</li> <li>Overlap: N44 is the same instrument that fails in Scenario 3; N44 has no input to OTDT in both test items. Suggest changing Scenario 3 to be a N43 failure instead of N44.</li> <li>Stem Focus: In the Current Conditions section, the 1<sup>st</sup> bullet is vague; the way it's written kind of implies that reactor power is 0%, which is not the case. Suggest changing to say: <i>"Power Range NI N-44 failed low to 0%."</i></li> <li>Stem Focus: The word "correctly" in the stem question is never needed. Also, the phrase "below statements" can be clearer as "statements below."</li> </ol> <p>6-14-21: All comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
2	H	2	x			x	x							B	E S	<p>T1G1 008 (PZR Vapor Space Accident – Relief Stuck Open), AA1.02: operate/monitor HPI pump to control PZR level/pressure as it applies to procedure.</p> <p>2006 NRC Retake, Q#12</p> <ol style="list-style-type: none"> <li>Cred Dist: Only two of the choices contain reasons, which could make them not plausible.</li> <li>Partial: The correct answer “A” may not align with the Continuous Action Page requirement (CA page says “as necessary”); therefore, an applicant could say there is no correct answer.</li> </ol> <p>To remedy both comments, suggest re-wording the four choices as:</p> <ol style="list-style-type: none"> <li><b>Start charging pump(s) and align HHSI flow.</b></li> <li><i>Start one RCP</i></li> <li><i>Manually initiate SI</i></li> <li><i>Turn on PZR heaters</i></li> </ol> <ol style="list-style-type: none"> <li>Stem Focus: The 1<sup>st</sup> and 6<sup>th</sup> bullets in the Initial Conditions section should be past tense grammar, i.e., “<i>The crew performed..</i>”, and <i>RCS subcooling was..</i>”</li> <li>Stem Focus: Generic comment, for the stem questions, it’s better to ask <i>which one of the following is the <u>required action</u> in accordance with 1-ES-1.2.</i> (instead of asking what action will be taken).</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
3	F	2	x				x						x		N	E S	<p>T1G1 009 (SBLOCA), EK3.15: reasons for closing RCP thermal barrier outlet valves as they apply to the procedure</p> <p>1. Partial: What document/reference says that the reason for closing TV-120A is to contain the break within the RCS pressure boundary? I couldn't find in references.</p> <p>An applicant could successfully argue there's no correct answer to the 2<sup>nd</sup> part of the question if there's no document stating that the reason for closing TV-120A is to contain the break within the RCS pressure boundary.</p> <p>One way to repair this flaw may be to change the 2<sup>nd</sup> fill-in-the-blank statement to be:</p> <p><i>Closing 1-CC-TV-120A, RCP THERMAL BARRIER CCW SYSTEM, _____ ensure the minimum required containment isolation boundary is met. [will vs <b>will NOT</b>]</i></p> <p>It's not necessary to straight out ask for "the reason" in the stem question to meet the K/A. For example, since the applicant must know the reason why TV-120A doesn't satisfy the containment isolation boundary, this would meet the intent of the K3 topic.</p> <p>2. Stem Focus and/or Q=K/A: Can we add to the stem that PZR level/pressure are lowering? This could enhance our stance that the SBLOCA topic is being hit.</p> <p>6-23-21: To ensure plausibility of A1/C1, suggest changing 2<sup>nd</sup> stem bullet to 57 gpm (not offscale high) and deleting the 3<sup>rd</sup> bullet about PZR level. Then re-word the 1<sup>st</sup> fill-in-the-blank statement as:</p> <p><i>In accordance with ARPs 1C-A2 and 1C-A3 _____ is/are required to be closed.</i></p> <p>6-30-21: Comment incorporated; question is SAT.</p> <p>7-15-21: After validation, added word "manually" right before closed.</p>

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	Backward	Q=K/A	SRO Only			
4	H	2	x					x						M	E/ U S	<p>T1G1 011 (LBLOCA), EG2.4.31: knowledge of alarms, indications, or response procedures</p> <ol style="list-style-type: none"> <li>Job-Link (RO): The 1<sup>st</sup> part of the question is procedure selection, which is SRO knowledge. Therefore, a RO applicant could successfully argue that the question tested beyond RO knowledge requirements.  Suggest testing a <u>required action</u>, or overall mitigation strategy in E-1 or other subsequent E-1 procedures, instead of testing procedure transition/selection.</li> <li>Stem Focus: The titles of FR-Z.1 and ES-1.3 are missing.</li> </ol> <p>6-23-21: Question revised to eliminate procedure selection. In revised question, suggest modifying the 2<sup>nd</sup> bullet to say: <i>The crew has reached Step 16 in 1-E-1, Loss of Reactor or Secondary Coolant, but has not performed Step 16 yet. Step 16 is CHECK IF EDGS CAN BE STOPPED.</i></p> <p>Also suggest modifying the 1<sup>st</sup> stem question to be: <i>Which action is required to be performed FIRST?</i> <b>[Place SI in CL Recirc vs Check if EDGs can be stopped]</b></p> <p>6-30-21: Comment incorporated; question is SAT.</p>
5	H	2	x				x							N	E S	<p>T1G1 022 (Loss of Rx Coolant M/U), AA2.01, determine/interpret whether charging line leak exists as it applies to the procedure</p> <ol style="list-style-type: none"> <li>Partial: The 2<sup>nd</sup> fill-in-the-blank statement should refer to 1-AP-8.00; otherwise, an applicant could successfully argue that Choice "D" is also correct. For example:  <i>In accordance with 1-AP-8.00, Loss of Normal Charging Flow, a manual reactor trip _____ required. [is vs is NOT]</i></li> <li>Stem Focus: Why is the underlined word "immediate" necessary in the 2<sup>nd</sup> fill-in-the-blank statement? If the only time AP-8.00 requires a manual reactor trip is loss of CCW, then the word immediate may not be required.</li> <li>Stem Focus: The words "seal injection" are missing in the 1<sup>st</sup> part of Choices A and C.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
6	H	2	x	x										N	E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T1G1 025 (Loss of RHR) AA1.18 (operate/monitor LPI header x-connect valve controller &amp; indicators)</p> <p>8-21-2020: Replaced K/A because RHR/LHSI Pumps are different piping/pumps and no x-connect exists. New K/A:</p> <p>T1G1 025 (Loss of RHR) AA1.10 (operate/monitor LPI pump suction valve &amp; discharge indicators as applies to Loss of RHR)</p> <ol style="list-style-type: none"> <li>1. Stem Focus: From the stem conditions, it's unclear how Attachment 6 was reached in AP-27. Was Attachment 6 required by reaching Step 27? The sentence in Current Conditions ("<i>The RHR system was heavily damaged and is unable to provide cooling</i>") is vague and may preclude using Attachment 6. Was there also a RCS inventory issue; stem doesn't say? Need to trace out how Attachment 6 was arrived at in AP-27, then include stem conditions to match.</li> <li>2. Cues: The RCS pressure provided in the stem (below LSHI shutoff head), as well as the question layout for testing the same flow path required during an SI auto-actuation may provide cues that preclude testing the procedure required actions. In order to ensure overall RO written exam balance of coverage, for Tier 1 test items, ensure the test item tests required actions in the abnormal/emergency procedure or abnormal alarm procedure;</li> <li>3. Three column format is not needed; the 1<sup>st</sup> and 2<sup>nd</sup> columns could be combined to solely test whether 1862A or 1115B/D is required. In general, three-column format is not useful in four-choice questions.</li> </ol> <p>To resolve Comments #1, #2, and #3 above, consider the following slimmed down version:</p> <p><i>WOOTF completes both statements in accordance with 1-AP-27.00, Loss of Decay Heat Removal, Attachment 6, Forced Feed Cooling?</i></p> <p><i>The _____ leg is the preferred injection path. [hot vs cold]</i></p> <p><i>LSHI Pump flow is required to be limited to less than _____ gpm. [3000 vs 440].</i></p> <p>This slimmed down version hits the K/A because the pump flow is monitored on a discharge indicator; the suction valve piece is indirectly being tested via the injection path. All the cues are gone, just testing the procedure requirements.</p>

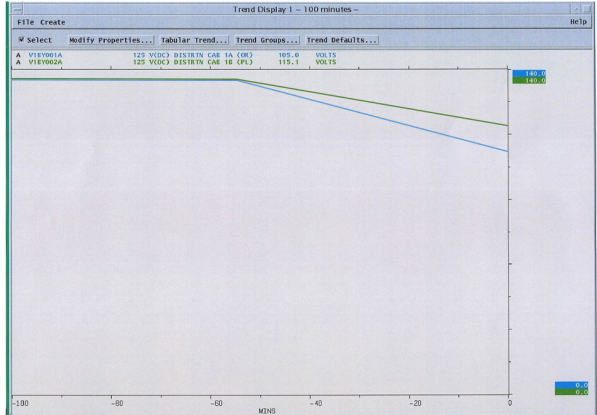
Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source B/M/N	7. Status U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
6	H	2												N	S	T1G1 025 (Loss of RHR) AA1.10 (operate/monitor LPI pump suction valve & discharge indicators as applies to Loss of RHR)
7	H	3	x											N	E S	<p>T1G1 027 (PZR PCS Malfunction) AK2.03: interrelations between the malfunction and controllers/positioners.</p> <ol style="list-style-type: none"> <li>Stem Focus: Both of the stem questions should include the procedure/TS reference to ensure no post exam appeals.</li> <li>Stem Focus: The word "correctly" isn't necessary in the stem question.</li> </ol> <p>See the suggestion below to remedy both comments <i>WOOTF completes both statements?</i></p> <p><i>In accordance with 0-AP-53.00, Loss of Vital Instrumentation/Controls, the next required action that will stabilize RCS pressure is to close the associated _____.</i> <i>[Spray Valve Remote Close SOVs vs. <b>Block MOV</b>]</i></p> <p><i>For the inoperable PORV, Tech Spec 3.1.A.6, RCS – Relief Valves, _____ de-energizing the associated Block MOV</i> <i>[requires vs <b>does NOT require</b>]</i></p> <ol style="list-style-type: none"> <li>Ensure no overlap with Scenario 2 or 5.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>



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	Backward	Q=K/A	SRO Only			
8	H	2						x						B	E/U S	<p>T1G1 029 (ATWS), EK2.06 (interrelations between ATWS procedure and breakers, relays, and disconnects)</p> <p>1. Job-Link (RO): The question is procedure selection, which is SRO knowledge/ability. Therefore, a RO applicant could successfully argue that the question tested beyond RO knowledge requirements.</p> <p>Suggest testing a <u>required action</u>, or overall mitigation strategy in FR-S.1, associated with any breaker, relay, or disconnect, instead of testing procedure transition/selection.</p> <p>For example:</p> <p>Is it somehow possible to test the applicants' knowledge that the Unit 1 Cable Tray Room is the location of the reactor trip breakers? MG set? Or the location for locally tripping the turbine?</p> <p>6-14-21: Cred Dist: The 1<sup>st</sup> part of Choices A/C (crew can exit FR-S.1 as soon as RTBs are open) is not plausible because RTBs open may (or may not) mean rods on bottom – nuclear flux checks always best.</p> <p>6-23-21: Changed to ask whether crew must remain in FR-S.1 until emergency boration is complete vs PRNI &lt; 5%. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
9	H	3	x											N	E S	<p>T1G1 038 (SGTR), EK1.02 (operational implication of leak rate vs pressure drop as it applies to procedure)</p> <ol style="list-style-type: none"> <li>It seems more operationally valid to ask the applicants what the leak rate <u>is</u>, instead of whether the leak rate is more or less than "double" the 620 psig value. Asking for whether the leak rate is more or less than double seems like minutia. Suggest giving them the initial leak rate and ask them to predict the 520 psig leak rate.</li> <li>Stem Focus: The 1<sup>st</sup> fill-in-the-blank statement is confusing because 1) the phrase "<i>At this time</i>" is subjective and 2) the phrase "<i>rate expected for the planned depressurization</i>" is confusing.</li> </ol> <p>Suggest moving all of the bullets listed in the "Current Conditions" up to the "Initial Conditions" section, and delete the bullet about the field operator difficulty. Then, the only bullet in the "Current Conditions" could be:</p> <ul style="list-style-type: none"> <li><i>The "A" S/G pressure was inadvertently lowered to 520 psig, instead of 620 psig, and is continuing lower due to difficulty reclosing the MSTV bypass valve.</i></li> </ul> <p>Then re-word the stem question and 1<sup>st</sup> fill-in-the-blank statement as:</p> <p><i>WOOTF completes both statements?</i></p> <p><i>With the "A" S/G pressure at 520 psig the primary-to-secondary leak rate though the ruptured U-tubes is _____ . [correct value vs plausible incorrect value]</i></p> <ol style="list-style-type: none"> <li>Stem Focus: The word "correctly" isn't necessary in the stem question.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
10	H	2	x				x		x					N	E S	<p>T1G1 054 (Loss of MFW), AK3.02 (reasons for matching of FW &amp; SF as they apply to the procedure)</p> <ol style="list-style-type: none"> <li>Minutia: It seems like we're testing simulator minutia; i.e., just starting the condensate pump won't be enough to turn SG levels exactly at 79% power - - requires lowering turbine load.  Testing the 79% reactor power response, which is just 1% below the 80% reactor trip threshold, could yield post-exam appeal from an applicant who successfully argued that the question was testing minutia.</li> <li>Partial: An applicant could successfully argue that Choice "D" is also correct as far as conservative decision making goes, since SG NR levels are 32% and lowering, and reactor power is just 1% below the 80% trip threshold.</li> <li>Overlap: Scenario 1 (79% power) also has MFP Sheared Shaft, which probably overlaps this question from a control board indication and procedural implementation perspective.</li> <li>Stem Focus: The stem question is missing the title/number of 1-AP-21.00, Loss of Main Feedwater Flow.</li> <li>Stem Focus: The font size of the last stem bullet is larger than the previous stem bullets.</li> </ol> <p>6-23-21: Re-worked question into 2 x 2; changed Scenario 1 to trip feedpump versus sheared shaft.</p> <p>Suggest removing the phrase "immediate actions" in the 1<sup>st</sup> fill-in-the-blank statement and re-word to say: <i>Per 1-AP-21.00, Loss of Main Feedwater Flow, a condensate pump is _____ be started before lowering turbine load.</i></p> <p><i>[not required to vs <b>required</b>]</i></p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
11	H	2		x										N	E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T1G1 055 (Station Blackout) G2.1.19 (use plant computer to evaluate system or component status)</p> <p>1. Cues: It's not necessary to tell the applicants it's been 55 minutes in the stem; it would better for hitting the K/A to let the applicants use the PCS Trend Graph (x-axis) to identify whether 45 minutes has expired from the initial loss of power. minutes.</p>  <p>2. Cues: It would be better to include "in accordance with 1-ECA-0.0" in the stem question, instead of underlining the word "states" in the 1<sup>st</sup> fill-in-the-blank statement. For example,</p> <p><i>A loss of all AC Emergency power has occurred on Unit 1.</i></p> <p><i>1-ECA-0.0, Loss of All AC Power is being performed.</i></p> <p><i>WOOTF completes both statements IAW 1-ECA-0.0 using the attached PCS Trend?</i></p> <p><i>Declaration of an Extended Loss of AC Power (ELAP) _____ required. (is / is NOT).</i></p> <p><i>The soonest time that a loss of a DC Bus is expected is _____ . (20-30 minutes vs 1 hour)</i></p> <p><i>(REFERENCE PROVIDED)</i></p> <p>3. Form ES-401-5 should identify the references provided to the applicants for this question, i.e., missing the PCS Trend.</p>

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	Backward	Q=K/A	SRO Only			
11	H	2												N	S	T1G1 055 (Station Blackout) G2.1.19 (use plant computer to evaluate system or component status)
12	H	2		x								x		N	U S	<p>T1G1 057 (Loss of Vital AC Electrical Instrument Bus) AA2.04 (determine/interpret ESF system panel annunciators &amp; channel status indicators as they apply to procedure)</p> <p>1. Cue and/or Q=K/A: The Initial Conditions tell the applicant which Vital Bus was lost. For the K/A match, the stem should require the applicant to identify which Vital Bus was lost and then test some aspect of 1-AP-10.03 (required action, etc.)</p> <p>Since this question is a Tier 1 question, it should test the applicants' ability of <u>how</u> to safely operate the plant (instead of testing the applicants' ability to predict how the plant is designed to operate.) See OL Feedback Item 401.55.</p> <p>Suggest re-working the question to provide the annunciators which alarmed and test the applicants' ability to identify which bus was lost and whether a manual reactor trip is / is NOT required. This way, the 2<sup>nd</sup> part of the question is testing the procedure, i.e., how to safely operate the equipment/plant.</p> <p>6-23-21: Question re-worked to incorporate suggestions. Suggest deleting the 3<sup>rd</sup> and 4<sup>th</sup> stem bullets and re-word the fill-in-the-blank statements as:</p> <p><i>A loss of Vital Bus _____ has occurred.</i></p> <p><i>The abnormal procedure for this Vital Bus _____ a step to trip the reactor.</i></p> <p><b>[includes vs does NOT include]</b></p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
13	H	3		x		x	x								N	E S	<p>T1G1 058 (Loss of DC Power), AK3.01 (reasons for use of DC control power by D/Gs as they apply to procedure)</p> <ol style="list-style-type: none"> <li>Partial: An applicant may contend that there is no correct answer to the 2<sup>nd</sup> part of the question because the premise of no electrical faults existing, even though both sets of control power fuses are blown, may be flawed. What type of failure could cause both sets of control power fuses to blow? Is it conceivable that actuation of the Aux Trip Relay would also happen when both sets of control power fuses blew?</li> <li>Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices A/C (put switch in automatic) is questionable because having a switch in automatic could mean that the system will immediately try to actuate as soon as the blown fuses are replaced.  Suggest changing the 1<sup>st</sup> fill-in-the-blank statement to be:  <i>0-AP-17.04 _____ the operator to place the Breaker 15H3 control switch in the Pull-to-Lock position before the control power fuses are replaced. [requires vs does NOT require]</i></li> <li>Cue: In the 4<sup>th</sup> bullet Current Conditions, instead of telling the applicants that "<i>Electricians report no electrical faults were identified</i>", suggest conveying that no Aux Trip Relay electrical faults exist by saying:  <i>"The amber light on the Diesel Isolation Panel in the ESGR is NOT LIT."</i></li> </ol> <p>6-14-21: Comment #3 not incorporated; Comment #1 still applies. Also, it seems like operating test has similar procedures for EDG, may be too close to JPMs.</p> <p>6-23-21: Is there another switch position besides Auto-after-Stop? Can we change the 1<sup>st</sup> part of A/C to be another position besides Auto? The plausibility of putting something in automatic while people have their hands in the cabinet is lacking.</p> <p>6-30-21: Changed to Stop (Green Flag); question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
14	H	3	x	x										N	E S	<p>T1G1 077 (Generator Voltage &amp; Electric Grid Disturbances), AA2.04 (determine/interpret VARs outside capability curve as it applies to procedure)</p> <p>1. Cue: The 2<sup>nd</sup> bullet in the Initial Conditions shouldn't say "pressure is lower than normal", because that part of the bullet isn't necessary to elicit the correct response.</p> <p>2. Stem Focus: The font size of the last part of the 2<sup>nd</sup> fill-in-the-blank statement is bigger than the first part.</p> <p>6-14-21: Comments incorporated; question is SAT.</p>
15	F	2												M	E S	<p>T1G1 WE04 (LOCA Outside Cnmt), EA1.3 (operate/monitor desired operating results during abnormal/emergency situations as they apply to procedure)</p> <p>1. The original version of the modified question was not available.</p> <p>Suggest changing the 2<sup>nd</sup> part of A/B to "PZR level rising."</p> <p>6-14-21: Original version added to references; comment incorporated; question is SAT.</p>
16	H	2										x		N	U S	<p>T1G1 WE05 (Loss Secondary Heat Sink), G2.2.37 (determine operability and/or availability of safety related equipment)</p> <p>1. Q=K/A: The proposed question is not testing the Westinghouse vendor-specific Inadequate Heat Transfer / FR-H.1 or FR-H.2 topic. The proposed question tests the impact of grid instability on AFW, which is a secondary heat sink system; however, the Tier 1 K/A topic requires testing the Westinghouse vendor-specific emergency evolution/procedure. The generic K/A assignment probably is what caused the confusion; the 2<sup>nd</sup> part of the generic K/A assignment (availability of safety related equipment) can still apply to testing aspects of FR-H.1 or FR-H.2.</p> <p>6-23-21: Good replacement question.</p> <p>To align better with the procedure, and to ensure plausibility of B2/D2, suggest changing the 1<sup>st</sup> stem sentence to be: <i>The crew is performing FR-H.1, Loss of Heat Sink, and is attempting to establish feed flow from the condensate system. Safety Injection has initiated.</i></p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
17	H	2						x						B N	E S	<p>T1G1 WE11 (Loss of Emergency Recirc), EK1.3 (operational implications of annunciators and conditions indicating signals, and remedial actions as they apply to procedure)</p> <p>1. Job-Link (RO): The 1<sup>st</sup> part of the question is procedure selection, (or transition) which is SRO knowledge/ability. Therefore, a RO applicant could successfully argue that the question tested beyond RO knowledge requirements.</p> <p>If the transition from E-1 to ECA-1.1 were a fold-out page item, then this question would be something to look at for ROs; however, there is no foldout page criteria for going to loss of emergency recirc.</p> <p>Suggest testing a <u>required action</u>, or overall mitigation strategy in ECA-1.1.</p> <p>For example:</p> <p>Keep the 2<sup>nd</sup> part of the question (make it 1<sup>st</sup>), and then test the the ROs' knowledge of "how" to lineup the charging system to refill the RCS during the loss of emergency recirc, in accordance with ECA-1.1, Attachment 2, Establishing Charging Pump Crosstie.</p> <p>6-23-21: Replacement question is SAT.</p>



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	Backward	Q=K/A			
18	H	2	x			x							B	E S	<p>T1G1 WE12 (Uncontrolled Depress of all SGs), EK1.3 (operational implications of annunciators and conditions indicating signals, and remedial actions as they apply to procedure)</p> <ol style="list-style-type: none"> <li>Cred Dist: Choice "C" (raise AFW flow even though cooldown rate is 105°F) is not plausible because this would compromise subcriticality.</li> <li>Stem Focus: The stem question is different from other EOP questions; i.e., "per the station EOP network" is too broad. Suggest re-wording the stem question and Choices "C" and "D" as follows: <i>WOOTF choices identifies the required action, if any, in accordance with 2-ECA-2.1?</i> <ol style="list-style-type: none"> <li><i>Throttle AFW flow to each SG to a minimum of 60 gpm</i></li> <li><b>Throttle AFW flow to each SG to a minimum of 100 gpm</b></li> <li><i>Throttle TOTAL AFW flow to ≤ 350 gpm</i></li> <li><i>No action for AFW flow is required at this time</i></li> </ol> </li> <li>Stem Focus: All the information about the earthquake and other items in the Initial Conditions may not be necessary if we simply tell the applicants that 2-ECA-2.1 is being implemented due to all Unit 2 SGs being faulted inside containment.</li> <li>Stem Focus: Is there any annunciator that alarms when containment pressure is adverse? This may be another way to provide the containment pressure instead of providing it directly to the applicants. If not, then we should probably provide RCS pressure as another bullet, to be parallel with containment and RCS pressures.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A			
19	F	2	x			x							N	U S	<p>T1G2 005 (Inoperable/Stuck Rod), AA2.03 (determine/interpret required actions if more than one rod is stuck/inop, as it applies to procedure)</p> <ol style="list-style-type: none"> <li>Cred Dist: The 2<sup>nd</sup> part of Choices B &amp; C (2<sup>nd</sup> dropped rod doesn't require manual scram) is not plausible because of the high potential for clad failure (flux peaking, etc.) with no manual scram.  Suggest re-writing the 2<sup>nd</sup> part of the question to test if Control Rod C-7 subsequently dropped fully (0 steps), would a manual reactor trip be required.</li> <li>Stem Focus: The TS Section number/name is missing from the 1<sup>st</sup> bullet in the Current Conditions, and/or from the 1<sup>st</sup> fill-in-the-blank statement. Which TS Section is applicable to the stem?  TS 3.12, Control Rod Assemblies &amp; Power Distribution Limits <ul style="list-style-type: none"> <li>A. Control Bank Insertion Limits</li> <li>B. Power Distribution Limits</li> <li>C. Control Rod Assemblies</li> <li>D. QPTR</li> <li>E. RPIS &amp; Bank Demand Position Indication System</li> <li>F. DNB Parameters</li> <li>G. SDM</li> </ul> </li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>
20	H	2		x										E S	<p>T1G1 028 (PZR LC Malfunction), AK2.03 (interrelations between PZR LC Malfunction and controllers/positioners)</p> <ol style="list-style-type: none"> <li>Scenario 4 has charging flow control valve (only) failing high, which is different than this written test item. Scenario 5 has PZR LT failing low, which is similar to this test item (same procedure, but different direction). Let's discuss overlap.</li> <li>Cue: The pictures in the stem are not necessary to elicit the correct response. Suggest including only the unid#/noun name to the stem of the question and deleting the pictures. Part of what the test item should be testing is the reverse acting feature of FC-1122.</li> </ol> <p>6-14-21: No overlap; comment incorporated – Question is SAT.</p>

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	Backward	Q=K/A			
21	H	2				x							N	U S	<p>T1G2 032 (Loss of SRNI), G2.2.37 (determine operability and/or availability of safety related equipment)</p> <p>1. Cred Dist: The 1<sup>st</sup> part of Choices A/B (core alterations may continue) is not plausible because one SRNI is broken AND the audible count rate is also broken. Conservative decision-making alone can be used to deduce the correct answer.</p> <p>To remedy, suggest re-working the two fill-in-the-blank statements as follows:</p> <p><i>1-AP-4.00 _____ contain steps for the operator to restore the audible count rate in containment <u>without I&amp;C support</u>. [does vs does NOT]</i></p> <p><i>IF the audible count rate in containment is subsequently restored, THEN refueling _____.</i></p> <p><i>[is still NOT allowed vs may continue]</i></p> <p>6-23-21: Comments incorporated; question is SAT.</p>
22	H	2				x							B	U S	<p>T1G2 033 (Loss of IRNI), AK3.02 (reasons for guidance in EOP for loss of IRNI as it applies to procedure)</p> <p>1. Cred Dist: The 1<sup>st</sup> part of Choices B/D (trip reactor with just one IRNI broken) is not plausible because nothing in the stem can be misconstrued to imply both IRNIs are broken, and because RPS and Tech Specs are designed to allow one instrument failure/maintenance without requiring an automatic/manual reactor trip.</p> <p>Suggest changing the 1<sup>st</sup> part of the question to be:</p> <p><i>In accordance with 1-AP-4.00, Attachment 2, IR Failure, the N-35 LEVEL TRIP switch _____ required to be placed in the BYPASS position.</i></p> <p>6-23-21: Re-worked question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
23	H	3	x				x								N	E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T1G2 060 (Accidental Gaseous RW Release) AA2.03 (determine steps necessary to isolate radioactive gas leak using P&amp;IDs)</p> <ol style="list-style-type: none"> <li>1. Partial: An applicant can successfully contend that Choice "C" is also correct because 0-AP-5.2, Step 2 directs HP to "determine affected area" and/or "perform surveys." The Step 2 guidance can be successfully argued as the same thing as sampling for iodine and particulates.</li> <li>2. Partial: An applicant can successfully contend that there is no correct answer to the 1<sup>st</sup> part of the question because Step 10 (CHECK SOURCE OF VENTILATION VENT ACTIVITY-AREA KNOWN?) can be answered as "YES", since the stem is too strong with respect to 1-GW-RV-111A relief valve; Step 10 RNO would not be entered. Suggest removing all reference to 1-GW-RV-111A from the stem and <u>only</u> include 1-GW-RV-111A in the 2<sup>nd</sup> fill-in-the-blank statement.</li> <li>3. Stem Focus: Initial power is missing (needed to answer Step 3 RNO for Cnmt Recirc Fan operation)</li> <li>4. Stem Focus: The Current Conditions should say that the MGPI 131 (High LED) and/or 133 (recorder) are in high alarm (needed to answer Step Step 1)</li> <li>5. Stem Focus: the word "VENTILATION" is misspelled in the 2<sup>nd</sup> bullet of Current Conditions.</li> <li>6. Form ES-401-5 should identify the references provided to the applicants for this question, i.e., missing the print numbers.</li> </ol>
23	H	3	x												N	E S	<p>T1G2 060 (Accidental Gaseous RW Release) AA2.03 (determine steps necessary to isolate radioactive gas leak using P&amp;IDs)</p> <ol style="list-style-type: none"> <li>1. Stem Focus: Suggest using the word "identify" (instead of verify) in the 1<sup>st</sup> fill-in-the-blank statement, because we want to imply that the leak location is not initially known.</li> <li>2. Stem Focus: To ensure the question is clear that the leak location is not initially known, suggest using the words "subsequently identified" (instead of 'is verified').</li> <li>3. Ensure no overlap with Q#50</li> </ol> <p>6-14-21: No overlap with Q#50; comments incorporated – Question is SAT.</p>

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	Backward	Q=K/A				SRO Only
24	?	2		x		x								N	E S	<p>T1G2 061 (ARM System Alarms), AK2.01 (interrelations between the ARM system alarms and detectors at each ARM system location)</p> <p>1. Cues: A lot of the stem information is unnecessary. Also, the entry to the AP-22.0 in the 1<sup>st</sup> fill-in-the-blank is not necessary. Suggest re-writing the stem and questions as:</p> <p><i>While a fuel shuffle was being performed in the Spent Fuel Pool, the following annunciators alarmed and were determined to be valid, i.e., not an instrument failure:</i></p> <ul style="list-style-type: none"> <li>• 0-RM-C3, FUEL PIT BRDG ALERT/FAILURE</li> <li>• 0-RM-D3, 1-RM-RI-153 HIGH</li> </ul> <p><i>Spent fuel pool level is stable/normal and no other abnormalities were observed or noted.</i></p> <p><i>WOOTF completes both statements?</i></p> <p><i>In accordance with 0-RM-C3 and -D3, the Fuel Building _____ required to be immediately evacuated. [is vs is NOT]</i></p> <p><i>The fuel pit bridge radiation detector is a/an _____ detector. [ion chamber vs geiger mueller]</i></p> <p>2. Cred Dist: The plausibility of the 2<sup>nd</sup> part of Choices B/D (scintillation detector monitoring flow) is questionable because there is no process flow stream. Also, the phrase "that monitors xyz" in each choice is not necessary. Suggest changing to only ion chamber or geiger mueller.</p> <p>3. LOK: If the question is modified as described above, then it may become lower cog/fundamental level of knowledge.</p> <p>4. The distracter analysis incorrectly identified this K/A as T1G1 (instead of T1G2)</p> <p>6-14-21: Comments incorporated; question is SAT.  6-30-21: The last stem bullet shouldn't be a bullet; just a stand-alone statement, because stem statement says the following annunciators.."  7-1-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
25	F	2	x											N	E S	<p>T1G2 067 (Plant Fire on Site), AA1.09 (operate/monitor plant fire zone panel, including detector location, as it applies to procedure)</p> <p>1. The proposed question solely tests the applicants' knowledge of the design features of the fire detection system, i.e., the re-enable and reset location features. It is not testing a "Plant Fire On Site" procedure. Since this question is a Tier 1 question, it should test the applicants' ability of <u>how</u> to safely operate the plant; see OL Feedback Item 401.55.</p> <p>What administrative, abnormal, or emergency procedure allows the containment fire detection system to be disabled, under what circumstances? Where does it say that the fire detectors can be disabled during adverse containment conditions? These may be ways to test the "Plant Fire on Site" procedure allowance/requirement.</p> <p>Another way to test the abnormal procedure aspect is to test the annunciator procedure guidance for a fire annunciator alarm, if it includes guidance for operating/monitoring the plant fire zone panel(s). Does AP-48 have guidance for monitoring the plant fire zone panel?</p> <p>2. Stem Focus: The stem question says WOOTF answers the questions below, even though there are no questions below (only fill-in-the-blank statements).</p> <p>6-30-21: Stem question refers to "statements" even though there are only questions. Also, the word correctly in the stem question is not necessary because it is implied as part of the exam.</p> <p>7-1-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
26	F	2	x				x							N	E S	<p>T1G2 076 (High Rx Coolant Activity), G2.2.12 (knowledge of surveillance procedures)</p> <ol style="list-style-type: none"> <li>Partial: To ensure that Choice "C" is incorrect, include the words "earliest time" in the 1<sup>st</sup> fill-in-the-blank statement, e.g., <i>The earliest time that chemistry is required to be notified to sample the RCS for Dose Equivalent I-131 is when power is lowered to _____ . [70% vs 85%]</i></li> <li>Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement should include the Tech Spec number and name, e.g., <i>Per Tech spec 3.1.D, RCS Specific Activity, ...."</i></li> <li>The stem question says there are "questions" below, even though there are only fill-in-the-blank statements.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>
27	F	2	x	x										N	E S	<p>T1G2 WE09 (Natural Circulation), EK1.2 (operational implications of normal, abnormal, and emergency operating procedures as they apply to procedure)</p> <ol style="list-style-type: none"> <li>Cues and/or Stem Focus: The 2<sup>nd</sup> bullet in the Initial Conditions (Power not available to RCPs) is not necessary to elicit the correct response. Perhaps the very 1<sup>st</sup> bullet could be more specific about the LOOP origin? What transformer/switchyard portion was lost? Maybe it was such that Unit 2 was not affected.</li> <li>Stem Focus: The stem question doesn't include "in accordance with 1-ES-0.2, and also, the word "correct" isn't necessary. It seems better to ask "<i>WOOTF completes both statements IAW 1-ES-0.2?</i>"</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
28	H	2	x			x	x							N	E S	<p>T2G1 003 (RCPs), A2.02 (predict impacts of conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCS and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices A/B (Lower Thrust Bearing @ 155°F) is questionable because the shaft vibration is so high at this time (18.5 mils). Suggest raising the initial and current Lower Thrust Bearing temperature values, but keep the 3.5°F/minute rise. What's normal running value for lower thrust bearing at 100%?</li> <li>Stem Focus: One of the AP-9.00 entry conditions is when bearing temperature reached the alarm setpoint of 175°F; however, the stem current condition is only 155°F. The Initial Condition bullet says the crew entered AP-9.00, but based on what? Should the stem say that the crew entered AP-9.00 based on the 1C-G5 (15 mils) Alert annunciator?</li> <li>Partial: The phrase "<u>most limiting parameter</u>" in the 1<sup>st</sup> fill-in-the-blank statement may be too vague and/or subjective; suggest re-wording the fill-in-the-blank statement as:  <i>Based on these trends, and assuming the trends continue at the <u>same rate</u>, the first parameter that will require the pump to be shutdown is the _____ . [Lower Thrust Bearing vs RCP Shaft Vibration]</i>  Also, based on the rewording of the 1<sup>st</sup> fill-in-the-blank statement, suggest the 2<sup>nd</sup> fill-in-the-blank statement be worded as:  <i>In accordance with the annunciator procedures and AP-9.00, at this power level, a manual reactor trip _____ required before the RCP is shutdown. [is vs is NOT]</i></li> <li>The distracter analysis incorrectly identified this K/A as T1G1 (instead of T2G1)</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>



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	Backward	Q=K/A	SRO Only				
29	? H	2		x		x	x								N	E S	<p>T2G1 003 (RCPs), K5.03 (operational implications of the effects of RCP shutdown on Tavg, including the reason for the unreliability of Tavg in the shutdown loop)</p> <ol style="list-style-type: none"> <li>Cues: The 4<sup>th</sup> sub-bullet (Steam Dumps are throttled open at 4% demand) is not necessary to elicit the correct response.</li> <li>Partial: Suggest re-wording the 1<sup>st</sup> fill-in-the-blank to avoid the word "expected", because an applicant could contend that he/she did "expect", but was wrong to expect. For example, re-word as: <i>Steam dumps _____ be throttled open. [will vs will not be]</i> Similarly, re-word the 2<sup>nd</sup> fill-in-the-blank statement to avoid the word "expected", for example: <i>At ES-0.1, Step 1, Steam Dump Control will be in the _____ mode. [Steam Pressure vs Tavg]</i></li> <li>Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices A/D (steam dumps won't be open) is questionable because the unit tripped from 100%, and steam dumps are likely to be open. Suggest lowering initial power to 60%.</li> <li>LOK: The distracter analysis indicated memory level (fundamental); it may be higher cog though. We'll keep track of it.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
30	F	2	x				x							B	E S	<p>T2G1 004 (CVCS), K4.16 (knowledge of CVCS design features/interlocks which provide for temperature at which the TCV auto-diverts flow from demin to VCT; reason for diversion)</p> <p>1. Partial: By adding the word “setpoint” and “auto” to the 1<sup>st</sup> stem question, it may become more bullet-proof; suggest re-wording as: <i>What is the temperature setpoint at which the Letdown divert valve, 1-CH-TCV-1143, will auto-divert to the VCT?</i></p> <p>2. Partial: An applicant can successfully argue that Choice “B” is also correct because boron release is also prevented by the auto-divert feature. What’s the basis document (not a lesson plan) that identifies the reason for the auto-divert design? Can we modify the 2<sup>nd</sup> fill-in-the-blank statement to something like: <i>“In accordance with document XYZ, what is the reason the plant was designed with this auto-divert feature?”</i></p> <p>6-14-21: Plausibility issue with 2<sup>nd</sup> part of Choices B/D; fill-in-the-blank statement tells applicants “high temperature”. Comment #2 (above) didn’t include phrase “high temperature”; still concerned about no correct answer. Also, the 1<sup>st</sup> fill-in-the-blank statement is a question even though the 2<sup>nd</sup> fill-in-the-blank statement is a statement.</p> <p>6-23-21: Re-worked to test the setpoint and location of diversion; question is SAT. <b>Probably should spell out “VCT” and “PDT” because in Q#33, the PDT is spelled out.</b></p>

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	Backward	Q=K/A	SRO Only			
31	H	2	x			x								N	U S	<p>T2G1 005 (RHR) A1.05 (predict/monitor changes, including detection of and response to presence of water in RHR emergency sump, associated with operating the RHRS controls)</p> <p>1. Cred Dist: The 2<sup>nd</sup> part of Choices B/C (raising flow with amps oscillating) is not plausible because 1) the stem says RCS temperature is <i>stable</i> and 2) anytime pump amps begin oscillating it's never a good idea to raise demand on the motors. Suggest keeping the 1<sup>st</sup> part of the question and re-working the question to eliminate the oscillating amp bullet, and re-work the 2<sup>nd</sup> part to test whether the pump is / is NOT required to be immediately stopped per the applicable procedure.</p> <p>2. Stem Focus: The word "correct" is not necessary in the stem question; consider: "<i>WOOTF completes the following statement?</i>"</p> <p>6-14-21: Comments incorporated; question is SAT.</p>
32	M	2				x								B	E/U S	<p>T2G1 006 (ECCS) K5.02 (operational implication of the relationship between accumulator volume/pressure as it applies to ECCS)</p> <p>1. Cred Dist: The plausibility of Choices A/B (prevent/minimize level/inventory loss) is questionable because these two Choices are the same thing: i.e., prevent/minimize level/inventory loss. An applicant can successfully eliminate Choices A/B solely because of this reason.</p> <p>This test item doesn't necessarily <i>have</i> to test procedures, although testing the reason for Step 24 is a good way to hit the systems aspect of the K/A.</p> <p>6-14-21: Changed Choice B; question is SAT.</p>

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	Backward	Q=K/A			
33	H	2				x							N	U S	<p>T2G1 007 (PZR Relief Tank/Quench Tank) A1.03 (predict/monitor changes in parameters, including monitoring quench tank temperature, to prevent exceeding design limits associated with operating the PRTS controls)</p> <ol style="list-style-type: none"> <li>Cred Dist: The 1<sup>st</sup> part of Choices A/D (193°F) is not plausible because an applicant can eliminate these Choices solely because of the stem question wording. 193°F is less than 228°F, i.e., the stem question asks for “gross leak by”, and 228°F is “more gross” than 193°F.</li> <li>Cred Dist: The 2<sup>nd</sup> part of Choices A/C (tailpipe temp never rapidly lowers) is not plausible because the relief tank is designed with a rupture disc.  Suggest writing a question to test the setpoint for 1C-E7, PZR RELIEF TK HI TEMP, and the required actions per 1-RC-OP-11. If testing the setpoint value is viewed as minutia, then instead we could test the normal allowable temperature band at 100% power, etc.  Alternatively, suggest replacing the question with an item that tests 1-RC-OP-11 limits/parameters for the PZR Relief Tank operation after annunciator 1C-E7 has alarmed.</li> <li>The distracter analysis was missing the Tier/Group.</li> </ol> <p>6-23-21: Reworked question to test temperature of PORV leakby in PRT and where PRT contents routed when draining. The plausibility of the containment sump is questionable; is there any OP that directs operators to drain anything to the containment sump? Can we pick another distracter for Choices A2/C2?</p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
34	F	2					x							N	E S	<p>T2G1 008 (CCW) G2.4.6 (Knowledge of EOP mitigation strategies)</p> <p>1. Partial: An applicant can successfully argue there is no correct answer to the question because the CAUTION in AP-15.00 doesn't say that AP-27.00 is the priority; the CAUTION only says that AP-27.00 <u>should</u> be implemented. Unless there is an Ops directive that says Unit 2 will implement AP-15 and Unit 1 will implement AP-27, or some other conduct of ops procedure, then this question is vulnerable to appeals. Maybe I'm missing something, but I'm not seeing the "prioritization requirement."</p> <p>Suggest testing the overall mitigative strategy of AP-15.00, i.e., establishing an "alternate" letdown path, and/or how containment pneumatics are not interrupted, etc.</p> <p>2. Partial: An applicant could successfully argue that Choice C (AP-27.00 is priority because U2 will implement AP-15.00) is also a correct answer if U2 did implement AP-15.00.</p> <p>6-23-21: The two parts of the replacement question may be disjointed; the answer to the 1<sup>st</sup> part is do not enter AP-15.00, whereas the 2<sup>nd</sup> part of the question assumes that AP-15.00 has been entered. Also the 1<sup>st</sup> part is vulnerable to post-exam appeals because one entry condition listed in AP-15.00 is "lowering head tank level due to non-isolable leak."</p> <p>6-30-21: Where is the leak? Is it isolable? 3<sup>rd</sup> bullet implies only an attempt is being made; therefore, entry condition may be met. Also same comment above about disjointed parts 1 &amp; 2.</p> <p>7-1-21: Proposed fix has issues with interplay between the 1<sup>st</sup> and 2<sup>nd</sup> parts; 2<sup>nd</sup> part says "if reactor is tripped", which cues answer to 1<sup>st</sup> part.</p> <p>Suggest: An immediate manual reactor trip _____ required. [is vs is NOT] When implementing AP-15.00, _____ will be performed first. [Crosstie Containment IA Turbine Building vs Establish Alternate Letdown]</p> <p>7-8-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A				SRO Only
35	H	2	x			x								N	E S	<p>T2G1 010 (PZR PCS) K5.01 (operational implication of determining of condition of fluid in PZR using steam tables, as it applies to PZR PCS)</p> <ol style="list-style-type: none"> <li>1. Stem Focus: The Current Conditions 1<sup>st</sup> and 2<sup>nd</sup> bullets don't align with the team remaining in 1-ES-1.1. The guidance for forming the bubble lies in 1-GOP-1.1, Step 5.5.17. Suggest moving the 1<sup>st</sup> bullet up to the Initial Conditions Section, and then revising the 2<sup>nd</sup> bullet to say the team is in 1-GOP-1.1 and preparing to draw a bubble in the pressurizer.</li> <li>2. Cred Dist: The plausibility of the 2<sup>nd</sup> part of Choices A/D (first PZR response is bubble forms) is questionable because there is no PZR bubble indicator. Suggest revising the 2<sup>nd</sup> stem statement and the 2<sup>nd</sup> part of Choices A/D to be:  <i>If the team lowers Charging flow below Letdown flow, how will pressurizer pressure respond?</i>  <i>A.2/D.2 Pressure will not change</i></li> </ol> <p>6-14-21: Comments incorporated; stem question should say "WOOTF answers both questions?" Question is SAT. 7-15-21: Changed bullet to say terminated SI per ES-1.1 instead of saying currently in ES-1.1.</p>

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	Backward	Q=K/A				SRO Only
36	H	2				x								N	E S	<p>T2G1 012 (RPS) A2.03 (predict impacts of incorrect channel bypassing on RPS and use procedures to correct, control, mitigate)</p> <p>1. Cred Dist: The plausibility of Choices B/D (Tech Spec actions) is questionable because RO applicants know that they aren't responsible for knowing Tech Spec required actions.</p> <p>It may be better to re-work the question to say that PI-1475 fails as indicated and tell the applicants that ALL required actions in 0-AP-53.00 have been taken. (This means that the yellow instrument has been selected.) THEN, test the applicants' knowledge of what channel is required to be selected as the controlling (Yellow or White) channel, and what will occur IF the a technician subsequently inadvertently de-energizes the PI-1474 channel (reactor will/ will not immediately trip).</p> <p>2. IF the recommendation above is used, how will it not overlap the scenarios if the applicants always select the Yellow channel after a failed instrument?</p> <p>6-23-21: Comments incorporated; question is SAT.</p>
37	F	2	x			x								M	E S	<p>T2G1 013 (ESFAS) K2.01 (knowledge of bus power supplies to ESFAS/Safeguards equipment control)</p> <p>2014 NRC Exam Q#17</p> <p>1. Stem Focus: Suggest re-wording the stem question to specify the 1A DC Bus, for example:</p> <p><i>WOOTF identifies the reason that 1-AP-10.06, LOSS OF DC POWER, requires using Attachment 5, Suggested Sequence of Loading DC Buses 1A and 1-1, to restore power?</i></p> <p>2. Cred Dist: Suggest replacing Choice B with: "To prevent overloading the Battery Chargers."</p> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
38	H	2	x										x		N	U	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T2G1 002 (Containment Cooling) A2.01 (predict impacts of fan motor over-current on CCS and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>Q=K/A: The 1<sup>st</sup> part of the question tests the applicants' knowledge of the power supply logic for the 1C Containment Air Recirc Fan following a Hi Hi CIS signal. It's the same logic that exists at all times (i.e., C Fan remains on a Hi Hi CIS signal because it's not powered from a safety bus). The 1<sup>st</sup> part of the question is not testing the impact of a fan motor over-current on the plant or CCS.  Suggest running the desktop simulator to see how the plant is affected (from 100% power) following a trip of the 1A, 1B, or 1C Fan, and re-work the 1<sup>st</sup> part of the question to test that effect. IF you choose to test only one fan tripping, THEN the 2<sup>nd</sup> part could be revised to ask whether H2 sample is / is NOT required.</li> <li>Stem Focus: The 2<sup>nd</sup> bullet is vague; suggest telling the applicants which 480 V 1H breaker is turned OFF (instead of saying "breaker maintenance is being performed").</li> <li>Stem Focus: The 4<sup>th</sup> bullet is not necessary to elicit the correct response (Maintenance troubleshooting).</li> </ol>
38	F	2													N	S	T2G1 022 (Containment Cooling) A2.01 (predict impacts of fan motor over-current on CCS and use procedures to correct, control, mitigate)
39	F	2													N	S	<p>T2G1 022 (Containment Cooling) K2.01 (power supplies to containment cooling fans)</p> <ol style="list-style-type: none"> <li>The distracter analysis has a typo for the Tier &amp; Group; should be T2G1 (instead of T1G1).</li> </ol>
40	F	2	x												N	S	<p>T2G1 026 (Containment Spray) A4.01 (ability to manually operate/monitor CSS controls in the control room)</p> <ol style="list-style-type: none"> <li>Stem Focus: The noun name for 1-CS-P-1A is missing in the 1<sup>st</sup> stem question.</li> </ol>



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	Backward	Q=K/A	SRO Only			
41	H	2	x				x							N	E S	<p>T2G1 039 (Main &amp; Reheat Steam) K1.02 (physical connections and/or cause-effect relationship between MRSS and atmospheric relief dump valves)</p> <p>1. Partial: An applicant could successfully argue that there is no correct answer to the 2<sup>nd</sup> part of the question because the 2<sup>nd</sup> stem question asks for where the manual isolation valve is located for the SG PORV.</p> <p>Suggest re-wording the 2<sup>nd</sup> stem question to say: <i>Where is the SG PORV EMERG CLOSE SW is located?</i></p> <p>2. Stem Focus: The stem question is missing a question mark.</p> <p>6-14-21: Comments incorporated; question is SAT.</p>
42	? F	2												N	S	<p>T2G1 059 (MFW) G2.1.32 (explain and apply system limits and precautions)</p> <p>1. LOK: It appears both parts of the question are memory level</p>
43	H	2	x	x										N	E S	<p>T2G1 059 (MFW) G2.4.1 (EOP entry conditions and immediate action steps)</p> <p>1. Cue: Choice C is the only Choice that involves the B feedpump. Suggest revising Choice C to say: <i>"The sensing line to the 1A MFW pump lube oil pressure switches completely ruptures at 75% power."</i></p> <p>2. Stem Focus: In Choice B, Suggest replacing the word "at" with "on", and underlining the word "<u>inboard</u>."</p> <p>3. Stem Focus: Suggest making the power level in Choice D the same as Choice C, i.e., 75% power.</p> <p>6-14-21: Comments incorporated; question is SAT.</p>
44	F	2												N	S	<p>T2G1 061 (AFW) A1.02 (predict/monitor changes in SG pressure to prevent exceeding design limits associated with operating the AFW controls)</p>

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	Backward	Q=K/A	SRO Only			
45	F	2	x				x							N	E S	<p>T2G1 061 (AFW) K6.01 (knowledge of the effect of a loss or malfunction of controllers and positioners will have on AFW components)</p> <p>1. Partial: An applicant could successfully argue that there is no correct answer to the 1<sup>st</sup> part of the question since the position of 1-FW-MOV-151E is undetermined. The phrase "as soon as the .." in the 3<sup>rd</sup> bullet is vague.</p> <p>To remedy, can we delete the phrase "as soon as the.." and modify the 1<sup>st</sup> stem question to say:  <i>"Assuming the 1-FW-MOV-151E is at 90% open, what is the approximate AFW Flow to the "A" S/G?"</i></p> <p>2. Stem Focus: The word "Indication" in the 1<sup>st</sup> stem question is not necessary.</p> <p>3. Stem Focus: The 2<sup>nd</sup> stem question should specify Attachment 5 (instead of 1-ES-0.1).</p> <p>6-14-21: Comments incorporated; question is SAT.</p>
46	H	2												B	S	<p>T2G1 062 (AC Electrical Distribution) K3.01 (knowledge of the effect that a loss or malfunction of the AC Distribution system will have on major system loads)</p> <p>1. The references used to develop the question are missing from the references file; it appears that the references for Q#45 were duplicated for Q#46.</p> <p>6-14-21: Reference added to file.</p>
47	F	2												N	S	<p>T2G1 063 (DC Electrical Distribution) A4.01 (ability to manually operate/monitor major breakers and control power fuses in the main control room)</p>

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	Backward	Q=K/A				SRO Only
48	F	2				x						x		M	U S	<p>T2G1 063 (DC Electrical Distribution) K3.02 (knowledge of effect that loss or malfunction of the DC electrical system will have on components using DC control power)</p> <ol style="list-style-type: none"> <li>1. Cred Dist: The 2<sup>nd</sup> part of Choices B/D (breaker won't trip if only closing fuses blown) is not plausible because the stem tells the applicant that the open fuses remain intact.</li> <li>2. Q=K/A: The proposed test item tests how the motor driven AFW pump is affected when its control power fuse is blown; however, it may be better to say that a loss of a specific DC panel occurred and then ask how the specific motor driven AFW pump on an AC bus is affected by the loss of control power to the AC bus.</li> </ol> <p>Suggest re-working the question to specify a DC bus (or panel) is lost and then ask the applicant how the "A" AFW pump indications are affected. For example, ask the applicant for the status of the white light above the 1FW-P-3A switch (illuminated vs not illuminated) and whether the main control board red/green running indication lights are available vs not available. By using this suggestion, the plausibility will be fixed because the applicant will have to know whether or not the specific DC bus (or panel) affects the AC board that the motor driven pump is powered from.</p> <p>6-14-21: Re-worked question contains cue that <u>tells</u> applicants the electrical loads; lets discuss.</p> <p>6-23-21: Replaced question; question is SAT.</p> <p>6-30-21: Conflict with Q#47 discovered during validation. We discussed making this question to be 25% power.</p> <p>7-1-21: Made 25% power; question is SAT.</p> <p>7-15-21: Station Service Bus is power to RCPs; therefore, some overlap with Q#47. Changed 1<sup>st</sup> part of this question to test whether the #2 EDG will / will not automatically load onto the 2H Bus.</p>

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	Backward	Q=K/A				SRO Only
49	F	2				x	x							N	E S	<p>T2G1 064 (EDG) K6.07 (knowledge of the effect of a loss or malfunction of air receivers will have on the EDG system)</p> <p>1. Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices B/C (Bank 1 not sufficient for auto-start) is questionable because the stem bullet says Bank 1 pressure is <u>stable</u> (unaffected) at 190 psig. One train of air is always enough to accomplish the EDG start.</p> <p>To remedy, suggest re-working the 1<sup>st</sup> stem question to test whether <u>Bank 2</u> is sufficient for auto-start IF its pressure is 160 psig <u>and STABLE</u>. This would test the CAUTION in 1C-F6:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>*****  CAUTION: The minimum air pressure at which the EDG air start system is considered capable of providing three start attempts is 160 psig.  *****</p> </div> <p>2. Partial: An applicant can successfully contend that Choice D is also correct, even though the word "<u>immediately</u>" is in the 2<sup>nd</sup> stem question, because 1C-F6 guidance for air pressure includes a step that says "Use Lister Diesel as necessary."</p> <p>It may be better to move the word "immediately" to the Choices instead of having it in the 2<sup>nd</sup> stem question. Suggest re-writing the 2<sup>nd</sup> stem question as:</p> <p>To restore Bank 2 starting air, the field operator can ____ .</p> <p>Change the 2<sup>nd</sup> part of Choices B2/D2 to:</p> <p><i>"immediately start the Lister diesel"</i></p> <p>6-30-21: Comment #2 incorporated. Why is only Bank 2 underlined and capitalized in the stem? This may cue the applicant to the answer because Bank 1 is not underlined and capitalized. Suggest making both Bank 1 and Bank 2 the same, i.e., no underline and no capital.</p> <p>7-1-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A				SRO Only
50	H	2	x			x								B	E S	<p>T2G1 073 (Process Rad Monitoring) K4.01 (knowledge of PRM design features/interlocks that provide for release termination when radiation exceeds setpoint)</p> <ol style="list-style-type: none"> <li>Cred Dist: The plausibility of the 2<sup>nd</sup> part of Choices B/C (detector saturation) is questionable because the 2<sup>nd</sup> stem question asks for a <u>detector failure</u>. An applicant can eliminate Choices B/C solely since large rise in pulses is not a detector failure.  To remedy, suggest changing the 2<sup>nd</sup> stem question to say: <i>What condition could cause the indications shown?</i> And modify the 2<sup>nd</sup> part of Choices B/C to only say: <i>"Detector saturation" (instead of "Large rise in pulses..")</i></li> <li>Stem Focus: The 1<sup>st</sup> question is a fill-in-the-blank statement; the 2<sup>nd</sup> question is a question. The stem question should be "WOOTF completes both statements?"</li> <li>Stem Focus: The picture is too small to read; the applicants will probably have difficulty reading.</li> <li>Ensure no overlap with Q#23.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>
51	F	2	x											N	E S	<p>T2G1 073 (Process Rad Monitoring) K1.01 (knowledge of the physical connections and/or cause-effect relationships between the PRM system and those systems served by PRMs)</p> <ol style="list-style-type: none"> <li>Stem Focus: To ensure the applicants are clear on the first stem question, suggest including the word "sample", and specifying the time delay as:  <i>The 120 second time delay for the Rad Monitor Sample Pumps auto-start feature begins ____ .</i></li> </ol> <p>6-14-21: Comment incorporated (60 second time delay); question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
52	F	2	x				x							B	E S	<p>T2G1 076 (Service Water) A3.02 (monitor auto operation of the SWS including emergency heat loads)</p> <p>1. Partial and/or Stem Focus: The word “immediately” and the phrase “as a result of the LOCA” could make this question vulnerable to post-exam appeals. The setpoint for the Hi Hi CLS signal is 23 psia. An applicant could say that none of the answers are correct if the LOCA started and it took time to reach 23 psia, because of the word “immediately.”</p> <p>Suggest deleting the second bullet (44.5 psia, not necessary) and re-wording the stem question as:</p> <p><i>WOOTF components will have their supporting Service Water cooling components <u>immediately</u> reposition from the <u>original position</u>, when a Hi Hi CLS signal occurs?</i></p> <p>6-14-21: Comment incorporated; question is SAT.</p>
53	F	2												N	S	<p>T2G1 076 (Service Water) K2.01 (knowledge of bus power supplies to service water)</p> <p>7-15-21: Added RSSW to 1<sup>st</sup> part. For 2<sup>nd</sup> part, validators said 1J Bus re-energization was moot point. Shortened to to say The 480V J Bus ABT _____ energize the remaining RSSW MOVs.</p>

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	Backward	Q=K/A	SRO Only				
54	H	2	x				x						x		B	E S	<p>T2G1 078 (Instrument Air System) A4.01 (operate/monitor pressure gauges in the control room)</p> <p>1. Q=K/A and/or Stem Focus and/or Partial: To maintain the focus on the Instrument Air topic, and ensure only one correct answer, suggest the following items:</p> <ul style="list-style-type: none"> <li>Delete the bullet in the Current Conditions associated with the RCP CC flow and temperature indications.</li> <li>Re-word the stem question (see below)</li> <li>Convert the 1<sup>st</sup> question to test the applicants' knowledge of whether the S/G PORVs will/ will NOT continue to control in AUTO.</li> <li>Clarify the stem question with respect to 1-AP-10.05 requirements for alternate monitoring method.</li> </ul> <p>For example, to remedy all comments:</p> <p><i>WOOTF completes both statements regarding the impact to pneumatics in accordance with 1-AP-10.05, Loss of Semi-Vital Bus?</i></p> <p><i>S/G PORVs _____ continue to control in AUTO for 25 minutes.</i></p> <p><b>[will vs will NOT]</b></p> <p><i>The Plant Computer System (PCS) _____ an alternate monitoring method for Instrument Air/Service Air pressure.</i></p> <p><b>[is vs. is NOT]</b></p> <p>6-14-21: 1-AP-10.05 says SG PORVs will remain energized by an UPS in MB-8 for approximately 30 minutes. The reason I suggested 25 minutes was to avoid post-exam challenges due to the word "approximately." The proposed 1<sup>st</sup> fill-in-the-blank statement was only asking whether the SG PORVs will continue to control for 25 minutes, which the answer is always going to be "yes." Maybe I'm missing something; lets discuss.</p> <p>6-23-21: Went back to 25 minutes with clarification "from the time bus was lost. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
55	F	2	x				x							N	E S	<p>T2G1 103 (Containment System) A3.01 (monitor auto operation of the containment system including containment isolation)</p> <ol style="list-style-type: none"> <li>1. Partial: The 1<sup>st</sup> and second bullets in the Current Conditions (i.e., RCS and Containment pressures) should be replaced with "and stable", to ensure no post-exam appeals.</li> <li>2. Stem Focus: The 3<sup>rd</sup> bullet in the Current Conditions can be eliminated by including the valve unid/noun names after the stem question. In other words, the stuff about BOP performing E-0, Attachment 1, etc. is more reading burden.</li> <li>3. The distracter analysis is missing the Tier/Group.</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>



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	Backward	Q=K/A	SRO Only				
56	?	2				x							x		N	E S	<p>T2G2 001 (CRDS) A1.08 (predict/monitor changes in verification that CRDS temps are within limits before starting – to prevent exceeding design limits – associated with operating the CRDS controls)</p> <ol style="list-style-type: none"> <li>Q=K/A: The 1<sup>st</sup> part of the question is not related to the K/A. For 2-part questions, one of the parts should directly hit the K//A, and the other part should be related to the K/A. In the proposed test item, the 1<sup>st</sup> part of the question doesn't seem related to the K/A.</li> <li>Cred Dist: The plausibility of the 2<sup>nd</sup> part of Choices B/D (erratic rod movement could occur) is questionable because the 2<sup>nd</sup> stem question says that the rod will be moved, with limits. IF erratic rod movement could occur, THEN there would be no allowable rod motion.  To remedy both comments, suggest the following:  <i>WOOTF completes the following statement in accordance with 1-AP-25.00, Loss of CTMT Air Cooling, if less than one CRDM Fan is running in each duct?</i>  <i>At 48 steps per minute, limit rod motion to _____ minutes of continuous stepping following by _____ minutes of holding.</i>  <i>[10 vs 5] AND [20 vs 25]</i></li> <li>LOK: It appears that both parts of the proposed test item are lower cog/fundamental knowledge items.</li> <li>The distractor analysis has typo, this test item should be T2G2 (instead of T2G1).</li> </ol> <p>6-23-21: Question revised to rod motion limits; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
57	F	2		x										N	E S	<p>T2G2 002 (RCS) K4.10 (design features/interlocks with provide for overpressure protection)</p> <p>1. Cue: The 2<sup>nd</sup> part of Choices A/C can be eliminated solely based on the stem bullet that says OPMS is in service. The correct answer is "Place the OPMS keyswitch in DISABLE."</p> <p>To remedy, suggest modifying the 2<sup>nd</sup> part of the question to ask:</p> <p><i>Placing the PORV control switch to the CLOSE position _____ close the affected PORV.</i></p> <p><i>[will vs will NOT]</i></p> <p>6-14-21: Suggest converting both parts of the question into fill-in-the-blank statements, instead of having one part a question and the other a fill-in-the-blank statement.</p> <p>6-23-21: Still not changed as 6-14-21 suggestion. Also, stem question missing question mark.</p> <p>6-30-21: Comment incorporated; question is SAT.</p>
58	F	2												B	S	<p>T2G2 011 (PZR LCS) K2.02 (bus power supplies to PZR heaters)</p> <p>1. The distracter analysis has a typo; the question is T2G2 (instead of T2G1).</p> <p>6-14-21: Distracter analysis corrected.</p>
59	F	2				x								N	E S	<p>T2G2 017 (In-Core Temp Monitor System) A2.02 (predict impacts of core damage on the ITM system and use procedures to correct, control, mitigate)</p> <p>1. Cred Dist: To ensure plausibility of the 2<sup>nd</sup> part of Choices B/D, suggest:</p> <ul style="list-style-type: none"> <li>including the title of E-0, Attachment 2 (Checking SI Valve Alignment) in the last stem bullet and</li> <li>revising the 2<sup>nd</sup> fill-in-the-blank statement, and the 2<sup>nd</sup> part of each Choice. For example:</li> </ul> <p><i>For the Current Conditions, IF an ORANGE path is entered, crew performance of Attachment 2 _____ .</i></p> <p><i>[is required in parallel with performing the ORANGE path procedure vs <b>must be suspended</b>]</i></p> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
60	H	2	x	x										N	E S	<p>T2G2 041 (Steam Dump/Turbine Byp Control) K6.03 (effect of loss or malfunction of controller and positioners – including ICS, S/G, CRDS – will have on the SDS)</p> <ol style="list-style-type: none"> <li>1. Stem Focus: It seems like the 1<sup>st</sup> two bullets in the Current Conditions (AP-53.00 actions completed, Power at 100%) can be consolidated to the Initial Conditions.</li> <li>2. Cue: The initial and current Tave/Tref values are not necessary to elicit the correct response.</li> <li>3. The distracter analysis has a typo; the question is T2G2 (instead of T2G1).</li> </ol> <p>6-14-21: During the consolidation process, did we miss including information that P<sub>imp</sub> Ch 4 is now selected?</p> <p>6-23-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
61	F	3	x											N	E S	<p>T2G2 045 (Main Turb/Gen System) A4.01 (manually operate/monitor turbine valve indicators (throttle, governor, control, stop, intercept), alarms, and annunciators in the control room)</p> <p>1. Stem Focus: It may not be clear to the applicants that the operator is still holding down the LATCH pushbutton. It seems that both fill-in-the-blank statements are testing plant response AFTER the button is released.</p> <p>Suggest re-working the stem bullets and stem question as follows:</p> <p><i>Given the following:</i></p> <ul style="list-style-type: none"> <li>Unit 1 is performing a 1-OP-TM-001, TURBINE-GENERATOR STARTUP TO 20% - 25% TURBINE POWER, Section 5.3, Latching the Turbine.</li> <li>At Step 5.3.7, the operator depressed and held the LATCH pushbutton. <ul style="list-style-type: none"> <li>The LATCH pushbutton is backlit</li> <li>Annunciator 1G-A5, VAC TRIP LATCH ACTUATED, is LIT</li> <li>The operator is still depressing the LATCH pushbutton.</li> </ul> </li> </ul> <p><u>WOOTF completes both statements AFTER the operator releases the LATCH pushbutton?</u></p> <p>2. Stem Focus: Each of the Choices includes Governor valves; therefore, the 1<sup>st</sup> fill-in-the-blank statement is only testing how the Intercept valves respond, so the statement can be streamlined to say:</p> <p><i>"The Intercept valves _____ be closed." [will vs will NOT]</i></p> <p>6-14-21: Since we included underlined piece in stem question, does 2<sup>nd</sup> fill-in-the-blank statement need to repeat "After the LATCH pb is released?"</p> <p>6-23-21: Same comment as 6-14-21; the stem question already has everything underlined, etc. No need for repeated in 2<sup>nd</sup> fill-in-the-blank statement?</p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
62	H	2	x				x							N	E S	<p>T2G2 055 (Condenser Air Removal) G2.2.44 (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)</p> <p>1. Partial: The 1<sup>st</sup> stem question should ideally test whether placing the hoggers in service is/ is NOT <u>required</u> per AP-14.00. Use of the word "should" could lead to post-exam appeals. Does the procedure Step *require* placing the hoggers in service?</p> <p><input type="checkbox"/> <u>IF required, THEN</u> place the Condenser Hoggers in service to stabilize Condenser vacuum at 26.5 in-Hg IAW Attachment 1.</p> <p>Suggest re-wording the 1<sup>st</sup> fill-in-the-blank statement to be:  <i>For the Current Conditions, the Condenser Hoggers are _____ to be placed in service.</i>  <b>[required vs not required]</b></p> <p>It seems that the 1<sup>st</sup> stem question is vulnerable to post-exam appeals given the wording of the procedure Step.</p> <p>2. Partial: The word "worsening" in the Initial Conditions 3<sup>rd</sup> bullet is different than the phrase "slowly lowering" in the Current Conditions 1<sup>st</sup> sub-bullet. Is this meant to imply a different slope or trend?</p> <p>3. Stem Focus: The word "correct" is never needed in the stem question, and both fill-in-the-blank statements pertain to AP-14.00. Suggest re-wording the stem question as:  <i>WOOTF completes both statements in accordance with 1-AP-14.00?</i></p> <p>6-14-21: In the current conditions, why is the word "worsening" underlined? Because it's not underlined in the initial conditions.</p> <p>6-23-21: The 6-14-21 comment wasn't clear – my question was: Is it necessary to have underlines? Seems to be cueing because none of the other trend statuses for Gen MW, waterbox temp are underlined. Does Surry procedures use the term "degrading" for vacuum?</p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
63	H	2	x	x		x	x							N	U S	<p>T2G2 056 (Condensate) K1.03 (physical connections and/or cause-effect relationship between Condensate system and MFW)</p> <ol style="list-style-type: none"> <li>1. Cred Dist: The 1<sup>st</sup> part of Choices B/C (suction pressure rises when the rinse initiated) is not plausible because service rinse effectively siphons off part of the flow going to the suction of the feed pumps.</li> <li>2. Cue: The 3<sup>rd</sup> stem bullet is not necessary to elicit the correct response.</li> <li>3. Partial: The stem bullets and stem question never say that the polisher was actually placed in service. An applicant could successfully argue that there is no correct answer because the extended service rinse never actually was performed – only the pre-brief was performed.</li> <li>4. Stem Focus: The stem question phrase “<i>to verify the correct evolution was performed on Unit 1</i>” may be confusing. Not sure what the phrase is supposed to mean, or if it’s necessary.</li> </ol> <p>6-23-21: Replaced question with another new question; question is SAT.</p>
64	H	3										x			U S	<p>T2G2 068 (Liquid Radwaste System) K5.04 (operational implication of bio hazards of radiation and goal of ALARA as they apply to the LRS)</p> <ol style="list-style-type: none"> <li>1. Q=K/A: The proposed test item doesn’t test the Liquid Radwaste System; it only tests the VPAP-2101 admin limits, etc. The proposed test item is like an Admin JPM for the Rad Control topic.</li> </ol> <p>One way to test the LRS may include testing the applicants’ knowledge of which plant area rad levels are affected during resin transfers, etc., in accordance with a precaution or limitation in the LRS operating procedure.</p> <p>Another way to test the LRS topic may be associated with where a certain colored plant drain is routed; i.e., how the liquid is processed/routed such that ALARA is maintained or the spread of contamination is precluded.</p> <ol style="list-style-type: none"> <li>2. The distracter analysis has a typo; the question should be listed as T2G2 (instead of T3).</li> </ol> <p>6-14-21: Replaced question with a new question that tests both recommended concepts; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
65	F	2	x			x	x							N	E S	<p>T2G2 072 (Area Radiation Monitoring) A3.01 (monitor auto operation of the ARM system, including changes in ventilation alignment)</p> <ol style="list-style-type: none"> <li>Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices A/C (purge fans tripped on low suction pressure) is questionable because a high radiation condition exists in containment; plants are designed such that hi rad conditions are a “direct” trip to purge fans – not low suction pressure during high rad conditions. Although 1-VS-F-58A Filtered Exhaust fan trips on low suction pressure, the 1<sup>st</sup> fill-in-the-blank statement asks about the purge fans – not the Filtered Exhaust fan.  To remedy, suggest re-working the 1<sup>st</sup> question to test whether 1-VS-F-58A remains running vs. automatically trips.</li> <li>Stem Focus: Suggest streamlining the 2<sup>nd</sup> fill-in-the-blank statement to eliminate all the verification actions for 1-IA-TV-101A / B and simply re-word as:  <i>1-IA-AOV-102 _____ automatically open.</i>  <i>[will / will NOT]</i></li> <li>Partial: Experience has shown that use of the word “direct” or “directly” can be subject to post-exam appeals. (1<sup>st</sup> fill-in-the-blank statement)</li> <li>Stem Focus: The underlined phrase “<u>all automatic actions occur as designed</u>” is not necessary; our Appendix E brief with the applicants clarifies that questions are to be answered based on how the plant is designed.</li> </ol> <p>6-14-21: Re-worked question still may have same “direct – indirect” issue as Comment #3 above; i.e., the high rad condition caused the eventual trip of 1-VS-F-58A (due to subsequent low suction pressure). Choice D can also be argued as correct.</p> <p>6-23-21: Question revised to a different fan; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
66	F	2				x	x							N	U S	<p>T3 G2.1.14 (criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.)</p> <ol style="list-style-type: none"> <li>1. Cred Dist: The 2<sup>nd</sup> part of Choices A/B (no announcement required for radiography) is not plausible because conservative decision making would always warrant a plant announcement prior to commencing radiography. Even though the affected area was cleared/posted, plant staff that aren't in the area still need to be aware of radiography.</li> <li>2. Partial: An applicant could contest that since the service water pump is a 480 Volt load, a plant announcement is required. Is the charging service water pump started from the control room?</li> <li>3. Partial: The stem question doesn't include the procedure (OP-AA-100), i.e., "in accordance with OP-AA-100). This may lead to post-exam appeals.</li> </ol> <p>6-23-21: Re-worked question to test fan that's specifically exempted from plant announcements and a resin transfer instead of radiography; question is SAT.</p>



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	Backward	Q=K/A	SRO Only			
67	F	2					x							N	E S	<p>T3 G2.1.20 (interpret/execute procedure steps)</p> <p>1. Partial: Suggest adding “Unit 1 is at 25% power” as the Initial Condition, to ensure admin control is required during performance of 1-OP-SI-002.</p> <p>2. Partial: To ensure no post-exam appeals, suggest mirroring the 1-SI-002 P&amp;L 4.10 wording; i.e., instead of the 2<sup>nd</sup> fill-in-the-blank statement having the underlined word <u>permitted</u>, use the word “acceptable.”</p> <p><i>WOOTF completes both statements in accordance with SUADM-O-26, ADMINISTRATIVE CONTROL OF OPERATIONAL COMPONENTS, and 1-OP-SI-002?</i></p> <p><i>One operator _____ permitted to be responsible for administrative control of both valves.</i></p> <p><i>It _____ acceptable for an operator assigned to the Fire Team to also have an administrative control function.</i></p> <p>[is vs is NOT]</p> <p>3. Stem Focus: The word “administrative” is misspelled in the 2<sup>nd</sup> fill-in-the-blank statement, in the title of SUADM-O-26.</p> <p>6-14-21: In the 1<sup>st</sup> fill-in-the-blank statement, the word “admin” should become “administrative”, like all the other words in the question.</p> <p>6-23-21: Comments incorporated; however, the underlined word “acceptable” seems to be not necessary.</p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
68	?	2	x					x						N	E/U S	<p>T3 G2.2.18 (process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.)</p> <ol style="list-style-type: none"> <li>Job-Link: The proposed RO test item is vulnerable to post-exam appeals because <u>operability determinations</u> are an SRO knowledge/ability/responsibility. Both fill-in-the-blank statements test the RO applicants' knowledge of MDAFW pump operability requirements, which is SRO knowledge.  One RO knowledge item may be to test the administrative requirements for disabling an annunciator (due to maintenance activity) during outage conditions. However, if there is no differences between outage and online administrative requirements for annunciator disabling/tracking, then this idea may not work.  Another idea is to test the RO's knowledge of some outage tracking and/or logbook requirement.  Another idea is to test an RO knowledge/ability/responsibility associated with the Clearance procedure (SU-PROCSU-ADM-OP-AA-200 allowances during an outage.  Another idea may be associated with system alignment checklists while outage maintenance still ongoing within the system boundary.</li> <li>Stem Focus: Both stem questions are similar, and may be testing the same concept: the pump can only be operable <u>after</u> the PMT is performed, which means that the PMT has to be performed <u>before</u> entering the mode of applicability.</li> <li>LOK: The distracter analysis indicated LOK= higher cog/comprehension even though both parts of the question appear to be memory/fundamental/log cog.</li> </ol> <p>6-23-21: The plausibility of B1/D1 (maint mgr maintains PHYSICAL control of the log) is questionable because SUPERVISION is a better choice.  The 1<sup>st</sup> part of the question asks about "physical" control of the log even though 1-OP-CT-002 only specifies "control."  Suggest the following:  <i>WOOTF completes both statements in accordance with 1-OP-CT-002, Containment Penetration Breach Log?</i>  <i>_____ shall maintain control of the Containment Penetration Breach Log. [what does shift supervision mean (what person?) vs Maintenance Manager]</i>  <i>The names of the containment closure team _____ required to be recorded in the Unit Narrative Log. [are vs are not]</i></p> <p>6-30-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
69													x			U	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T3 G2.2.44 (interpret control room indications to verify status and operation of a system, and understand how operator actions &amp; directives affect plant and system conditions)</p> <p>1. Q=K/A: The proposed test item doesn't directly or indirectly test a generic plant-wide topic – the test item seems to be specific to the P-8 logic only.</p> <p>ES-401, Section D.2.a states: <i>“Ensure that the questions selected for Tier 3 maintain their focus on plantwide generic K/As and do not become an extension of Tier 2.”</i></p> <p>Is there a generic equipment control aspect that's being tested in the proposed P-8 test item?</p> <p>Suggest replacing question with a test item that tests a generic aspect from one of the following administrative procedures:</p> <ul style="list-style-type: none"> <li>• Conduct of Ops (SU-PROCSU-ADM-OP-AA-100)</li> <li>• Equipment Clearance (SU-PROCSU-ADM-OP-AA-200)</li> <li>• Verification Practices (SU-PROCSU-ADM-PI-AA-500)</li> <li>• Admin Ctl Oper Comp's (SU-PROC-000-SUADM-O-26)</li> </ul> <p>One operationally valid way to test the K/A at a generic level may be to test a situation where valve/electrical lineups are being performed at the control room panel that is associated with a caution/clearance tag, etc.</p>

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	Backward	Q=K/A	SRO Only			
69	H	2		x		x								N	E S	<p>T3 G2.2.44 (interpret control room indications to verify status and operation of a system, and understand how operator actions &amp; directives affect plant and system conditions)</p> <p>1. Cred Dist and/or Cue: The plausibility of the 1<sup>st</sup> part of Choices A/C (not permissible even with SM permission) is questionable because the stem question contains the phrase “with SM permission.” (It’s always ok to do something with SM permission.) The reason why the stem question contains the phrase is because of the OP-AA-100, Attachment 3, Section 1.3, Peer Checking, wording:</p> <p>c. <b>IF</b> a peer check <b>CANNOT</b> be made available, <b>THEN APPLY</b> overt supervisory oversight with Shift Managers permission.</p> <p>One way to remedy, could be to re-word the fill-in-the-blank statements as:</p> <p><i>OP-AA-100, Conduct of Operations _____ contain an allowance to perform a control room component manipulation without a peer check during <u>normal or routine</u> operations activities.</i></p> <p><b>[does vs does NOT]</b></p> <p><i>IF the transfer was performed incorrectly by opening Station Service Norm Sup Bkr 15C2 prior to closing Reserve Sup Bkr 15C1, the reactor _____ required to be manually tripped for this plant condition.</i></p> <p>6-14-21: Adding the phrase “If a peer check cannot be made available” to the beginning of the 1<sup>st</sup> fill-in-the-blank statement cues the applicant to the correct answer. The last stem bullet already says “no other licensed operators are available for a peer check.”</p> <p>6-23-21: The 2<sup>nd</sup> fill-in-the-blank statement has a typo; the phrase “prior to closing” is duplicated. Also, the question seems to have two different font sizes.</p> <p>7-1-21: Comment incorporated; question is SAT.</p> <p>7-15-21: deleted human performance tool and added phrase “from another reactor operator” to ensure no partially correct answers.</p>

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	Backward	Q=K/A	SRO Only			
70	H	2		x			x							M	E S	<p>T3 G2.3.11 (control radiation releases)</p> <p>1. Cue: The correct choice is a permit (piece of paper) whereas the incorrect choice is a parameter; max release rate information is always listed on some type of "permit." Therefore, the wording of the 1<sup>st</sup> fill-in-the-blank statement (i.e., <i>based on the...</i>) could lead the applicants to the correct answer (i.e., <i>...release permit</i>), because the Number/TITLE/Section of the procedure that contains the release permit form is not used.</p> <p>Suggest changing the 1<sup>st</sup> stem question to say  <i>"Indicated release flow from "B" WGDT is limited based on _____."</i></p> <p><b>[Number/TITLE/Section of Procedure that has the Release Permit Form vs. OP-23.2.4, Attachment 4, MAXIMUM INDICATED WGDT FLOW RATE BASED ON H2 CONCENTRATION]</b></p> <p>2. Partial: To ensure 2<sup>nd</sup> part of question is precise, include <i>"in accordance with Tech Spec 3.11.B, Gas Storage Tanks..."</i></p> <p>6-23-21: Suggestion for 1<sup>st</sup> fill-in-the-blank statement not used; however replacement for it is sat. Comment #2 incorporated; question is SAT.</p> <p>7-15-21: Validators said 1<sup>st</sup> part was minutia. Replaced 1<sup>st</sup> part with whether tank can be released with 1.65% O2 and 8.1% H2.</p>

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	Backward	Q=K/A	SRO Only				
71	H	2	x				x						x		N	E S	<p>T3 G2.3.5 (use rad monitoring systems, such as fixed rad monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.)</p> <p>1. Q=K/A: From a plant-wide generic aspect, what is this test item testing? Since this is a Tier 3 topic, the test item should include some generic aspect. IF there is a generic aspect to the test item, then we should capture it on the distracter analysis.</p> <p>In the 2<sup>nd</sup> fill-in-the-blank statement, is there a possibility to test the requirements for requesting a survey near radiation monitors?</p> <p>Alternatively, is there an admin requirement for calibration due dates for plant installed rad monitor equipment?</p> <p>Is there a generic aspect to Area Rad Monitors that we could test? We may have to keep this question if there's nothing else.</p> <p>2. Partial: An applicant can successfully contend that there's no answer to the 2<sup>nd</sup> part of the question because 1-AP-24.00, Minor SG Tube Leak, contains no requirement to dispatch Health Physics to survey the Main Steam Rad Monitors.</p> <p>3. Partial: The 4<sup>th</sup> stem bullet uses the word "affected" rad monitors, can we say : "The team has dispatched Health Physics (HP) to locally survey rad levels by the <u>appropriate</u> rad monitors." IF the N-16 rad monitors are "affected" in ANY way, then an applicant could contend that there are two correct answers to the 2<sup>nd</sup> part of the question.</p> <p>6-23-21: Generic aspect of when main steam &amp; N16 rad monitors are used, including location. Re-worked question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
72	F	2					x							B	E S	<p>T3 G2.3.7 (comply with RWP during normal or abnormal conditions)</p> <ol style="list-style-type: none"> <li>1. Partial: An applicant can successfully argue that any of the Choices is “the proper response” because the mechanic may be in a bad situation, etc. The proposed test item is vulnerable to post-exam appeals..</li> <li>2. Ensure no overlap with RO Admin JPM – Verify RWP Adequate. Consider the following:   <i>WOOTF completes both statements in accordance with VPAP-2101, Radiation Protection Program?</i>  <i>The Operations RWP is a _____ RWP.</i>  <b>[General vs Specific]</b>  <i>The maximum allowable exposure per individual entry to a radiation control area when using a General RWP is _____ .</i>  <b>[50 mrem vs 100 mrem]</b> </li> <li>3. RP-AA-274, Radiation Work Permits, was not included in the Box references; it may have testable information for operators.</li> </ol> <p>6-23-21: Re-worked question is SAT. <b>The stem question is missing a question mark.</b></p>

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	Backward	Q=K/A	SRO Only				
73	F	2					x						x		N	E S	<p>T3 G2.4.1 (EOP entry conditions and immediate action steps)</p> <p>1. Q=K/A: From a generic aspect, what is this test item testing? Since this is a Tier 3 topic, the test item should include some generic aspect associated with the EOPs. IF there is a generic aspect to the test item, then we should capture it on the distracter analysis.</p> <p>One way to remedy Comment #1 above, i.e., test a generic T3 aspect, may be the following:</p> <p><i>Unit 2 is in Cold Shutdown</i></p> <p><i>A spurious SI occurs.</i></p> <p><i>WOOTF completes both statements?</i></p> <p><i>1 / 2 E-0, Reactor Trip or Safety Injection, is applicable when RCS temperature is greater than or equal to _____ .</i></p> <p><i>[200°F vs 350°F]</i></p> <p>IF the proposed test item isn't testing a generic aspect to EOPs and/or immediate action steps, then suggest replacing the test item with something that tests entry conditions for FRPs, or something from OP-AP-104, Emergency &amp; AOPs.</p> <p>2. Partial: The stem doesn't specify that the SI was spurious; therefore, the proposed test item is vulnerable to post-exam appeals.</p> <p>6-14-21: In response to Comment #1 above, I now can see what generic aspect the original (Draft) version of the question was testing - - the generic aspect of AOP/EOP usage for spurious SI when RCS temperature is &lt; 350°F. I also understand why my recommendation was vulnerable to post exam appeals (i.e., because E-0 is an allowable option at 200°F or 350°F in the step-by-step evaluation mode).</p> <p>In the revised version, Choices A &amp; C are both correct. To remedy, <i>The earliest time that an Abnormal Procedure is allowed to be used in lieu of 1-E-0 for this event is when RCS temperature first reaches _____.</i></p> <p>6-23-21: The plausibility of the 2<sup>nd</sup> part of Choices B/D (will backup the spurious SI) is weak, and the phrase backing up may be slang. To remedy suggest revising the 2<sup>nd</sup> fill-in-the-blank statement to say:</p> <p>This Abnormal Procedure _____ direct [replace with what "backing up" means, i.e., depressing switch xyz, or turning switch xyz].</p> <p>6-30-21: What is the noun name of the switch? Why is the word "initiation" underlined? Suggest using the noun name on the board.</p> <p>7-1-21: Comment incorporated; question is SAT.</p>



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	Backward	Q=K/A	SRO Only			
74	F	2	x				x							M	E S	<p>T2 G2.4.32 (operator response to loss of all annunciators)</p> <p>1. Partial and/or Stem Focus: To ensure the 2<sup>nd</sup> fill-in-the-blank statement is not vulnerable to post-exam appeals, suggest rewording as the statement more precisely. For example:</p> <p><i>The example of an "annunciator functional check" listed in 0-AP-10.13 for <u>Unit 2</u> _____ local action outside the MCR.</i>  <b>[requires vs does NOT require]</b></p> <p>Unit 1 functional check examples:</p> <ul style="list-style-type: none"> <li>Examples of annunciator functional checks are: <ul style="list-style-type: none"> <li>Placing 1-AS-TCV-1100 in Auto and checking alarm 1D-B7, BATCHING TK LO TEMP, actuates.</li> <li>Checking alarm 1H-F3, CN POLISHING SYS TRBL, actuates when CP Building Operator tests alarms.</li> </ul> </li> </ul> <p>Unit 2 functional check example:</p> <ul style="list-style-type: none"> <li>Example of an annunciator functional check is to check alarm 2H-F3, CN POLISHING SYS TRBL, actuates when CP Building Operator tests alarms.</li> </ul> <p>6-14-21: Comment incorporated; question is SAT.</p>
75	H	2										x		B	S	<p>T3 G2.4.4 (recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures)</p> <p>1. Q=K/A: Suggest documenting on the distracter analysis basis for K/A match that this test item tests a broad approach to diagnosis of parameters that are entry level conditions to AOPs. This will document the basis for the Tier 3 generic aspect.</p> <p>6-14-21: Distracter analysis updated.</p>

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	Backward	Q=K/A	SRO Only			
76	H	2	x											B	E S	<p>T1G1 015 (RCP Malfunctions) AA2.01 (determine/interpret cause of RCP failure as it applies to procedure)</p> <ol style="list-style-type: none"> <li>The operational validity of the Initial Conditions is questionable; the crew is diluting the RCS to make the reactor critical even though TS 3.1.A.1, Reactor Coolant Pumps, requires three RCPs in operation when the reactor is critical. The stem says the "A" RCP is stopped; therefore, why would the crew be trying to make the reactor critical at this time? Doesn't seem operational valid.</li> </ol> <p>Along the same thought process, the 2<sup>nd</sup> fill-in-the-blank statement may (incorrectly?) imply that the reactor can be taken critical by diluting with only one RCP? Perhaps the 2<sup>nd</sup> part of the question could be re-worked to test which GOP Series procedure selection would be required, etc.?</p> <ol style="list-style-type: none"> <li>Stem Focus: The number/title of TS 3.1.A.1, Reactor Coolant Pumps, is missing from the 2<sup>nd</sup> fill-in-the-blank statement.</li> <li>Stem Focus: The status of the "C" RCP is missing from the stem.</li> <li>Stem Focus: The 3<sup>rd</sup> bullet in the Initial Conditions should include the procedure the crew is implementing to dilute RCS boron concentration; is it GOP-1.4? 1-OP-RX-009?</li> </ol> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
77	F	2	x				x							N	E S	<p>T1G1 026 (Loss of CCW) G2.4.11 (knowledge of AOPs)</p> <p>1. Partial: An applicant could successfully argue that Choice "C" is also correct because the underlined phrase <u>Short term</u> may be vague, and because excess letdown is a short term fix for level control.</p> <p>Suggest re-wording the 1<sup>st</sup> fill-in-the-blank to mirror the NOTE before Step 12 For example, re-word as:</p> <p><i>In accordance with 1-AP-15.00, Loss of Component Cooling, _____ may be required to maintain PRZR level until a letdown flow path is established.</i></p> <p><i>[Throttling Seal Injection Flow vs RCS cooldown]</i></p> <p>2. Stem Focus: In the 2<sup>nd</sup> fill-in-the-blank statement, the phrase "if CC cannot be restored" is not needed since the 1<sup>st</sup> stem bullet says there is an unisolable CC rupture.</p> <p>Suggest re-wording the 2<sup>nd</sup> fill-in-the-blank statement as:</p> <p><i>In accordance with FCA-1.00, Limiting MCR Fire, Attachment 7, Establishing Alternate Letdown, 0-FCA-16.00, Local Operation of Air Operated Valves _____ required.</i></p> <p><i>[is vs is NOT]</i></p> <p>6-23-21: Comments addressed; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
78	F	2	x									x		N	E/U S	<p>T1G1 040 (Steam Line Rupture) G2.4.18 (knowledge of specific bases for EOPs)</p> <p>1. Q=K/A: The 2<sup>nd</sup> fill-in-the-blank statement may not be related to the ECA-2.1 event in progress; what's the specific DBA being referred to in TS 3.4? Is it a LBCLOCA? IF the TS isn't referring to the Steam Line Rupture event, then the 2<sup>nd</sup> part of the question may not be related to the K/A topic. Typically, the ECAs are beyond design basis events, so the 2<sup>nd</sup> fill-in-the-blank statement may not be linked to TS 3.4 basis for "the DBA."</p> <p>ECA2.1 could be used for this question, as long as the test item tests the basis for an ECA-2.1 action, etc. Similarly, E-2 could be tested as long as the test item tests the basis for an E-2 action. One testable E2 concept could be the bases for why AFW is controlled differently than other EOPs.</p> <p>2. Stem Focus: The number/title of Tech Spec 3.4, Spray Systems, is missing from the 2<sup>nd</sup> fill-in-the-blank statement.</p> <p>6-23-21: Question re-worked to test ECA-2.1 required action and the basis for the action per background document. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only				
79	H	2	x				x						x		N	E S	<p>T1G1 056 (LOOP) G2.4.41 (knowledge of EALs/thresholds)</p> <ol style="list-style-type: none"> <li>1. Partial: To ensure no potential subset issues, included the word "required" in the 1<sup>st</sup> fill-in-the-blank statement, i.e., "<i>The highest required EAL classification is _____</i> .</li> <li>2. Stem Focus: To ensure the applicants are aware of the Current Conditions with respect to the #1 EDG, suggest modifying the Initial Conditions last bullet to say: <b>#1 EDG failed to start and is not available</b></li> <li>3. Q=K/A: For two-part questions, one of the parts must be a direct hit on the K/A (like the 1<sup>st</sup> fill-in-the-blank statement is), and the other part must be related to the K/A. The DEENs notification part of the question doesn't seem to be related to knowledge of EALs/thresholds.  Suggest deleting the 2<sup>nd</sup> part of the question and make the four choices into UE, Alert, Site, General, and include something in the stem that could be misconstrued to mean that only a UE was the highest required classification, or justify in the distracter analysis why only a UE is plausible.</li> </ol> <p>6-23-21: The word "required" is missing in the stem question. Also, the last bullet in the Initial Conditions is missing the phrase "and is not available."</p> <p>6-30-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
80	H	2	x				x							B	E S	<p>T1G1 062 (Loss of Nuclear SW) AA2.06 (determine/interpret the length of time after the loss of SWS flow to a component before that component may be damaged, as it applies to procedure)</p> <p>2009 Surry NRC Exam, Q#92</p> <p>1. Partial and/or Stem Focus: The 1<sup>st</sup> part of the question should test the earliest time at which the operating charging pump is required to be shifted. This will mirror the procedure and eliminate the potential for sub-set issues with the correct answer. For example:</p> <p><i>In accordance with 0-AP-12.00, the earliest time the operating charging pump is required to be shifted is _____ .</i></p> <p>2. Stem Focus: Since there is no direct Tech Spec for SERVICE WATER pumps, suggest modifying the last stem bullet to say:</p> <ul style="list-style-type: none"> <li>15:00: All Unit 1 Charging Pumps are declared inoperable.</li> </ul> <p>The 2<sup>nd</sup> fill-in-the-blank statement could then be worded more simply as:</p> <p><i>The latest time Unit 1 is required to be in Cold Shutdown is _____ .</i></p> <p>3. Stem Focus: Stem question should refer applicants to "Current" conditions (instead of Based on the "above" conditions).</p> <p>6-14-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
81	F	2	x				x						x		E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T1G1 065 (Loss Instrument Air) AA2.03 (determine and interpret location and isolation of leaks as it applies to LOIA)</p> <ol style="list-style-type: none"> <li>Partial: There is no answer to the 2<sup>nd</sup> part of the question because TV-100 (automatic CIV) will not close; therefore, TS 3.8.C is not met and a containment integrity "clock" for IA-446 &amp; IA-447 is no longer relevant since the line can no longer be isolated. See comment #4 for suggestion.</li> <li>Partial and/or SRO-only: The intent of the question was likely to test the requirements for establishing administrative control over 446/447 (IAW SU-PROC-000-SU-ADM-O26, Administrative Components, or 1-OP-IA-005, Admin Control of 446/447), which is a good idea, i.e., the intent was to test the word "<u>immediately</u>" which implied no briefing was accomplished yet (but is subjective – applicant can argue briefing was performed). The way the question is written allows RO knowledge (that LCO TS 3.8.C is not met when IA-446/447 are opened) to answer the 2<sup>nd</sup> part of the question, so the SRO hit is weak.  Suggest revising the 2<sup>nd</sup> part of the question to free it from RO knowledge, for example, test the time setting on the TS clock, i.e., test the <u>4-hour</u> procedure requirement. Also, does SU-AM-026 have requirements that can be tested at the SRO level?</li> <li>Partial: The air pressure is 70 and continuing to lower; Letdown isolation valves begin to drift closed at 65 psig, which could make the question more complicated for the applicants. See comment #4 for suggestion or suggest changing the 2<sup>nd</sup> bullet to <u>70 and stable</u>.</li> <li>Stem Focus: The whole stem could be stream-lined to say that U1 was at 100% power when 1B-F6 was entered and IA-446/447 are required to be opened. The fill-in-the-blank statements would still work with the stream-lined version.</li> <li>Stem Focus: The initial plant status is missing from the stem.</li> </ol>

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	Backward	Q=K/A	SRO Only			
81	F	2	x				x						x	N	E S	<p>T1G1 065 (Loss Instrument Air) AA2.03 (determine and interpret location and isolation of leaks as it applies to LOIA)</p> <ol style="list-style-type: none"> <li>SRO-only: Comment #2 from the SAMPLE QUESTION (see above, RO knowledge that LCO TS 3.8.C is not met when IA-446/447 open) not incorporated.  Is it possible to modify the 2<sup>nd</sup> fill-in-the-blank statement as below in Comment #3?</li> <li>Partial: To ensure only one correct answer, the stem should include a bullet that says:  <i>“Administrative Control of IA-446/IA-447 has NOT been assigned.”</i></li> <li>Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement is missing the TS 3.8.C, CIVs, number/title. For example:  <i>In accordance with ARP 1B-F6, a _____ required action exists for TS 3.8.C, Containment Isolation Valves.</i>  <i>[1 hour vs 4 hour]</i></li> </ol> <p>6-23-21: Comments incorporated; question is SAT.</p>



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	Backward	Q=K/A	SRO Only			
82	H	2	x	x									x	N	E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T1G2 003 (Dropped Control Rod) AG2.4.21 (parameters &amp; logic used to assess status of safety functions, such as reactivity control, core cooling and heat removal, RCS integrity, cnmt conditions, rad release control, etc.)</p> <ol style="list-style-type: none"> <li>Cues: Because the stem does not include a timeline, and because the 2<sup>nd</sup> fill-in-the-blank statement ends with "within 1 hour", the applicants can deduce that 1-OP-RX-001 is not required within 1 hour, i.e., SDM can be verified without performing 1-OP-RX-001.</li> <li>Stem Focus: The Initial Conditions should all be in the past tense (since they've already happened).</li> <li>SRO-only: Suggest wording the 2<sup>nd</sup> fill-in-the-blank statement to eliminate the "within 1 hour" phrase, since that leads to RO knowledge. For example, re-word the 2<sup>nd</sup> fill-in-the-blank statement as:  <i>1-OP-RX-001, Shutdown Margin (Calculated At Power), _____ required to be performed for the initial shutdown margin verification required by TS 3.12, Control Rod Assemblies and Power Distribution Limits.</i>  <i>[is vs is NOT]</i></li> <li>Stem Focus: In the 1<sup>st</sup> fill-in-the-blank statement, the term "limiting core reactivity effect" should be replaced with "limiting power distribution limit."</li> </ol>
82	H	2												N	E S	<p>T1G2 003 (Dropped Control Rod) AG2.4.21 (parameters &amp; logic used to assess status of safety functions, such as reactivity control, core cooling and heat removal, RCS integrity, cnmt conditions, rad release control, etc.</p> <ol style="list-style-type: none"> <li>Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement is missing the number/title of TS 3.12, Control Rod Assemblies and Power Distribution Limits. Suggest replacing "to comply with <i>Technical Specifications</i>"</li> </ol> <p>6-14-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
83	F	2					x							N	E S	<p>T1G2 036 (Fuel Handling Incidents) AA2.03 (determine/interpret magnitude of potential rad release is it applies to procedure)</p> <p>1. Partial: To ensure there's a correct answer, suggest rewording the 2<sup>nd</sup> fill-in-the-blank statement to mirror the TS Bases, for example:</p> <p><i>In accordance with the bases for Tech Spec 3.10, Refueling, the fuel handling accident analysis assumes 100% release of the assembly gap activity after a _____ decay period following operation at 2605 MWth.</i></p> <p><b>[100-hour vs 48-hour]</b></p> <p>6-14-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
84	H	2	x				x							N	E S	<p>T1G2 037 (SG Tube Leak) G2.4.6 (knowledge of EOP mitigation strategies)</p> <ol style="list-style-type: none"> <li>Stem Focus and/or Partial: 1) In the 1<sup>st</sup> stem question, the phrase “using the procedures below” is confusing/unnecessary. 2) The 1<sup>st</sup> stem question should refer the applicants to the “Current Conditions.” 3) The reference to immediate actions in the 1<sup>st</sup> stem question may not be necessary. 4) Typically, the numbers/names of procedures are included as a NOTE to the applicant, after all the stem questions.</li> </ol> <p>To remedy Comment #1, suggest:</p> <p><i>For the Current Conditions, which one of the following identifies the procedure/step that will be implemented first, after 2-E-0?</i></p> <ol style="list-style-type: none"> <li>Stem Focus: The 2<sup>nd</sup> stem question has a phrase “Assuming the SG leakage does not exceed 90 gpm.”, which can be eliminated by saying “For the Current Conditions.</li> <li>Stem Focus: The Initial Conditions in the stem should be past tense.</li> <li>Stem Focus: The phrase “controllable rate” in Choices B/C may not be necessary if these Choices are worded similar to Choices A/C. For example</li> </ol> <p><i>B.2/C.2: RCS cooldown at &lt; 100°F/hour.</i></p> <p>6-14-21: Comments incorporated; question is SAT.</p>
85	H	2					x					x		N	E S	<p>T1G2 068 (CR Evacuation) AA2.04 (determine/interpret SG pressure as it applies to the procedure)</p> <ol style="list-style-type: none"> <li>Q=K/A: The 2<sup>nd</sup> part of the question (SRO EAL classification) may not be associated with the K/A topic. To remedy, suggest making the EAL Choices to be Site Area Emergency vs Alert. This way, the applicant has to determine whether the inadequate SG level/pressure is associated with the RCS heat removal key safety function for the HS6 designator.</li> <li>Partial: To ensure no potential subset issues, include the word “required” in the 2<sup>nd</sup> fill-in-the-blank statement, i.e., “The highest required EAL classification is _____ .</li> </ol> <p>6-23-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
86	H	2	x			x								N	E S	<p>T2G1 004 (CVCS) G2.4.11 (knowledge of AOPs)</p> <p>1. Cred Dist: The plausibility of the 1<sup>st</sup> part of Choices A/D (only 1C Charging Pump is inoperable) is questionable because the VCT is ruptured; therefore, all the pumps are essentially gas bound. The applicants don't need to know that AP-8.00 requires placing all the pumps in the P-T-L position.</p> <p>Suggest re-working the question to have Unit 1 AND Unit 2 at 100% power. Have the crew to be evaluating AP-8.00, Step 3.a (Charging Pump cross-connect REQUIRED). Replace the 1<sup>st</sup> part of the question with the following fill-in-the-blank statement:</p> <p><i>In accordance with AP-8.00, for the given conditions, Unit 2 _____ be manually tripped.</i></p> <p>[will vs <b>will NOT</b>] The x-tie can't be used because Unit 1 charging system is not intact.</p> <p>2. Stem Focus: The 6<sup>th</sup> stem bullet (RO reports Charging pump discharge pressure, flow, amps, ....) should specify <u>1C</u> Charging Pump.</p> <p>3. Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement is missing the number/title of TS 3.2, CVCS. Suggest re-writing 2<sup>nd</sup> fill-in-the-blank statement as:</p> <p><i>In accordance with the bases for TS 3.2, CVCS, the Charging Cross tie permits the opposite unit's charging pump to be used to bring the disabled unit to _____ shutdown conditions.</i></p> <p><i>[Hot vs Cold]</i></p> <p>6-23-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
87	F	2											x	N	U S	<p>T2G1 006 (ECCS) G2.4.50 (verify system alarm setpoints and operate controls identified in the alarm response manual)</p> <p>1. SRO-only: The proposed test item doesn't require the SRO applicants to select an appropriate procedure [10CFR55.43(b)(5)]. The 2<sup>nd</sup> part of the proposed test item requires the applicants to know that ES-1.3 previously required swapping the LHSI pumps to the sump; this is a questionable SRO-only knowledge because it doesn't involve procedure selection.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Does the question require one or more of the following:</p> <ul style="list-style-type: none"> <li>• assessment of plant conditions (normal, abnormal, or emergency) and then selection of a procedure or section of a procedure to mitigate or recover, or with which to proceed</li> <li>• knowledge of when to implement attachments and appendices, including how to coordinate these items with procedure steps</li> <li>• knowledge of diagnostic steps and decision points in the EOPs that involve transitions to event-specific sub-procedures or emergency contingency procedures</li> <li>• knowledge of administrative procedures that specify hierarchy, implementation, and/or coordination of plant normal, abnormal, and emergency procedures</li> </ul> </div> <div style="margin-left: 400px; margin-top: 0;"> <p>Yes → SRO-only question</p> </div> <p>Suggest testing an "ECCS" related annunciator procedure that directs another procedure to be implemented; this way, the procedure selection piece of the SRO topic could be tested.</p> <p>Is there an "ECCS" related annunciator procedure that has a Tech Spec instrumentation item? Perhaps 10CFR55.43(b)(2) {Tech Specs} may be an option.</p> <p>6-30-21: Tough K/A. 2<sup>nd</sup> part: An applicant can argue that 1862A is full open and SI Train A is operable because the field operator says the valve is fully open.. Also, plausibility of Choices C1/D1 is questionable because 1862A is normally open and alarm should be designed as soon as off open seat. Suggest testing whether 1A-D4 will (vs will not) alarm. For 2<sup>nd</sup> part, suggest testing the required action per TS. The ARP references TS 3.3, so it would meet the intent of the K/A. The BEST way to test this K/A is to test an ECCS alarm window that's required to meet a TS surveillance (if any), including the required compensatory measure when the alarm window (surveillance) isn't available.</p> <p>7-1-21: Question changed to test whether TS Clock can be exited if valve locally opened and danger tagged off. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
88	H	2	x				x							N	E S	<p>T2G1 012 (RPS) A2.02 (predict the impacts of loss of instrument power on RPS and use procedures to correct, control, or mitigate)</p> <p>1. Partial: For the 1<sup>st</sup> fill-in-the-blank statement, it's not clear which point in time the applicants are being asked about the 1E-H5 annunciator. Are they being asked to assess the annunciator status in the Initial Conditions or the Current Conditions? Suggest consolidating and be more precise instead of saying "with this type of failure." For example:</p> <p><i>Unit 1 is at 100% power</i></p> <ul style="list-style-type: none"> <li><i>The Control Power fuses for Power Range NIS Channel 4 (N44) have blown.</i></li> <li><i>The Instrument fuses are intact.</i></li> </ul> <p><i>WOOTF completes both statements?</i></p> <p><i>Annunciator 1E-H5, NIS PWR RNG HI STPT CH4 _____ be lit. [will vs will NOT]</i></p> <p><i>Per TS Table3.7-1, Reactor Trip Instrument Operating Conditions, the N44 Channel may be bypassed for up to _____ hours for surveillance testing of the redundant channels. [2 vs 12]</i></p> <p>2. Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement is missing the number/title of TS. Suggest re-writing 2<sup>nd</sup> fill-in-the-blank statement as indicated above.</p> <p>3. Overlap: Scenario 3 includes PR Channel N44 fails high; AP-4.00 actions will be performed during the scenario. It appears this written test item may be okay from an overlap perspective; it doesn't test the AP-4.00 actions.</p> <p>6-14-21: Scenario revised to have N41 failure and different fuses. Comments incorporated; question is SAT. <b>The 2<sup>nd</sup> stem bullet has typo -- should say "have blown" (instead of "has")</b></p>

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	Backward	Q=K/A	SRO Only			
89	F	2	x				x							N	E S	<p>T2G1 059 (MFW) A2.12 (predict the impacts of failure of FRVs on the MFW system and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>Partial: The 4<sup>th</sup> bullet in the Initial Conditions is vague; what does “alternate means” mean? This “alternate means” could result in post-exam appeals for the 2<sup>nd</sup> fill-in-the-blank statement. Suggest specifying what action the operator took.</li> <li>Partial/Stem Focus: The stem should specify that the MRFV has been placed on the jack (instead of saying the SRO has “determined the need”). Also, the 1<sup>st</sup> fill-in-the-blank statement should simply be:  <i>The NRC Resident Inspector _____ required to be notified. [is vs is NOT]</i></li> <li>Stem Focus: Suggest swapping the order of the fill-in-the-blank statements, i.e., have the UFM first, then the NRC. This seems more logical and flows better with the K/A.</li> <li>Stem Focus: The protocol for capitalizing the word “not” in the 1<sup>st</sup> part of each Choice should be consistent with the rest of the exam. For example:  <i>[is vs is NOT]</i></li> </ol> <p>6-23-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
90	H	x												N	E	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T2G1 064 (EDG) A2.21 (predict impacts of opening of ring bus during test on EDG system and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>LOD=5: An applicant could contend that the 2<sup>nd</sup> part of the question requires memorizing TS 3.16 action statements because it requires knowledge of an 8-hour action. On the other hand, IF TS 3.16 was provided as a reference for this test item, the 2<sup>nd</sup> part of the question is a direct look-up.</li> <li>The 1<sup>st</sup> part of the question indirectly test the applicants' ability to "predict the impact", i.e., Breaker 252 opening requires lowering speed droop because the EDG speeds up, which is, in a sense, predicting the impact of the malfunction. However, with Comment #1, there is no SRO part of the question because the speed droop effect is RO knowledge.</li> </ol> <p>Consider changing the fill-in-the-blank statements to:</p> <p><i>WOOTF completes both statements?</i></p> <p><i>Attachment 6, EDG Contingency Actions, _____ required to be performed. [is vs is NOT]</i></p> <p><i>TS 3.16, Emergency Power System, Specification "A" _____ met. [is vs is NOT]</i></p> <p>For the 2<sup>nd</sup> fill-in-the-blank statement, the SRO-only aspect is met because TS 3.16 Specification A does not provide the meaning of the "primary" and "dependable alternate supply" terms. The applicant must have knowledge of the TS BASES to know that the RSST is the "primary", which is no longer available.</p>



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	Backward	Q=K/A	SRO Only			
90	H	2	x				x							N	E S	<p>T2G1 064 (EDG) A2.21 (predict impacts of opening of ring bus during test on EDG system and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>1. Stem Focus/Partial: Try to avoid using the word "clock" in questions pertaining to TS because the word is vague and/or slang. See SAMPLE QUESTION suggestion above for re-wording the 2<sup>nd</sup> fill-in-the-blank statement.</li> <li>2. Stem Focus: The title of TS 3.16 is missing in the 2<sup>nd</sup> fill-in-the-blank statement.</li> <li>3. Stem Focus: The 2<sup>nd</sup> fill-in-the-blank statement phrase "Based on current offsite power availability" is not necessary.</li> </ol> <p>6-14-21: I now understand how Surry uses the term "clock" to mean that the LCO is not met and a required action exists. However, the proposed reword of the 2<sup>nd</sup> fill-in-the-blank statement seems to only be asking for whether the LCO is applicable instead of asking whether a required action exists. Can we re-word as:</p> <p><i>Based on current offsite power availability, a TS 3.16.A, Emergency Power System, required action clock _____</i></p> <p><i>[exists vs does not exist]</i></p> <p>6-23-21: Comments incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
91	H	2												N B	E/U S	<p>T2G2 035 (Steam Generator System) G2.4.31 (knowledge of annunciator alarms, indications, or response procedures)</p> <p>1. Overlap:</p> <ul style="list-style-type: none"> <li>Scenario 1, SG "C" LT Fails Low;</li> <li>Scenario 3, SG "A" SF Fails high;</li> <li>Scenario 5, SG "B" PT Fails high.</li> </ul> <p>These scenario events overlap the 2<sup>nd</sup> part of the proposed test item because Tech Spec RPS/ESFAS will also be involved or assessed. The proposed test item is too close to the scenario events.</p> <p>2. SRO-only: The SRO-only knowledge for the 2<sup>nd</sup> part of the question is questionable RO knowledge; ROs are required to know that a component is / is NOT Tech Spec related.</p> <p>3. Stem Focus: The first portion of the 2<sup>nd</sup> fill-in-the-blank statement ("Assuming the team performs 0-AP-53.00..") is not necessary.</p> <p>6-23-21: All of op test events deleted from op test. Second part of question changed to test 72 vs 24 required action time; however, reference not provided. Testing SRO's memory of required action time without a reference may be LOD=5 during post-exam appeal. On the other hand, providing the reference may be a direct-lookup.</p> <p>6-30-21: Same comment. Tech Specs is a "response procedure." So suggest testing some aspect of TS 3.1 (RCS), A.2 (SGs).</p> <p>7-1-21: The plausibility of Choices B1/D1 (only primary side) is weak. The 2<sup>nd</sup> fill-in-the-blank statement tests applicants' knowledge of LCO requirement (not required action), which is RO knowledge. Suggest testing applicants knowledge of whose approval is required per VSP-F1 to defeat the alarming channel (SRO vs <b>SM</b>) and Suggest providing the applicants' with TS 3.1 (minus the bases) and ask whether T.S. 3.0.1 is / is not applicable.</p> <p>7-8-21: Randomly selected 014 (RPIS) G2.2.22 (LCOs and safety limits) because a closed book question couldn't be developed at the SRO level for SG ARPs or associated Tech Specs . Replaced with Bank Question #78 on NRC 2016 Exam.</p>

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	Backward	Q=K/A	SRO Only				
92	?	2	x	x									x		B	E/U S	<p>T2G2 071 (Waste Gas Disposal System) A2.05 (predict the impacts of power failure to the ARM/PRM Systems to the WGDS and use procedures to correct, control, mitigate)</p> <ol style="list-style-type: none"> <li>Q=K/A: The 2<sup>nd</sup> part of the question may not test the applicants' ability to use procedures to correct, control, or mitigate to loss of power to RI-130A. For example, explore the possibility of providing the ODCM (VPAP-2103S) to the applicants so they can identify required actions for the failed rad monitor.</li> <li>Cue: The 1<sup>st</sup> fill-in-the-blank statement tells the applicant that closure of 1-GW-FCV-101 is an automatic action. Suggest re-working the 1<sup>st</sup> part of the question to test the applicants' knowledge of whether the CTMT Vacuum Pumps remain running vs automatically trip.</li> <li>Stem Focus: The Stem bullets should tell the applicants that a loss of power to RI-130A has occurred; if the green "Operate" light extinguished means loss of power, then stem may be okay. However, if other things can cause the green "Operate" light to be extinguished, then we should clarify the loss of power in the stem.</li> <li>LOK: The distracter analysis indicated the proposed test item was higher cog/comprehension; however, both parts of the question seem to be lower cog/memory.</li> </ol> <p>6-14-21: The re-worked 2<sup>nd</sup> part of the question became a direct lookup. Maybe we could ask whether the minimum number of operable Process Vent System channels is / is not met IAW ODCM Attachment 5. (without providing ODCM as reference)</p> <p>6-30-21: Reworked 2<sup>nd</sup> part to test ODCM required action for flow meter. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
93	H	1.5												N	E/U	<p>SAMPLE QUESTION REC'D 10-7-2020</p> <p>T2G2 086 (Fire Protection) A2.04 (predict impacts of failure to actuate the FPS when required, resulting in fire damage, on the FPS, and use procedures to correct, control, mitigate.)</p> <ol style="list-style-type: none"> <li>Cues and/or Cred Dist: The underlined phrase "<u>electrical control system</u>" in the 1<sup>st</sup> fill-in-the-blank statement hurts the plausibility of Choices A1 and B1 (remote actuation still possible from Turbine Building); some "form" of power is required to remotely actuate anything.</li> <li>Form ES-401-5 identified that the "TRM" was the reference being provided to the applicants. Assuming that TR 3.7.5, Halon System, (pp 3.7.5-1 through -2) are being provided, then the 2<sup>nd</sup> part of the question is a direct look-up.</li> </ol> <p>One idea to remedy may include testing the applicants' knowledge of the bases for TR 3.7.5. For example, the <u>functionality</u> of the Halon System depends on the door between U1 and U2 ESGRs latching, and depends on the dampers on 0-FP-FACP-14. If you choose this route, ensure that the test item has something that keeps it plausible that functionality would still somehow remain intact even when a damper wouldn't fully close or the door wouldn't latch, etc.</p> <p>Another idea could include testing the applicants' knowledge of 0-AP-48.00, Attachment 3, Appendix R Safe Shutdown Functions, for any area, including the ESGR. For example, when a safe shutdown function is threatened, then entry to ( )-FCA-4.00 is required, which may include testable knowledge. Also, VPAP-2802, Notification and Reports, could be provided to the applicants and ask them to identify the reporting time requirement for the fire. Reporting is part of using procedures to correct, control, or mitigate.</p>

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	Backward	Q=K/A			
93	H	2				x							N	E/U S	<p>T2G2 086 (Fire Protection) A2.04 (predict impacts of failure to actuate the FPS when required, resulting in fire damage, on the FPS, and use procedures to correct, control, mitigate.)</p> <p>1. Cred Dist: The 2<sup>nd</sup> part of Choices B/D (sliding door not required for halon functionality) is not plausible because nothing in the stem could be misconstrued as to why the door isn't required for functionality. (See SAMPLE QUESTION suggestion and comment above).</p> <p>Suggest deleting the stem bullet about the crew entering 0-AP-48.00. Then modify the 2<sup>nd</sup> part of the question as:</p> <p><i>0-AP-48.00, Attachment 3, Appendix R Safe Shutdown Functions, _____ required to be performed.</i></p> <p>[is vs is NOT]</p> <p>6-14-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
94	H	2											x	N	U S	<p>T3 G2.1.2 (knowledge of operator responsibilities during all modes of plant operation)</p> <p>1. SRO-only: The proposed test item is like an RO Admin JPM; the proposed test item tests reactor operator (RO) work hour limitations, which is RO knowledge. Each individual is responsible for managing work hours to ensure 10 CFR 26 limits aren't exceeded.</p> <p>Suggest something else, for example:</p> <p><i>WOOTF completes both statements regarding a WAIVER of 10 CFR 26 limits in accordance with SU-PROCSU-ADM-LI-AA-700, Fatigue Management and Work Hour Limits for Covered Workers?</i></p> <p><i>The Supervisor Face-to-Face Fatigue Assessment is required to be completed no more than _____ hours before exceeding 10 CFR 26 limits.</i></p> <p><i>The Operations Shift Manager _____ requisite signature authority to sign Section 4 – Approval to Exceed 10 CFR 26 Limits – on Attachment 2, 10 CFR 26 Limits Waiver. [has vs <b>does NOT have</b>]</i></p> <p>6-23-21: Second part of recommendation incorporated; 1<sup>st</sup> part changed to test weekly average allowed work hours. Question is SAT.</p>

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	Backward	Q=K/A			
95	F	2	x			x							N	E/U S	<p>T2 G2.2.1 (ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity)</p> <ol style="list-style-type: none"> <li>Cred Dist: The plausibility of the 2<sup>nd</sup> part of Choices B/D (Reactivity SRO not allowed to peer check RO) is questionable because the stem says the SRO's purpose is for <u>reactivity</u>. Suggest modifying the 2<sup>nd</sup> part of the question.</li> <li>Stem Focus: The 1<sup>st</sup> stem bullet is vague; is the reactor critical? Suggest clarifying plant conditions, including the controlling GOP procedure in progress.</li> <li>Stem Focus: The number/name of the low power physics test is missing from the 2<sup>nd</sup> bullet.</li> <li>Stem Focus: The title of TS 3.12 is missing from the 1<sup>st</sup> fill-in-the-blank statement.</li> <li>OP-AP-300, Reactivity Management, was not included in the BOX references.</li> </ol> <p>6-23-21: Comments incorporated; suggest changing the 2<sup>nd</sup> part of Choices B2/D2 to be: "the additional RO" [instead of "a Reactor Operator"]</p> <p>6-30-21: Comment incorporated; question is SAT.</p>
96	F	2		x									B	E S	<p>T3 G2.2.13 (knowledge of tagging and clearance procedures)</p> <ol style="list-style-type: none"> <li>Stem Focus and/or Cues: The 1<sup>st</sup> fill-in-the-blank statement should be the "lowest" level approval allowed for using relief valves.</li> </ol> <p>6-14-21: Comment incorporated; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
97	F	2	x			x	x							N	E	<p>SAMPLE QUESTION REC'D 10-7-2020 T3 G2.3.12 (radiological safety principles pertaining to LO duties, such as cnmt entry req'ts, FH responsibilities, access to LHRA, aligning filters, etc.)</p> <ol style="list-style-type: none"> <li>Partial: The premise of the question is a condition that causes a LHRA to temporarily exist. "Temporary" situations could lead to post-exam appeals if the situations aren't clearly defined in the administrative procedures. Is the resin shot temporary LHRA (i.e., the whole Decon Bldg lower level) specifically defined in any administrative procedure, e.g., CO-PROC-000-VPAP-2101, or others? If not, then suggest deleting the two stem bullets, i.e., just test a normal LHRA, such as a room, etc.</li> <li>Cred Dist: The plausibility of the 2nd part of Choices C and D (got to have a key to leave the LHRA) is questionable because if you lose a key inside a LHRA, you could become over-exposed since your exit would be delayed until someone could arrive and let you out. I didn't grade this question as "U" because I think you intended the plausibility to be that the whole Decon Bldg lower level floor was involved; however, the plausibility flaw still remains; applicants can eliminate Choices C and D solely based on having a key to <u>leave</u> a dangerous area doesn't seem logical.</li> <li>Stem Focus and /or Partial: To ensure the question is bullet-proof to post exam appeals, the 1<sup>st</sup> fill-in-the-blank statement should be re-worded to speak of the "keys", because that's what TS 6.4.B.2 says should be "administratively controlled." For example, suggest the following:  <i>IAW TS 6.4, Unit Operating Procedures and Programs, Specification B.2, the Shift Manager _____ allowed to control the key to a plant LHRA. [is vs is NOT]</i></li> </ol> <p>Other ideas for this question could include testing the applicants' knowledge of "why" VPAP-2101 requires that the SM be notified before anyone enters a VHRA under vessel/incore guide tube area. What does SM do with that information?</p>



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	Backward	Q=K/A	SRO Only			
97	F	2				x	x							N	U S	<p>T3 G2.3.12 (radiological safety principles pertaining to LO duties, such as cnmt entry req'ts, FH responsibilities, access to LHRA, aligning filters, etc.)</p> <ol style="list-style-type: none"> <li>Cred Dist: The 2<sup>nd</sup> part of Choices C/D (SM has to be notified of every LHRA entry) is not plausible because every plant LHRA entry would become a distraction to the SM duties and because the RadCon folks are primarily responsible.</li> <li>Partial and/or Operational Validity: Choice A (SM is not allowed to give LHRA key to I&amp;C Techs) can also be successfully argued as correct because I&amp;C Techs will likely get the key from RadCon, not the SM. The operational validity of the SM giving the Operations LHRA key to a different department worker is questionable. Suggest using the comment in the SAMPLE QUESTION, see above.</li> <li>Ensure no overlap with Q#98. The K/A is amenable to many other SRO duties/responsibilities, such as fuel handling and/or containment entry, etc.</li> </ol> <p>6-23-21: Replaced with different question that tests whether FH Bldg supervisor is required to be an SRO and whether Containment SRO is allowed to authorize the overload bypass switch. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
98	H	2	x			x	x							N	E/U S	<p>T2 G2.3.13 (knowledge of rad safety procedures pertaining to licensed operator duties, such as response to rad monitor alarms, containment entry requirements, fuel handling responsibilities, access to LHRAs, aligning filters, etc.)</p> <p>1. Partial and/or Cred Dist: Choice C can be successfully argued as correct because 1) the first aid/ambulance personnel could notify the news agencies and/or 2) nothing in the stem indicates whether a news release will occur.</p> <p>The plausibility of the 2<sup>nd</sup> part of Choices C/D (4 hour report) is not plausible because the stem doesn't contain anything that could be misconstrued as a <u>news release</u>.</p> <p>2. Stem Focus and/or Partial: The 1<sup>st</sup> part of the question can be streamlined as below, to be more specific and minimize the possibility of other keys needed to access the plant, etc:</p> <p><i>The Auxiliary Building area _____ a locked high radiation area. [is vs is NOT]</i></p> <p>To remedy Comment #1 above, consider the following replacement test item, which may altogether eliminate the need to provide VPAP-2802 as a reference.</p> <p><i>WOOTF completes both statements in accordance with VPAP-0106, Subatmospheric Containment Entry?</i></p> <p><i>IF containment pressure is greater than or equal to 9.0 psia and less than 12.0 psia, THEN SCBA with _____ percent oxygen by volume shall be used. [33 to 37 vs 35 to 65]</i></p> <p><i>Exemption to the above requirement is allowed, in part, if permission for the exemption has been obtained from the _____ . . . [Plant Manager vs Radiation Protection Supervisor]</i></p> <p>6-23-21: The 2<sup>nd</sup> part of the question doesn't have anything to do with the K/A. The 1<sup>st</sup> part of the question does hit the K/A; however, it hits the K/A at the RO level. IF the 2<sup>nd</sup> part of the question is the SRO piece, then it needs to hit the K/A. Also, concerned that notifying Sheriff department can still be argued as notifying a government agency, etc.</p> <p>6-30-21: Same comment as 6-23-21; how is the 2<sup>nd</sup> part hitting the K/A? Also, the 2<sup>nd</sup> fill-in-the-blank question (if used) needs to say the earliest time that a NRC notification is required is . . .</p> <p>7-1-21: VPAP 2802 piece is contamination; therefore K/A being met. Question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
99	H	2					x							N	E S	<p>T3 G2.4.20 (knowledge of operational implications of EOP warning, cautions, and notes)</p> <p>1. Partial: IF the only thing that proves the correct answer is the lesson plan (ND-95.3-LP-3), THEN the proposed test item is vulnerable to post-exam appeals because the SRO's required direction for the "Assistant RO" is subjective. OP-AP-104, Emergency and AOPs, doesn't contain any of the requirements for pre-emptive action attachments. Is there a site-specific guidance document for the "Assistant RO?"</p> <p>2. Partial: We need to ensure that the 2<sup>nd</sup> bullet in the Current Conditions is 100% bullet-proof to mean that all SGs are faulted. If there's a way for all SG pressures to be 800 psig and lowering at the same rate due to a single fault, then the proposed test item may be vulnerable to appeals.</p> <p>6-23-21: Question replaced. In the Initial Conditions and in the Current Conditions, suggest replacing "due to a LOCA outside containment" with the detail of what broke/is leaking [instead of saying LOCA outside containment].</p> <p>Suggest modifying the 1<sup>st</sup> bullet in the Current Conditions to say: "The SRO incorrectly transitioned from E-0 to E-1."</p> <p>Suggest revising the 1<sup>st</sup> portion of the 1<sup>st</sup> fill-in-the-blank to be more clear: "After the SRO exited E-0, ..."</p> <p>Suggest changing the 2<sup>nd</sup> fill-in-the-blank statement to test whether 1-ES-0.0 is / is not required to be entered. If it's a judgement call, then we may have partially correct answer.</p> <p>6-30-21: Need you to walk me through the procedure that says ReDiagnosis is required to be entered.</p> <p>7-1-21: Re-worked 2<sup>nd</sup> piece of question; question is SAT.</p>

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	Backward	Q=K/A	SRO Only			
100	H	2												B	S	<p>T3 G2.4.5 (knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions)</p> <p>2015 SQN NRC Exam, Q#100</p> <p>1. Please note in the K/A Match portion of the distracter analysis that although the proposed test item appears to be an extension of Tier 1, the generic aspect that is being tested is the requirement for the implementation of FRPs in the EOPs.</p> <p>6-14-21: Distracter analysis updated.</p>