

ES-301

Administrative Topics Outline

Form ES-301-1

Facility:	St. Lucie	Date of Examination:	12/4/17
Examination Level:	RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>	Operating Test Number:	L-17-1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R N	A-1R: Quarterly Watch Standing, Active License Determination.
Equipment Control	R M	A-2R: Develop ECO for 1B Containment Spray Pump.
Conduct of Operations	R N	A-3R: Calculate Fuel Pool Boron Concentration and evaluate the TS acceptance criteria
Radiation Control	R M	A-4R: Evaluate Radiation Survey Map.

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)

JPM Summary Description

A-1R: Quarterly Watch Standing, Active License Determination

Task 2.1.4 RCO (3.3) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

This is a new JPM. The applicant will evaluate the license watch standing records of 3 Reactor Operators and determine their Active or Inactive status IAW OP-AA-100-1001, LICENSE MAINTENANCE AND ACTIVATION.

A-2R: Develop ECO for 1B Containment Spray Pump

Task 2.2.41 RCO (3.5) Ability to obtain and interpret station electrical and mechanical drawings.

This is a modified JPM. The applicant will be given supporting documents to develop an ECO for 1B Containment Spray pump cooler which is to be removed from service due to a leak.

A-3R: Calculate Fuel Pool Boron Concentration

Task 2.1.20 RCO (4.6) Ability to interpret and execute procedure steps.

This is a new JPM. The applicant is required to calculate the Fuel Pool Boron concentration using 2-NOP-04.04, Fuel Pool Cooling and Purification System and evaluate the Tech Spec acceptance criteria.

A-4R: Evaluate Radiation Survey Map

Task 2.3.7 RCO (3.5) Ability to comply with radiation work permit requirements during normal or abnormal conditions.

This is a modified JPM. The applicant will calculate the stay time for the area of the work, indicate the path of travel that would result in the lowest dose, and indicate the area that would be utilized if the worker needed to wait that would result in the lowest dose.

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Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R N	A -1S: Quarterly Watch Standing, Active License Determination.
Equipment Control	R M	A-2S: Develop ECO for 1B Containment Spray Pump and evaluate the Technical Specifications.
Conduct of Operations	R N	A-3S: Calculate Fuel Pool Boron Concentration and determine the required actions.
Radiation Control	R N	A-4S: Calculate Maximum Permissible Stay Time within Emergency Dose Limits.
Emergency Plan	R N	A-5S: SROs Make Emergency Classification and Notification including PARs.

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)

JPM Summary Description

A-1S: Quarterly Watch Standing, Active License Determination

Task 2.1.4 SRO (3.8) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

This is a new JPM. The applicant will evaluate the license watch standing records of 1 Reactor Operator and 2 Senior Reactor Operators to determine their Active or Inactive status IAW OP-AA-100-1001, LICENSE MAINTENANCE AND ACTIVATION.

A-2S: Develop ECO for 1B Containment Spray Pump and evaluate the Technical Specifications

Task 2.2.41 SRO (3.9) Ability to obtain and interpret station electrical and mechanical drawings.

This is a Modified from Bank JPM. The applicant will be given supporting documents to develop an ECO for 1B Containment Spray pump cooler which is to be removed from service due to a leak. The SRO will evaluate the Technical Specifications that are associated with the CS Pump ECO.

A-3S: Calculate Fuel Pool Boron Concentration

Task 2.1.20 SRO (4.6) Ability to interpret and execute procedure steps.

This is a new JPM. The applicant is required to calculate the Fuel Pool Boron concentration using 2-NOP-04.04, Fuel Pool Cooling and Purification System. The applicant must then evaluate the calculated boron concentration and determine the required actions for alternate filling methods.

A-4S: Calculate Maximum Permissible Stay Time within Emergency Dose Limits

Task 2.3.4 SRO (3.7) Knowledge of radiation exposure limits under normal or emergency conditions.

This is a new JPM. The applicant will be required to determine if tasks directed by the Emergency Coordinator can be completed without exceeding the emergency dose limits for the performance of actions that mitigate the escalation of the event.

A-5S: Make Emergency Classification and Notification including PARs

Task 2.4.44 SRO (4.4) Knowledge of emergency plan protective action recommendations.

This is a new JPM. The applicant is required to evaluate given plant parameters to determine Emergency Classification within 15 minute and complete the State Notification form including PARs within the next 15 minutes.

Facility:	St. Lucie			Date of Examination:	12/4/17			
Exam Level:	RO	<input checked="" type="checkbox"/>	SRO-I	<input checked="" type="checkbox"/>	SRO-U	<input checked="" type="checkbox"/>	Operating Test Number:	L-17-1
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. ALL (S-1) Recover Dropped CEA					M A S	1		
b. RO & SRO-I (S-2) Align the ECCS for Simultaneous Hot and Cold Leg Injection					EN D S L	2		
c. ALL (S-3) Establish Once Through Cooling					A D S L EN	4		
d. RO & SRO-I (S-4) Place LTOP in service per 2-GOP-305					A M S L	3		
e. RO & SRO-I (C-1) <u>Unit 1 Control Room</u> – Unit 1 CSAS evaluation/verification					A C D	5		
f. RO & SRO-I (S-5) EDG Monthly Surveillance, Synch to Grid per 2-OSP-59.01A					M S	6		
g. ALL (C-2) Respond to failure of Wide Range Nuclear Instrument.					EN D S L C	7		
h. RO ONLY (S-6) Start Containment Purge per 2-NOP-06.20					A N S L	8		
In-Plant Systems: 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U								
i. ALL (P-1) Realign charging pump suction to the RWT during a Fire					N E R L	2		
j. RO & SRO-I (P-2) Locally close Unit 1 MSIV					D E	4		
k. ALL (P-3) Unit 1, local start of EDG alternate path					A M E	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				4-6/4-6 /2-3				
(C)ontrol room								
(D)irect from bank				$\leq 9/\leq 8/\leq 4$				
(E)mergency or abnormal in-plant				$\geq 1/\geq 1/\geq 1$				
(EN)gineered safety feature				$\geq 1/\geq 1/\geq 1$ (control room system)				
(L)ow-Power/Shutdown				$\geq 1/\geq 1/\geq 1$				
(N)ew or (M)odified from bank including 1(A)				$\geq 2/\geq 2/\geq 1$				
(P)revious 2 exams				$\leq 3/\leq 3/\leq 2$ (randomly selected)				
(R)CA				$\geq 1/\geq 1/\geq 1$				
(S)imulator								

JPM SUMMARY**a: S-1 Recover Dropped CEA**

003 AK3.04 -Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Actions contained in EOP for dropped control rod 3.8/4.1

This is a Modified Bank / Alternate Path JPM (modified from 0821085A) A Single CEA dropped to the bottom while being moved for ASI control 5 minutes ago. The applicant is directed to realign the CEA with the remainder of the Group CEAs per 2-AOP-66.01, Attachment 5, CEA Functional Test and Operability Determination, Section 1.0, Functional Test. While recovering the CEA a 2nd CEA will drop in requiring the applicant to take immediate operator action to trip the reactor. ALL applicants will perform this JPM.

b: S-2 Align the ECCS for Simultaneous Hot and Cold Leg Injection

006 A4.07 Ability to manually operate and/or monitor in the control room: ECCS pumps and valves 4.4/4.4

This is a Direct from Bank JPM performed in the Simulator. The applicant will align the ECCS system for Simultaneous Hot and Cold leg injection in accordance with 2-EOP-99, Appendix O. RO & SRO-I applicants will perform this JPM.

c: S-3 Establish Once Through Cooling

002 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of heat sinks 4.3/4.6

This is a Direct from Bank/Alternate Path JPM, A total loss of feedwater has occurred. Direction will be given to initiate Once Through Cooling in accordance with 2-EOP-15, Functional Recovery and Verify SI flow in accordance with 2-EOP-99, Fig. 2. The JPM starts with 1 HPSI pump OOS. During the performance of the JPM the second HPSI pump will not start automatically and the applicant will have to perform the contingency steps to start the 2nd HPSI pump. ALL applicants will perform this JPM.

d: S-4 Place LTOP in service per 2-GOP-305

027AK3.03 Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: Actions contained in EOP for PZR PCS malfunction. 3.7/4.1

This is a Modified Bank / Alternate Path JPM (modified from 0821021) when un-isolating second PORV Block Valve, V1475 opens requiring Immediate Actions of 2-AOP-01.10 by going to OFF and/or Closing Block Valve. RO & SRO-I applicants will perform this JPM.

e: C-1 Unit 1 Control Room – Unit 1 CSAS evaluation/verification

026 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of spray pump 3.9/ 4.2

This is a Direct from Bank / Alternate Path JPM. CS pump fails to start, FCV-07-1A and NaOH valves are required to be opened per 1-EOP-99 Table 3. RO & SRO-I applicants will perform this JPM.

f: S-5 EDG Monthly Surveillance, Synch to Grid

064 A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Parallel operation of ED/Gs 3.1/ 3.1

This is a Modified Bank JPM. The applicant will perform the EDG Monthly Surveillance, Synch to Grid per 2-OSP-59.01A. The applicant will start the JPM with the EDG running and will parallel to the grid for the monthly surveillance. RO & SRO-I applicants will perform this JPM.

g: C-2 Unit 1 Control Room – Respond to failure of Wide Range Nuclear Instrument

033 AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Guidance contained in EOP for loss of intermediate range instrumentation 3.6/ 3.9

This is a Direct from Bank JPM (0821036). Unit 1 reactor startup is in progress at approximately 1×10^{-7} % power with Group 1 CEAs at the UEL. Reactor Engineering is performing a 1/M Plot, Annunciator (NI CHANNEL INOPERATIVE) alarms. The Board RCO reports that the wide range NI recorder indication has failed off scale low. The applicant has been directed to respond to the alarm, diagnose the problem and take appropriate action per the ARP. ALL applicants will perform this JPM.

h: S-6 Start Containment Purge

028 A4.01 Ability to manually operate and/or monitor in the control room: HRPS controls 4.0/ 4.0

This is a New/Alternate Path JPM. Start Containment Purge per 2-NOP-06.20, Step 4.2.1. (Note, purge valve fuses were installed by another RO), Document approved permit number on step 4.2.1.8 (don't provide permit, not needed SRO reports approved). When HVE-8A is started, both Plant Vent alarms go into high alarm on RMCS (and at RM-23), applicant recognizes valid alarms and secures HVE-8A per step in procedure (4.2.1.9 or 2-AOP-26.01). RO applicants will perform this JPM.

i: P-1 Realign Charging Pump Suction to the RWT

004 K1.23 Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems: RWST 3.4/3.7

This is a new JPM. A Fire has occurred on Unit 1 in Fire Area "C". The fire is out and area clear of smoke. The 1A Chg pump has been secured due to cavitation. The applicant is to realign charging pump suction to the RWT per 1-AOP-100.12 step 1.4.9.D. ALL applicants will perform this JPM.

j: P-2 Locally close Unit 1 MSIV

039K1.01 Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: S/G. 3.1/3.2

This is a Direct from Bank JPM (0821191). Unit 1 has been tripped following a Steam Generator Tube Rupture. The Control Room is progressing through 1-EOP-04, Steam Generator Tube Rupture SGTR, and HCV-08-1A, S/G 1A MSIV has not closed.

The applicant has been directed to locally close HCV-08-1A, S/G 1A MSIV, in accordance with 1-EOP-99, APPENDICES / FIGURES / TABLES / DATA SHEETS, Appendix I, MSIV LOCAL CLOSURE. RO & SRO-I applicants will perform this JPM.

k: P-3 Unit 1, local start of EDG

064 A3.03 Ability to monitor automatic operation of the ED/G system, including: Indicating lights, meters, and recorders 3.4/ 3.3

This is a Modified Bank / Alternate Path JPM (modified from 0821072A) Unit 1 is in a station blackout event. The plant is stable in a hot standby condition and 1-EOP-10 is being implemented. 1B EDG did not automatically start and can NOT be manually started from the Control Room. The applicant has been directed to start the 1B EDG locally IAW 1-EOP-99, Appendices/Figures /Tables/Data Sheets, Appendix C. The EDG will not start normally from the EDG Control Panel and the applicant must take contingency actions to start the EDG. ALL applicants will perform this JPM.

Saint Lucie 2017-301 Scenario Comments

General Comments

1. For any event that occurs prior to the Major transient, if an operator taking no action at all would result in an RPS actuation during the run time of the scenario, then the verifiable action should be designated as a Critical Task (CT). This situation would be supported by the examples in NUREG-1021 Appendix D.
2. Rating Factor for Manual Control of an Automatic Function does not appear to be covered adequately within the majority of the scenarios. The scenarios should be built to provide each applicant an opportunity to manually control a parameter that is usually controlled automatically for the given plant conditions. For instance, manually controlling SG level or pressurizer pressure. Simply closing a failed open valve or swapping controllers does not count as “controlling” because they are just taking an action which addresses the problem, but they are not actively monitoring parameters and making adjustments based on that plant feedback. Discuss the opportunities that are built into each scenario which allow for this rating factor evaluation.
3. Many scenarios have some kind of a reactor coolant leak, which likely results in the same calculation and the same Tech Spec evaluation. Unless there are meaningful differences in the verifiable action, then the subsequent scenarios utilizing these malfunctions likely will not be counted toward the minimum required. Similarly for Tech Specs, if the Tech Spec evaluation is the same, then subsequent scenarios will not be counted toward the minimum required.
4. There appears to be a lot of events that only require a bypass or single switch manipulation. These will need to be evaluated by the exam team to ensure that each scenario, as a whole, are good evaluation tools.
5. CTs should have objective criteria, preferably a plant parameter, which can be used to identify successful completion of the critical task. Good objective criteria can be parameters that cause an elevation of an E-Plan classification, unnecessary entry into a Functional Recovery Procedure, parameters that place the plant outside of its analyzed envelope, etc. All efforts should be exhausted to identify meaningful objective criteria for CTs. If good objective criteria cannot be identified, then a less desirable fallback option can be used, such as “prior to exiting a procedure or prior to moving beyond a certain procedure step.” Care should be used when using “time” as a criterion. There must be supporting documentation to support a time requirement and each time requirement is scenario specific. In other words, if the time requirement is derived from a worst-case safety analysis calc, then the requirement would not work for the scenario unless the scenario was that same worst-case event.

Scenario 1

1. CT1: What is the basis for the 15 minutes? Is there any plant parameter indicating degradation of plant safety that can be used as objective criteria?
2. CT2: Does this meet the definition of a CT? What is the safety significance of the 1 hour? What exactly are the objective criteria that would define successful completion of the task?
3. E6 appears to provide an opportunity for the BOP to manually control an auto function. Is there anything in this scenario that provides the ATC that same opportunity?
4. E6: Is there a CT associated with this event?
5. E8: This event appears to be part of the Major Transient, rather than a Component Failure. This event should likely be designated "M" and not "C".

Scenario 2

1. CT1: What are the objective criteria associated with this CT? What do they have to do and when do they need to do it? I.E. Manually open Valves x, y, and z prior to "plant parameter" reaching #?
2. CT2: The criteria needs to be specific. Where does the 45 minutes originate and why is it valid for this break size? What are the operators trying to do during this tube rupture to maintain plant safety? –not put water in steam lines? If so, then consider criteria that would be indicative of not cooling down and depressurizing fast enough to avoid putting water in steam lines. Why is cooling down at 30F/hr a CT? What is the basis? Is cooling down slower than that detrimental?
3. E1: What is the purpose for this event? Having an additional Normal and reactivity does nothing to help the applicants obtain their minimum required events because they both get the same credit for E5. Discuss deleting this event.
4. E4: This leak rate calc appears to be the verifiable action for this event. How does this leak rate differ from the other leak rates in other scenarios within this exam?
5. E4: This Tech Spec call appears to be the same as that in Scenario 3?
6. What opportunities exist within this scenario for applicants to be evaluated on manually controlling an automatic function?
7. E9: This event appears to be part of the major transient. It would be appropriate to have these actions listed as the CT, but this is not a separate "Normal" evolution.

Scenario 3

1. CT1: What are the objective criteria, which defines successful completion of this CT?
2. CT2: What is the basis for the 15 minute criterion? How does 15 minutes, versus 20 or 25 minutes, impact safety?
3. How does this scenario test manual control of an auto function for each of the board operators?

4. E2: Does this event contain a CT?
5. E4: Is this Tech Spec a repeat from Scenario 2? If so, this presents double jeopardy issues if an SRO gets both scenarios and/or an exam security issue by repeating events on different days.
6. E4: The verifiable action associated with the leak rate calc appears to be repeated from Scenario 2 and maybe even Scenario 1.
7. E9: This event appears to be part of the major transient. It would be appropriate to have these actions listed as the CT, but this is not a separate "Normal" evolution.

Scenario 4

1. How does this scenario test manual control of an auto function for each of the board operators?
2. CT1: What is the basis for the 15 minute criterion? What are objective criteria for successful completion of CT?
3. E3: How are the actions different than JPM-c?
4. E3: Does this event contain a CT?
5. E5: Typically the Tech Spec evaluations would occur prior to the Major Transient because an operator's focus, especially in a limited crew composition, should be on proper implementation of EOPs. Discuss the impacts and alternatives if needed.
6. E6: Why is this designated as a Normal Evolution? This is part of the EOP dictated mitigating strategy of the Major Transient. Delete the "N: designation.
7. E8: This is a major transient with a CT that is necessary to avoid going to once-thru-cooling. The "C" designation is not appropriate.

Scenario 5

1. How does this scenario test manual control of an auto function for each of the board operators?
2. CT1: What are the objective criteria? They need to get the bus powered before "what"?
3. CT2: What is the basis for the 15 minute criterion? What are objective criteria for successful completion of CT? What is the significance of just starting to do something within 15 minutes?
4. E4: This event is similar to JPM-c and Scenario 4 / Event 3. Evaluate any exam security and double jeopardy issues.
5. E4: Does this event contain a CT?
6. E5: Does this event contain a CT?
7. E7: This event is the initiation of a Major Transient (SBO). Designating as a "C" does not appear to be appropriate.

Scenario 6

1. How does this scenario test manual control of an auto function for each of the board operators?

2. CT1: How is this a CT? Does accident analysis assume the highest worth CEA fully stuck out of core? If so, there seems to be no safety impact.
3. What is the basis for the 15 minute criterion? What is the objective criterion for this CT?

Saint Lucie JPM Comments

Admin JPMs

1. A-2S: JPM does not appear to test a skill or responsibility that is not also required of the RO position. An RO is required to master the skill of performing the calorimetric. Someone who has the skill to perform the calc would also need to have the skill to review the calc. Each of the ROs taking the exam will likely perform the calc and then review their own work before turning in their papers. For the JPM to be at the SRO level, something additional, which is not associated with the RO position, would need to be added.

Systems JPMs:

2. JPM-a: "E" is designated for this JPM. "E" is intended to designate an emergency or abnormal "in-plant" task, but this JPM is being performed in the simulator. "E" may need to be deleted for this JPM.
3. JPM-b: As noted in the asterisk on ES-301-2, all five JPMs administered to upgrade SRO applicants must be from a different safety function. Consider re-assigning the upgrade SRO applicants because In-plant JPM-I is assigned to the same safety function (SF) as this JPM (SF=2).
4. JPM-c: Due to limited information provided, it is not possible to determine if this contains required attributes of an alternate path JPM. Discuss.
5. JPM-c: The 2012 and 2015 exams also had a spray valve failure. How is this JPM different from the spray valve failures used on those two exams?
6. JPM-c: Is this really a "new" JPM? Or would a bank or modified designation be more accurate?
7. JPM-c: Would KA 027AA1.01 be a more appropriate KA?
8. JPM-d: This task appears to be more closely associate with SF 3, Pressure Control. It currently is designated as SF 4, but the transient at hand is a pressure control problem. KA 027AK3.03 appears to be a possible match. Be aware, if this is a SF 3 task, then the outline will contain two SF 3 tasks for the simulator JPM portion, which is not permitted by NUREG-1021.
9. JPM-f: Is this really a new JPM? I see where it might be possible for the Surveillance procedure not to have been previously used, but wouldn't the other operating procedures likely have them perform the same steps to synch to the grid?
10. JPM-g: The description presents discussion of alarm response during the task. This comment is just intended to ensure that this is not an alternate path JPM. I can foresee an explanation that may support that, but this comment will facilitate that verification.
11. JPM-h: The description indicates that applicants will be taking actions in response to alarms that come in during the task. Does this JPM contain the attributes of an alternate path JPM? The table does not have it designated as alternate path.
12. JPM-j: 038EA2.01, according to the NUREG-1021 sample plan table, should normally be associated with SF 3. The current designation is SF 4. SF 3 does not appear to be appropriate. KA 039K1.01 may also apply and this KA is designated as SF 4 within the KA catalog. It may be better to re-assign the KA to more readily parallel the SFs as designated in NUREG-1021 and the KA catalog.

Site name: SL

Exam Date: 2017

OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	3	6	0		
Sim./In-Plant JPMs	11	0	0	11		
Scenarios	6	0	0	6		
Op. Test Totals:	26	3	6	17	11.5%	

Instructions for Completing This Table:

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

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

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

[illegible]

Facility: SL		Scenario: 2					Exam Date: 2017			
1	2	3	4	5	6	7	8	9	10	
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation	
1								S		
2					✓			S		
3					✓			S		
4					✓			S	MEAF-ATC	
5					✓			S		
6								S		
7						✓		S	CT in EIO is related to SGR.	
8						✓		S		
9								S		
10								S	EIO is part of 'M'. Ensure Obj Crit clearly designated.	
9	0	0	0	0	3	2	0	S		

Facility: SL		Scenario: 4					Exam Date: 2017			
1 Event	2 Realism/Cred.	3 Required Actions	4 Verifiable actions	5 LOD	6 TS	7 CTs	8 Scen. Overlap	9 U/E/S	10 Explanation	
1								5		
2					✓			5		
3					✓			5		
4		N/A	N/A		✓			5	TS-only event.	
5						✓		5		
6								5		
7								5		
8								5		
9								5		
10						✓		5		
9	0	0	0	0	3	2	0	5		

Facility:		Exam Date:									
Scenario	1 Event Totals	2 Events Unsat.	3 TS Total	4 TS Unsat.	5 CT Total	6 CT Unsat.	7 % Unsat. Scenario Elements	8 U/E/S	11 Explanation		
1	9	0	2	0	2	0	0	S			
2	9	0	3	0	2	0	0	S			
3	9	0	2	0	2	0	0	S			
4	9	0	3	0	2	0	0	S			
5	9	0	2	0	2	0	0	S			
6	9	0	2	0	2	0	0	S			

Instructions for Completing This Table:

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

1, 3, 5 For each simulator scenario, enter the total number of events (column 1), TS entries/actions (column 3), and CTs (column 5).

This number should match the respective scenario from the event-based scenario tables (the sum from columns 1, 6, and 7, respectively).

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

a. Events. Each event is described on a Form ES-D-2, including all switch manipulations, pertinent alarms, and verifiable actions. Event actions are balanced between at-the-controls and balance-of-plant applicants during the scenario. All event-related attributes on Form ES-301-4 are met. Enter the total number of unsatisfactory events in column 2.

b. TS. A scenario includes at least two TS entries/actions across at least two different events. TS entries and actions are detailed on Form ES-D-2. Enter the total number of unsatisfactory TS entries/actions in column 4. (ES-301, D.5d)

c. CT. Check that a scenario includes at least two 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.

Saint Lucie 217-301 Draft Op Test Comments

Scenarios

1. Sc 5 / E8: Ensure CT criteria is clearly stated.
2. General: We will focus on pre-identified critical task criteria during prep week to ensure that the best objective criteria exists for the critical tasks.

Systems JPMs

1. JPM “d”: First page does not state alternate path. Outline correctly states alternate path, but the JPM itself just needs to have the designation corrected.
2. JPM “g”: Steps 1, 3, and 6 do not appear to be critical steps.

Admin JPMs

1. General comment: The Task Standard for each JPM should be a description of what the applicant needs to correctly perform in order to complete the task successfully. Each of the JPMs have a Task Standard that more or less states when the JPM should be considered over, rather than what needs to be accomplished.
2. A-1R: OP-AA-100-1001 does not appear to be in the reference package. If it is not in the reference package, please change the file name, password protect it and email it.
3. A-1R: The reason for arriving at a particular answer also needs to be a critical element of the evaluation. JPMs must evaluate, not only the correct answer, but also the method or process of arriving at that answer. (This is the primary difference between an Admin JPM and a written exam question).
4. A-1R: RO “B” - There is not much plausibility for using the “one stop shop” when that position is not performing tasks within the control room. Suggest replacing “one stop shop” with being assigned as an extra RO to manually control feedwater at low power.
5. A-1R: RO “C” – Replace the work history dates and times as follows to enhance plausibility:
 - a. 01/01/2017 0600-2015
 - b. 01/10/2017 0600-2115
 - c. 01/20/2017 0600-2115
 - d. 01/30/2017 0600-1815
6. A-1S: Why is the license issue date meaningful to the JPM when they are all active at the beginning of the year? Discuss.
7. A-1S: Make same change for RO “A” as was suggested for RO “A” on A-1R.
8. A-1S: Make same change for RO “B” as was suggested for RO “B” on A-1R.
9. A-2S: Last bullet in the Initiating Cue: I believe the cue should tell the applicants to determine all of the REQUIRED ACTIONS instead of having them determine the APPLICABILITY.
10. A-3S: NUREG-1021, ES-301, Page 9 of 31, states that SRO applicants need to have two Conduct of Operations JPMS and only one Equipment Control JPM. This JPM needs to be replaced with a Conduct of Operations JPM.

11. A-3R: Similar to the SRO JPM, RO applicants are not permitted to have two Equipment Control JPMs. This JPM needs to be replaced with a Conduct of Operations JPM or an E-Plan JPM.
12. A-4R: Enhance the Initiating Cue by asking for the “maximum” stay time.
13. A-4R: How is transit time addressed in the JPM? Enhancements may be required to solicit one and only one answer.
14. A-4R: The answers all appear to be stated in minutes, when the correct units may be “hours”. (10 **hours** / 5 **hours** / 40 **hours**)
15. A-4R: Is it clear that Location “A” is in a field of 2.1 mrem/hr, or could a competent applicant make a claim that the field was 1.4 mrem/hr?
16. A-4R: It looks like the intent of the JPM is to have the applicants do the exact same thing three different times, yet have nothing different for them to consider with each successive performance of the exact same task. JPM needs to be enhanced to have something different things to consider for each performance.
17. A-4R: Does your plant actually have unrounded Entry Dose Limits (or RWP Limits)? Most sites will have limits that are multiples of 5 or 10 mrem.
18. A-5S: Why are the applicants not completing the notification form? This is typically part of the task that involves the PARs.
19. The JPM does not adequately state the time requirements for completing the JPM. The JPM should provide clear criteria that the applicant has 15 minutes to make a classification and then an additional 15 minutes to complete the notification from the time the classification was made.

FINAL SAMPLE PLAN IS COMBINATION OF DRAFT SAMPLE PLAN AND ES-401-4.

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	022AA1.05	PSL doesn't have seal injection or backpressure regulating valves. There is no relation between Reactor Coolant Makeup and RCP seals. This KA will be rejected and replaced with: 022AA1.08
1/1	029EK3.08	PSL has no MSIV closure on an ATWS. This KA will be rejected and replaced with: 029EK3.12
1/2	024AA1.08	PSL has no Variable Speed pumps in addition to no seal injection. This KA will be rejected and replaced with: 024AA1.18
1/2	037G2.2.39	PSL doesn't have a < 1 hour TS for SGTL This KA will be rejected and replaced with: 037AG2.2.38
2/2	068G2.4.41	SRO Knowledge. This KA will be rejected and replaced with: 068G2.4.45
2/2	086 K6.04	SRO Knowledge. This KA will be rejected and replaced with: 002K6.06
1/2	003AK1.22	Replaced with the following randomly and systematically selected KA: 003AK1.19:
1/1	027AK1.03	Replaced with the following randomly and systematically selected KA: 027AK2.03
2/1	026G2.4.50	Replaced with the following randomly and systematically selected KA: 026 G2.4.31

SRO	EXAM	
1/1	057AA2.10	No input from AC electrical. Ovation is all DC with multiple backups This KA will be rejected and replaced with: 057AA2.06
1/2	024 G2.4.30	Discuss. PSL/NUREG-1022 doesn't have a requirement specifically for emergency boration. The question we have uses emergency boration in the stem but the answer is correct for 2 reasons. This KA will be rejected and replaced with: 069G2.4.46
2/1	008A2.07	PSL doesn't have low flow or pressure auto start of CCW pumps. We do have auto start of the C CCW pump based upon control switch position and AB common bus electrical alignment. This KA will be rejected and replaced with: 008A2.01
2/1	013G2.4.49	RO knowledge. This KA will be rejected and replaced with: 013G2.4.11
2/2	015G2.4.1	RO knowledge. PSL will try and write a question but the NRC is going to supply a new KA and we will discuss further. This KA will be rejected and replaced with: 015G2.4.31
3	G2.4.34	RO knowledge This KA will be rejected and replaced with: G2.4.12

Facility: ST. LUCIE		Date of Exam: 12/15/17		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>		
Item Description				Initial		
				a	b*	c*#
1. Questions and answers are technically accurate and applicable to the facility.				W	B	MB
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available. c. Correct answer explanation and distractor analysis provided (ES-401, D.2.g)				W	B	MB
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401				W	B	MB
4. The sampling process was random and systematic. (If more than four RO or two SRO questions were repeated from the last two NRC licensing exams, consult the NRR/NRO OL program office).				W	B	MB
5. Question duplication from the licensee screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate. ___ The audit exam was systematically and randomly developed, or ___ the audit exam was completed before the license exam was started, or ___ the examinations were developed independently, or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication, or ___ other (explain).				W	B	MB
6. Bank use meets limits (no more than 75% from the bank, at least 10% new, and the rest new or modified); enter the actual RO/SRO-only question distribution(s) at right.	Bank	Modified	New			
	17/5	2/1	56/19	W	B	MB
7. Between 38 and 45 questions of the questions on the RO exam and at least 13 questions of the questions on the SRO-only portion of the exam are written at the comprehension/analysis level (see ES-401, D.2.c); enter the actual RO/SRO-only question distribution(s) at right.	Memory	C/A				
	34/5	41/20		W	B	MB
8. References/handouts provided do not give away answers or aid in the elimination of distractors.				W	B	MB
9. Question content conforms to specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.				W	B	MB
10. Question psychometric quality and format meet the guidelines in Appendix B.				W	B	MB
11. The exam contains the required number of one-point, multiple-choice items; the total is correct and agrees with the value on the cover sheet.				W	B	MB
Printed Name/Signature					Date	
a. Author	SEAN WYLIE / [Signature]				12-5-17	
b. Facility Reviewer (*)	TERRY BENTON / [Signature]				12-5-17	
c. NRC Chief Examiner (#)	MARK A. BATES / [Signature]				12-15-17	
d. NRC Regional Supervisor	Gerald J. McCoy / [Signature]				12/15/2017	
Note: * The facility reviewer's initials or signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initials items in Column "c"; chief examiner concurrence is required.						

Q	1.	2.	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8. Explanation
	LOK (F/H)	LOD (1-5)	Stem Focus	Cues	T / F	Cred. Dist	Partial	Job- Link	Minutia	# / Units	Back ward	Q – K/A	SRO Only	B, M, N	U, E, S	
																General: After all comments are resolved a verification of LOK will need to be done to ensure the requirements are met.
																General: It is not wrong to capitalize ONE in your question statements; however, it is not a requirement. I understand the NUREG leads one to believe that this is what is required, but everyone taking this test knows that there is only one answer. My suggestion would be to reserve accentuating items in the stem which you do not want the applicants to miss or read over. No change requested – just FYI.
																General: Review stats for questions from previous two exams to ensure requirements (4 RO and 2 SRO) are met.
RO																
1	F	1/2 2				X								N	<u>U</u> S	008G2.1.28 Credible Distractor: "A" and "B" are not plausible. These are processes that rely on fluid properties to change based on changes in temp and pressure. Even without knowledge of physical relief path, these would not be plausible. Compared to an audible indication or a limit switch indication, these types of choices do not retain much credibility. Q replaced. One possibility would be to write a two part question with one part using answer choices "C" and "D" similar to what has already been written. Then a second part could be added that relates to that first half. Incorporated. Q now SAT.
2	F?	2				X	x							B	U U S	011EA1.03 LOK: This question could be classified either as F or H. No changes needed at this time. This can be revisited at the end if need be. OK Partial: How is "C" wrong? They may have 10 minutes to secure the RCPs, but doing it sooner seems like it would be correct – with a SIAS, it would not be an expectation that operators wait the entire 10 minutes before stopping pumps. One could even argue this from the other direction and conclude that it is not plausible due to this choice being time-dependent (in that they have time to get CCW back), yet the stem does not present time info. Q revised. Credible Distractor: What information in the stem would be needed to analyze whether "A: Inadequate NPSH" is correct or incorrect? If the information needed to analyze this answer choice is not present in the stem, then this cannot be a plausible answer choice. Q revised. Q now SAT.

3	F	2											N	E S	<p>015 AK2.08</p> <p>If the reason that Seal cooling is not the answer in Q2 is that it does not need to occur for 10 minutes, then information from Q3 can be used to eliminate that answer in Q2. Q2 revised.</p> <p>Need to enhance the question statements to ensure that no subset issues exist with the times provided in the distractors. Also, actions should be tested "in accordance with" a procedure. Suggest: 1-AOP-01.09A1 directs RCPs to be tripped (Immediately)/(within 10 minutes) if CCW is lost and to isolate CBO if CCW is lost for greater than (10)/(30) minutes. By essentially regurgitating what the procedure states, you can address the subset issue and resolve the comment for "law procedure". Incorporated.</p> <p>This question is sat on its own merit, but it was designated with an "E" to ensure that the overlap concern is evaluated. OK</p> <p>Q now SAT.</p>
4	H	2	X			X							B	U S	<p>022AA1.08</p> <p>Note: Similar to Q on 2011 exam.</p> <p>Second Bullet has a typo: "in in" Corrected.</p> <p>Please provide more information on how you are calculating leakrate and if any assumptions are made for charging flow. Included.</p> <p>When performing the calculations for the correct answer and for the distractors (by applying the stated misconception) we do not get answers that fall within the stated ranges for the correct answer or the distractors. This creates issues with credibility of distractors and brings into question whether a correct answer exists. Corrected.</p> <p>Q now SAT.</p>
5	F	2											N	S S	<p>025AG2.2.22</p> <p>Q SAT.</p>

6	H	2			X								N	E/ Q S	<p>026AG2.4.35</p> <p>Credible Distractor: A(1) and B(1) are not plausible. It does not make sense that fire water would be used before attempting at least one contingency action to refill with clean water. Possible solution: Test whether the first contingency action, after verifying that 14-1 is not working correctly, (IS)/(IS NOT) to establish flow through V14103 iaw 2-AOP-14.01. This will avoid the comparison between an alternative method for putting clean water from the normal source and dirty water from a backup source as the first alternative to fill the tank. Enhanced.</p> <p>I do not see a discussion of why FOUR valves automatically closing is a credible, but incorrect choice. It may be OK, but the discussion does not explain it. Added.</p> <p>Q now SAT.</p>
7	H	2			X								N	U S	<p>027AK1.03</p> <p>Credible Distractor: B(2) is not plausible. With a fully open spray valve, condensation makes no sense to limit the pressure change. Q replaced.</p> <p>Credible Distractor: C(2) is not plausible. With a fully closed spray valve (Full ON Heaters), vaporization makes no sense to limit the pressure change. Q replaced.</p> <p>One way to test the KA may be to put them in a situation where they need to start an RCP when the pressurizer is not at saturation. Q replaced.</p> <p>From an operational validity standpoint, what if an operator knows how the plant responds yet gets the terms confused. I think there is a more operationally valid item to test in part 2. Q replaced.</p>

8	H	2			X	x							N	U S	<p>029EK3.12</p> <p>Why is there a bullet that states multiple RPS bistables are lit. Wouldn't the RPS bistables be lit as a result of the pump trips? If so, this may be unnecessary information. Deleted.</p> <p>Credible Distractor/Partial: How is "reduce the heat input to the RCS" EVER wrong when it pertains to the reason for rods inserting on a rx trip? This is such a generalized statement, that it could almost never be wrong. Furthermore, looking at the second part of the answer choices from the opposite angle, one could argue that rods need to be in to protect against damage to a fission product barrier, even to protect against damage to the cladding. In other words, if you can lower the heat input, you can better protect the fuel. The cladding would never be in jeopardy at any time during its life if it were not for heat. Revised.</p> <p>Testing the reasons for actions does not limit you to testing the basis for an action as stated in CEN-152. Options include things like: operators perform an action because they reached a specific setpoint or plant condition. Noted.</p> <p>Q now SAT.</p>
9	H	2		x									N	U E S	<p>038EA2.12</p> <p>Q statement states, "If the RCS cooldown is continued...." But it does not provide a magnitude for how far or how fast. To ensure there is a correct answer, the question must specifically provide plant conditions that will result in MSIS. Modified.</p> <p>Cue: Placing "Interposing Relay Signal" in the answer choice is a big cue to how to answer the first part of the question. The interposing relay knowledge is already implicitly being tested in the first part. Recommend testing something different in the second part. Modified.</p> <p>The sentence structure introduces a lack of precision that could be used to argue "no correct answer." The MSIS and Interposing Relay Signals both do not cause both 1A and 1B to close. Modified.</p> <p>In many cases it is cleaner to test the differences in the choices. What I am saying is that every answer acknowledges that 1B MSIV is closed. What makes the first part choices different is whether 1A closes. By boiling the answer choices down to the bare minimum for what makes them unique also allows for issues to be more readily identified. Incorporated.</p> <p>Q now SAT.</p>

10	H	2		X	X								N	<u>U</u> S	<p>054AA2.04</p> <p>The distractor analysis states that Unit 1 timing is set at 210 seconds and ONLY AFAS-1 initiates due to a 235 second time delay. Does 210 seconds apply to Unit 1 or Unit 2? I am confused reading this justification. Explain the system design and the justifications. Enhanced.</p> <p>Credible Distractor: If the "A" and "B" valves are open on an auto signal with no failures, one would expect all equipment to be running. Why would it be plausible to have a misconception that the "B" pump would not be running? Modified.</p> <p>The most logical plant design feature that could be used to enhance plausibility is the difference between units wrt the time delay. I see no explanation of why the distractors may be plausible. I was confused with the justification. Modified.</p> <p>Does any of the supporting documentation supplied with the question explain why only two AFW pumps start? Why are three starting plausible? If pumps and valves are train/channel specific, then would it makes sense that only the "A" header would open, yet ALL the pumps would start. Modified.</p> <p>This question has been preliminarily rated as "U" due to difficulty in assessing how the supporting documentation proves correctness of the answers and plausibility of the distractors. Modified.</p> <p>After assessing the above comments, the question either needs to be enhanced, the documentation needs to be enhanced, or the question needs modification, or maybe some of each. Modified.</p> <p>Q now SAT.</p>
11	H	2											N	<u>E</u> S	<p>056AK1.03</p> <p>This is the site-specific written exam, yet the question has been written as a purely GFE question. The question needs to be written to test some site-specific operational implication of subcooling. Possibilities may be at what pressure to maintain the good steam generator to stabilize RCS temp after a faulted SG blows dry, among other things. Q modified.</p> <p>Q was rated as "E" but replacement or significant modification may be needed. Q modified.</p>
12	H2 F	2											N	<u>E</u> S	<p>057AA2.20</p> <p>This question does not appear to be higher cog. It looks like the only knowledge needed to answer the question is that the Isolimiter only exist on Unit 2 and an electrical interlock does not exist for supplying alternate power to the Instrument Buses. Changed.</p> <p>Q now SAT.</p>

13	F? H	2		X										N	<u>U</u> S	<p>058AK1.01 Is this a memory level question? It appears that some amount of analysis needs to occur. Changed.</p> <p>Credible Distractor: A(1) Voltage rising does not appear to be credible. Modified.</p> <p>Credible Distractor: B(2) and D(2) Amps lowering does not appear to be plausible. Plant conditions changed so that a specific bus, which was once being supplied by two BCs, is now being supplied by one BC – how is the current going down plausible? Modified.</p> <p>Q now SAT.</p>
14	H	2												B	<u>S</u> S	<p>062AK3.01</p> <p>Q SAT.</p>
15	F	2												B	<u>S</u> S	<p>065AK3.08 Why is the last bullet in the first set of conditions provided? Is it possible for 1-EOP-99, App H to be completed without these air compressors running? Removed.</p> <p>Q SAT.</p>
16	F?	2												N	<u>E</u> S	<p>077AK2.06 Is this a memory level question or does it involve some analysis? Discussed. No change.</p> <p>Q SAT.</p>
17	H	2												N	<u>S</u> S	<p>CE02EA1.3</p> <p>Q SAT.</p>

18	H	2			X								N	<div> <div>E/ U</div> <div>S</div> </div> <p>CE05/EK2.1 A(1) and B(1): "via ASGT" appears to be unnecessary. It should be deleted unless it is needed to ensure one and only one correct answer. Incorporated.</p> <p>I do not see any documentation or any justification in the distractor analysis that would indicate that the distractors are plausible. What is the credible misconception that would lead an applicant to pick any of the distractors? Are there any unit differences that would cause a particular distractor to be correct? Is there a plant parameter that, if slightly different, would lead to a different answer being correct? Enhanced.</p> <p>Changes may be needed depending on the resolution to the above comment. Modified.</p> <p>Would containment pressure > 3.5 psig make a better question due to unit differences? Modified.</p> <p>Q now SAT.</p>
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19	H	1	X			X						x		N	U E S	<p>003AK1.22 It appears that the distractor analysis for "A" and "B" are reversed. KA Replaced.</p> <p>Credible Distractor: When performing the calc using the stated misconception for "D", I get a different value of 156.82 gallons. Double check the calculation and correct the documentation if needed and then explain the credibility of the distractor. KA Replaced.</p> <p>Credible Distractor: Using the "B" tank is not plausible with the "B" BAMP OOS. What aspect of the plant design would cause someone to think that given two tanks, "A" and "B", and two pumps, "A" and "B", I will assume that the "B" pump takes suction from the "A" tank, and vice versa? A better way to create plausibility may be to fail a power supply – then depending on that analysis, maybe that could disable the "B" pump, rather than bluntly stating the pump is OOS? KA Replaced.</p> <p>Credible Distractor: The Stem clearly states Unit 2, so how is using Unit 1 volume plausible? KA Replaced.</p> <p>Stem Focus: The question statement should be worded in a more operationally valid manner. Would an operator in the control room ask how many gallons of BAMT needs to be added or would they ask for the amount of boric acid to account for power defect? Also, are they adding 159 gallons of acid, or are they adding 159 gallons of BAMT water, which contains 5555 ppm acid? Make sure the question statement is technically accurate. KA Replaced.</p> <p>Stem Focus: CEA #52 was dropped, yet the question is asking for reactivity to counter the power defect and the provided reference has them calculate the most reactive rod stuck, not CEA #52, and not power defect. This appears in to be inaccurate and arguably none of the answers support the question being asked. KA Replaced.</p> <p>K/A Match: It appears that the Q requires them to calculate the volume of BAMT water to balance the reactivity of the dropped rod. This does not appear to be power defect – it appears to be rod worth. KA Replaced.</p> <p>Q now SAT.</p>
20	H	2										x		N	U S	<p>005AK3.06 K/A Match: The K/A requires knowledge of EOPs, not AOPs, for inoperable or stuck rod. The question is soliciting information directly from AOP-02.02, verses an EOP, such as EOP-1. There are EOP actions in addition to emergency boration, including stopping a cooldown if CEAs are not inserted. Modified.</p> <p>Q now SAT.</p>

21	F	2			X							B	<u>S</u>	<p>024AA1.18</p> <p>Credible Distractor: "D" relies on pumps from two different trains to meet a safety function, which is not plausible. Corrected</p> <p>Credible Distractor: "A" relies on letdown flow, which is not even a boron flow rate limit that they would operate to even with slightly different plant conditions. Corrected</p> <p>Suggest using 40 gpm and 44 gpm for the first half of the question and then develop a second half that fits with the first. Incorporated</p>
22	H	2	X		X	X						N	<u>S</u>	<p>032AK2.01</p> <p>Stem Focus: The switch position is not listed in the stem. It appears that one needs to make an assumption for switch position in order to know that the detector should have automatically shut off. Is it possible to place them at a step in the GOP where the procedure would have ensured that the switch was in AUTO on a previous step? Incorporated</p> <p>Partial: I have seen failures at various plant where a detector fails to zero. Is failing to zero not operationally valid at your plant, and why? Otherwise, if it is possible for a SR NI to fail to zero, there are multiple correct answers. Corrected</p> <p>Partial: No procedure is referenced in the stem. Why would it be wrong for operators to call I&C? Corrected</p> <p>The question is testing what an operator "will" do. No one knows what an operator will do. At least on some of your other questions you had a question statement that referred to doing an action iaw a procedure of some sort. This question makes no reference to a procedure, so it's anyone's guess what someone "will" do. It is usually best to script a question to solicit what an operator is "required" to do iaw a specific procedure. Incorporated</p>

23	H	1				X								N	E/ U S	<p>037AG2.2.38</p> <p>Why are you testing whether tube leakage is technically considered to be identified leakage when you have tech spec action statements that speak directly to primary to secondary leakage. If the primary to secondary leakage actions are always more restrictive than the identified leakage actions, then what is the reason for testing part one? How would it benefit an operator to know the answer to the first part of the question beyond just knowing that there is secondary leakage? Is the operator who knows the pri-sec specs any less of an operator than the one that knows that it's technically also identified leakage? Incorporated</p> <p>There may not be a correct answer. For leakage to be identified you need to know where it is coming from. Given the conditions in the stem, there is no way to even identify which SG may have the leakage. There may be an argument that would indicate that there is not enough information in the stem to solicit a correct answer. The tech spec definition states that leakage through "a" SG is identified. Is it still identified leakage if it is through both SGs or if you cannot diagnose from which SG has the leakage? Q modified.</p> <p>Credible Distractor: "D" is not credible because of the interplay between the first and second parts of the answer choices. Having pressure boundary leakage and still meeting the LCO conditions is not plausible. Corrected.</p>
24	H	2												M	E S	<p>061AA1.01</p> <p>Distractor analysis for "B" and "C" states that 2/3 logic is met on train B by two detectors in high as indicated by the Red status on GAG-008. Does a red indication on GAG-008 indicate a 2/3 logic on B train? Analysis enhanced.</p> <p>Credible Distractor: "D" - No supporting documentation was provided to support this choice as being plausible. I need to see documentation for the control room radiation monitors and how they are designed in order to evaluate the plausibility of "D". Some enhanced explanation with lesson plans would be helpful. Enhanced.</p>
25	F	2												N?	E S	<p>067AK1.02</p> <p>Question history states that this was written for the 2015 NRC RO exam. Why is the question designated as New? Typo – meant to be 2017.</p> <p>Can question presentation be simplified? Some of the words such as Primary Water and Fire Header seem to be unnecessary according to the supporting documentation. Discuss.</p> <p>Consider: Unit 1 (DOES)/(DOES NOT) have hose stations inside containment. Unit 2 (DOES)/(DOES NOT) have hose stations inside containment. Incorporated</p>

26	H	2				X								N	E S	<p>068AA2.06</p> <p>Credible Distractor: "B" is not plausible because of the interplay between the first and second half of the answer choices. In other words, it does not make sense to maintain RC pressure with only 3F SCM. Would it make sense as a possible fix to test in part 2 whether RCP operation can continue? That was you would avoid the problem stated in this comment. Corrected</p> <p>Just to be sure – you are proposing to only provide the figure, not the entire procedure – is that correct? Yes</p> <p>Question statement: Discuss using the following – "Which one of the following describes the status of Unit 2 subcooling and the appropriate action in accordance with 2-ONP-100.02? Incorporated</p>
27	F? H	2	X											N	E S	<p>CE09EK3.4</p> <p>Question appears to require analysis to arrive at the answer. Corrected</p> <p>What information have you provided with this question that proves to me that RTGB-203 is within the area that is the responsibility of the Board RCO? This is what you provided, "Following implementation of EOP-01, the Board RCO should perform required actions in the vicinity of RTGB 105[205] to the AFW station on RTGB 102[202]." No mention is made of where RTGB-203 may be located – no control room layout provided, etc. This leaves the reviewer to research the control board layout or make an assumption, which this reviewer is not willing to do. This comment will likely get resolved through the comment resolution process. Documentation enhanced</p> <p>This is a Unit 1 question. The distractor analysis mentions RTGB-203. Is RTGB a unit 1 or unit 2 control board? Q changed to Unit 2.</p> <p>Based on the above quoted procedure guidance, there is no true requirement to have the Board RCO address RTGB-202 to 205, it is only a recommendation stated using the word "should." If you want to test a "should" recommendation, then it is necessary to test exactly what the procedure states, rather than trying to test it as a requirement, which is not supported by the procedure. When procedure "should" statements are being tested, it is usually safer to have the question ask for a verbatim regurgitation of the "should" statement, and in this manner you can test what the procedure states rather than testing it as a requirement that does not really exist. With the current question construction, this may be a tough retrofit. In reality, the unit supervisor will make a judgment on RCO availability and make the assignments. With a legal exam like this, there must be certainty that there is one and only one correct answer. Documentation enhanced</p>

28	H	2									x		N	<u>S</u> 003A2.03 KA statement in the Q documentation appears to be incomplete. Corrected Does any of the highlighted supporting documentation state that they are procedurally required to verify the reactor tripped automatically? Provide documentation that supports the correct answer. Documentation enhanced. K/A Match: The K/A requires testing knowledge of how to use procedures to correct, control, or mitigate the consequences of an RCP motor issue. No procedure knowledge is required to answer this question. The question can be answered by diagnosing a sheared shaft and then diagnosing whether the reactor was designed to automatically trip with the given conditions. The question does not require knowledge of how to mitigate correct, or control the consequences of the RCP motor/pump issues. (The question does not really contain a motor problem, however, the sheared shaft is diagnosed, in part, by observing motor amps – perhaps that aspect is close enough, but procedure knowledge to correct, control, or mitigate still needs to be addressed.) Consideration: Do procedures require tripping the RCP? Consider the following: Which one of the following describes whether the reactor auto trips and the correct actions for the RCP in accordance with “said procedure?” The reactor (DOES)/(DOES NOT) automatically trip. The crew is directed to trip RCP 1A1 (BEFORE)/(AFTER) the reactor trip has been verified. Modified to meet KA. When testing procedure actions, it is best to tie the tested actions directly to the procedure. I.E. Trip the RCP in accordance with “said procedure.” Incorporated The distractor analysis attempts to discuss why the correct answer is plausible. This is confusing. Analysis should discuss why it is correct. The analysis speaks to ZPMB being bypassed iaw GOP-302, but the pre-criticality checklist seems to ensure that the bypass is OFF, which is providing some confusion. The analysis also speaks to auto unbypass occurring at 1%, but critical data is taken at a much lower power level than 1%. How does unbypassing at 1% impact the correct answer? Enhanced
29	F	2											N	<u>S</u> 003K4.07 The question statement may need a slight revision. Does the 10 gpm limit apply to the bleedoff from a single RCP? If so, and it is not a collective bleedoff flow, then consider the following: Which one of the following describes the design feature that limits the amount of controlled bleed off (CBO) flow from an RCP? Incorporated

30	H	1/2				X								N	E S	<p>004A4.13 Credible Distractor: "C" is not credible due to the interplay between the first and second half of the distractor. With VCT level remaining the same, it makes no sense for pressure to be rising. I see very little analysis in the distractor analysis to really document how the choices here and in other questions are truly plausible. Yes, RISE is the correct answer for pressure behavior, but that is coupled with an increasing level in the correct answer. So the real question here is, how does RISE potentially make sense (with a common misconception) when level is constant? Q modified</p> <p>You can meet the K/A if you test either pressure or level. Consider: testing at what level the system will divert (assuming there is a correct value and a plausible alternative – maybe 88% and 92%) and then maybe test when the diverting will stop (88% vs 83%)? Incorporated</p>
31	F	2												N	E S	<p>005K4.07 I did not see any documentation to support 350 psia as a plausible distractor. Please provide documentation. Incorporated</p>
32	F	2												B	S S	<p>006K2.04 Note: used on the 2009 NRC RO exam. noted</p>
33	F	2											x	N	E S	<p>006K6.05 SRO-only: The question is asking the RO applicant to make an operability determination based upon ADM-11.16 guidance. Is this consistent with the operability determination questions that appear on the SRO exam? At your site, which operability determinations are made at the RO level and which ones do you reserve for the SROs? Per conversations, the Tech Specs associated with ADM-11.16 have been asked as closed book questions on the SRO exam. From a consistency standpoint, I need to understand where the line is at your site for what is considered RO and SRO as it pertains to tech specs and operability. Q modified</p> <p>Teaching in the stem: The question statement teaches them that the loss of 2A CCW Essential header will cause a loss of seal cooling water. Discuss deleting his info and making the question statement similar to: Which one of the following ECCS pumps is impacted by the loss of the 2A CCW Essential Header? Corrected</p>

34	H	2	X									x		B	<p>E</p> <p>007K5.02 Note: used on 2014 NRC RO exam. noted</p> <p>S</p> <p>Two issues with telling applicants to assume 100% quality steam: 1. NUREG-1021, Appendix E, instructs the applicants not to make assumptions. 2. If the steam is not actually 100% quality, then it is not operationally valid in that this condition would not exist in the plant. Evaluate how the question is impacted by deleting the direction for them to make the assumption. Keep in mind that conditions for the applicants to evaluate should be readings, configurations, etc that are available for analysis when they are actually doing the job for which they will have a license. If a parameter that you are providing does not exist in the plant, then you should question why it is in the question. Corrected</p> <p>The second part of this question tests almost the same thing as Q23. This may present some concerns for double jeopardy. It may be better to avoid testing something so similar. Q23 modified</p> <p>K/A Match: How is the question testing operational implications for forming a steam bubble? I see that the K/A Match was allowed for the 2014 exam for the same K/A, so I will allow the K/A match here due to the justification provided on that exam. noted</p> <p>See Q36 comments. noted</p>
35	F	2												N	<p>E</p> <p>008A3.05 No mention in the distractor analysis of why the distractors are considered to be credible. Discuss why the distractors are plausible and provide supporting documentation. Analysis enhanced</p> <p>S</p>

36	H?	2									X?		N	<u>E</u> <u>U</u> S	<p>010K5.01 Heatup and cooldown rates are misstated in the question. The limits are stated in degrees F change in ANY ONE HOUR – the answer choices are stated in a PER HOUR format, which is not technically correct. The PER HOUR rate can be exceeded and then the operators can soak to avoid not exceeding the one hour limit. Question can likely be modified to correct this. Q replaced</p> <p>Distractor analysis states temp magnitudes vs. temp change in any one hour. Q replaced</p> <p>Operational Validity: Will an operator in the plant, when performing this evolution, ever use steam tables while implementing the procedure? It appears that the procedure will tell them where to control pressure and where to control temperature. Operators are likely just going to follow the procedure, rather than use steam tables. Q replaced</p> <p>If an applicant knows the procedure, then steam tables are not needed and question is answered using lower cog thought process. Q replaced</p> <p>Option: You could likely change the first part of the question to test the control band provided in the procedure and use this question for Q 34. Q replaced</p> <p>At Westinghouse plants, you need to verify saturation conditions in the pressurizer before restarting an RCP. If your site has similar verifications, this would be a good way to test operational implications of pressurizer conditions by using steam tables. Q replaced</p>
37	F? H	2											B	<u>E</u> S	<p>012K2.01 Question appears to be “H” LOK. changed</p> <p>The documentation for the question does not contain many details of how and why the correct answer is correct. Which trip function is impacted, TMLP? Analysis enhanced</p> <p>The analysis for “C” states that “this” is bypassed. Please explain further and provide supporting documentation. Analysis enhanced</p>
38	H	2											B	<u>E</u> S	<p>013K6.01 Justification for the answer choices states that MSIS will actuate. Is this statement correct? yes</p>
39	H	2											N	<u>S</u> S	<p>022A1.04 First bullet in subsequent actions may only need to state that a LOOP occurs on Unit 2 because the trip would occur as a result of the LOOP. For this question it may not have an impact, but care should be taken when including additional info to ensure that it not only doesn't adversely impact this question, but also does not impact other questions. noted</p>

40	H	2	X											N	U E S	<p>022K4.04</p> <p>Would second question be more accurate if it stated, IF CEDM Fan Cooling is NOT restored within 45 minutes of being lost, a ____ (2) ____ is required? Incorporated</p> <p>Does temperature need to be greater than 80 F in order for the fan to start on Unit 2? Are the applicants forced to make an assumption on air temp? If so, the stem does not contain enough information to solicit a correct answer. The following was copied from the attached lesson plan: The standby fan cannot be started if the other fan is running. The standby fan will auto start on a low flow condition after a ten [30] second time delay or a failure of the running fan. [On Unit 2, the CEDM cooling fans also require air temperature to be greater than 80 °F for a fan start and will trip if air temperature is less than 80°F. Temp added</p>
41	H	1/2				X								N	U S	<p>026G2.4.50</p> <p>Credible Distractor: "B" and "C" are not credible because of the interplay between the first and second half of the choices. With a valid signal, it is not credible that an operator would be required to secure a running train with a red indicating light. With an invalid signal, it is not credible that an operator would be required to secure a non-running train with a green indicating light. Q modified</p>
42	F	2	X											N	E S	<p>039A1.06</p> <p>Distractor analysis for "A" states that 4 MSSVs would be open but the total number is 8. Is this statement correct? Yes</p> <p>Analysis for "B" states that the total number is 8, just as stated above for the "A" analysis. Should the analysis state that the total number open is 8? OK</p> <p>Is there enough information provided in the stem to solicit a correct answer? The question does not state whether there was an MSIS. In order for the SG pressures to exist as written, would MSIVs have to be in the closed position? If so, is there enough information to conclude that they are closed? Stem modified</p>
43	F	2												N	S S	<p>039K1.05</p>

44	H	2				x								N	E S	<p>059A2.04</p> <p>Question statement should solicit the actions in accordance with a procedure. I.E. Which one of the following describes the required actions iaw EOP-06 and the feed rate restrictions iaw EOP-06? (Note EOP-06 was placed in both parts of the question statement in order to ensure that it belongs to both parts, otherwise, one can assume that it may only correspond to the second part) Not sure that there is a huge impact either way for this Q, but it is a good practice because challenges occur in the post exam environment where an applicant can argue that an action may be correct iaw a different procedure. Limiting the scope of what is being tested is a good practice. Incorporated</p> <p>Credible Distractor: C(1) and D(1) are not plausible because it is not a common misconception that both would need to be met to meet a safety function. The pre-submittal comments suggesting to test ONE or BOTH were not intended with respect to meeting a safety function. The intent of the comment was to test whether procedures directed operators to initially feed both at the same time or to initially just feed one. Question was rated as "E" so as not to penalize for any miscommunication on my part. I think the following fix may work well. Q modified</p> <p>One possible thing to test may be when those more restrictive rates can be raised after 5 minutes. I.E. 1-EOP-06 (DOES)/(DOES NOT) allow those rate limits to be raised after feeding for 5 minutes. Q modified</p> <p>Using the above question, you could also make both SGs the same level so that no one is tempted to make an assumption as to why one is much lower than the other. Q modified</p>
45	H	2												M	E S	<p>061K1.04</p> <p>Note: Modified #44 on 2014 NRC RO exam. noted</p> <p>(Assume NO operator action) is not needed because Appendix E prohibits assumptions. However, if you really need to emphasize it, then state it as a fact, a condition, not an assumption. corrected</p>
46	F	2												B	E S	<p>061K6.02</p> <p>Does the board indication actually have the words "closed" or does it just have a green light? The answer choices should describe the indications as displayed in the plant, so if the indication says closed, it is OK to leave the wording as is. Corrected</p>
47	F	2												B	E/ U S	<p>062A4.07</p> <p>Can both answers for the second part be argued as correct? 2nd part modified</p>

48	H	2												B	<u>E</u> S	<p>063A3.01 NOTE: Bank Q from the 2014 NRC RO Exam. noted</p> <p>Suggest the following for the question statement: Which one of the following describes a Main Control Room indication that can be used to determine that the 1A vital DC bus is powered from the associated battery and not from the associated battery charger? Incorporated.</p> <p>Can the extra info in "C" be eliminated? I.E. "A white light above the 1A DC Bus voltmeter on RTGB 101 is lit." Incorporated.</p>
49	F	2					x							N	<u>E</u> S	<p>064K2.01 Partial: The distractor analysis for "C" states that LC 2A2 feeds MCC 2A7. Does this create a possible second correct answer? If so, some minor wording modifications can likely ensure any alternate correct answer argument is addressed. "Directly" added.</p>
50	H	2												N	<u>E</u> S	<p>064K3.01 The question stem indicates that the 1A EDG output breaker must be manually closed. The question fill-in the blank statement indicates that AFW pumps (plural – multiple pumps) start. Is this question being asked if the pumps start 15 seconds after AFIS actuation or 15 seconds after the EDG output breaker was closed? It is not clear as to the point in time that the question is testing this info. Does the 1A EDG power more than one AFW pump as indicated by the question? Clarified in stem</p> <p>A similar concern as above for the second part of the question. Is the question being asked after the EDG output breaker was closed? Clarified in stem</p> <p>If necessary to address the above, ask the question wrt a specific time. I.E. AFW pumps start _____ after their respective EDG breaker closes. The associated motor driven AFW pump control valves will then _____. Intent incorporated.</p>

51	F	2			x					x		N	<u>S</u>	<p>073A2.02</p> <p>There is not much detail about the rad waste release. Does it matter which tank is being released. Is it possible that forcing applicants to make an assumption could cause there to be no correct answer or multiple correct answers? Q Replaced.</p> <p>Credible Distractor: In an attempt to understand the distractor analysis for "A", are you trying to say that an applicant may not know that a detector failure will cause V6565 to close because they may think that the detector fails low? If this is the basis behind your justification, did you consider the fact that the question tells the applicant in the very next bullet that the HIGH alarm has actuated. With a high alarm being stated, the credibility of the valve not closing seems to be damaged. Q Replaced.</p> <p>Credible Distractor: "C" also appears to not have a sufficient amount of plausibility. A High alarm has announced – it says so in the stem. With a high alarm being stated, the credibility of the valve not closing seems to be damaged. Q Replaced.</p> <p>The question documentation includes no information to show why "A" and "C" might be plausible choices. Q Replaced.</p> <p>K/A Match: The K/A requires knowledge or procedures to correct, control, or mitigate.... If the FCV auto closes, then the applicant does not need to have any procedure knowledge to answer the question. Q Replaced.</p>
52	F	2										N	<u>S</u>	<p>076K3.05</p> <p>K/A Match accepted due to plant design for RHR components being cooled by CCW, vs. SWS. Noted</p>

53	F	2			X								N	<u>U</u> <u>S</u> <p>078K1 .04</p> <p>Credible Distractors: A(1) and B(1) appear to not be plausible because CCW system typically cools potentially contaminated systems. How is it reasonable for an applicant to think that CCW is cooling air compressors? If you have other air compressors that are cooled by CCW, which would add credibility to these distractors, then supply supporting documentation for that. Is there another cooling water supply that could be used? Could the question be written such that it is asking whether TCW (DOES)/(DOES NOT) supply emergency cooling water flow? OK</p> <p>Credible Distractors: B(2) and D(2) may not be plausible because it is unusual to speak of cooling water flow "starting". Typically it would be stated that cooling water would be automatically aligned, or a standby pump might automatically start. The wording appears to be a little unnatural in these distractors. Discuss. Modified</p> <p>No discussion or supporting documentation is supplied to justify why an auto alignment of backup cooling water is plausible for air compressors at your site. Modified</p> <p>Unit 1 or Unit 2 is not mentioned in the question. Does not specifying a unit impact the question in any way? Unit now specified</p> <p>Consideration: Can you use Unit 1 Containment Air compressors in any way to enhance the question? Modified</p>
54	F	2			x								B	<u>U</u> <u>S</u> <p>103 A4.06</p> <p>Note: 2014 NRC RO Exam #55 noted</p> <p>Credible Distractor: No explanation or justification is provided to support a 2-NOP-68.01 (or Tech Spec which is the same as the procedure) Mode of Applicability for Modes 1-4, Not Mode 5, but Applicable again for Mode 6. How does this make sense? Q modified.</p>

55	F	2	x		x								N	<u>E</u> S	<p>103 G2.4.45</p> <p>Stem Focus: The question asks for which alarm WILL be addressed first. How do we know which alarm will be addressed first? Unless you can tie the answer to a procedure so that you can ask which alarms IS REQUIRED to be addressed first in accordance with said procedure, then there is not correct answer, or arguably multiple correct answers. Therefore, if there is a procedure that directs operators to respond to red alarms first, then solicit the information iaw that procedure. Incorporated.</p> <p>It is a bad procedure writing technique to test what an operator WILL (or might) do. A question writer should always approach a question from the perspective of what an operator IS REQUIRED TO do in accordance with the approved plant procedures. Whenever this cannot be done, extra scrutiny must be paid to ensure the question is still valid and will withstand challenges. Addressed.</p> <p>Credible Distractor: Would it be possible to replace the particulate indications with subcooled margin indicateion? This may provide a little more plausibility to RCS Leak. OK as-is.</p>
56	F	2											B	<u>S</u> S	001 K2.05
57	H	2											N	<u>E</u> S	<p>011 K4.06</p> <p>I see no supporting documentation for "Position Limiter Bypass Switch is in NORMAL." Is there a lesson plan that contains information that states how the two positions on the switch are labeled? The CVCS lesson plan was consulted to confirm the 29 gpm low limit; however, no information was found to support a switch position labled NORMAL? Documentation enhanced.</p>
58	H	2											B	<u>E</u> S	<p>016 K1.06</p> <p>Delete the "assume no operator actions taken" or state it as a fact in the stem to re-inforce the fact. NUREG-1021, App E, instructs applicants to not make assumptions. Corrected</p>

59	F	2	x		x								N	U E S	<p>028 K5.01 The question statement should ask for the equipment to be used to lower hydrogen concentration during a LOCA "in accordance with EOP-03". Incorporated</p> <p>The question is asking for the "explosive limit" for hydrogen. The attached supporting documentation states a percentage of hydrogen concentration for which "combustion" can occur. Documentation will need to be supplied that supports the answer as being correct. Corrected</p> <p>Credible Distractor: During a LOCA, automatic actions occur to isolate containment. How is it plausible to use the containment purge system to essentially vent that contaminated LOCA-atmosphere out of containment? Doesn't that contradict the purpose for having containment isolation? Purge is OK.</p> <p>No justification or supporting documentation has been supplied to justify Main Purge as being plausible. Documentation enhanced.</p> <p>Distractor Analysis for "B" and "D" states that <u>Mini</u> Purge is not used for reducing hydrogen concentration during a LOCA. OK, but what about <u>Main</u> Purge as is provided in the answer choices – is Main Purge used to lower hydrogen concentration during a LOCA? Documentation enhanced.</p>
60	H	2	x		X								B	E S	<p>029 A1.02 Dose rates are provided in the stem for the four channels of CIS monitors. The provided rates are quite high for containment, much higher than would be expected for fuel movement, but how do I know they are in high alarm? Do these indications ever change color? Documentation enhanced.</p>
61	H	2											N	E S	<p>033A2.02 Why was step 6 of 2-AOP-04.01 highlighted? Is there something in the highlighted text that pertains to the question? Corrected</p> <p>Thermal Overload reset does appear to be supported by the attached documents to be a correct answer. The ARP also has the operator "check the breaker closed." Is there any possibility that the breaker would need to be reset and closed in order to restore the pump? The purpose of this comment is to ensure that there is not arguably two correct answers. Analysis and Documentation enhanced.</p>

62	H	2				x								N	<u>S</u>	<p>035K3.01 Credible Distractor: Bleeding steam causing temperature to rise is not plausible. Modified.</p> <p>This question is purely a GFE question with no site specific knowledge being tested. One possible solution would be to provide a plant specific condition that will cause the ADVs to throttle open, rather than just stating that they open. This slight modification would make it site-specific, which would better meet the intent of the site-specific written exam. It may also help, depending on the change, raise the plausibility of RCS temp rising. Maybe manual control of ADVs is being used and the controller demand is increased, which may be enough to add a site specific element to be analyzed. Modified.</p>
63	F	2												N	<u>S</u>	045A3.05
64	H	2				X								B	<u>S</u>	<p>068G2.4.45 "D" not stated precisely enough to be plausible. The second sentence starts with, "If higher then the permit limit,..." If what is higher then the permit limit? – the level that was validated in the first sentence. I think I know what you mean to state, but words need revised to add clarity. Q modified.</p> <p>Credible Distractor: "B" may not be plausible. Does a pump being used in a similar function ever trip without a valve closing to isolate the flow? If so, it may be fine. A possible fix may be to have "B" state that the isolation valve automatically closes, but the pump does not auto trip. And "C" may be that the valve auto closes and the pump auto trips. Q modified.</p> <p>Could "D" simply state – iso valve does not auto close and pump does not auto close. It is never wrong to validate a permit, so I am not sure this adds anything to the info in "D". What "D" is really testing is that the release is not terminated automatically. Q modified.</p>
65	H	2				X								N	<u>S</u>	<p>002K6.06 Credible Distractor: Why would an applicant potentially have a misconception that would lead to believing that programmed level would be inversely proportional to Tavg? "B" and "C" do not appear to be plausible because of the interplay between the first and second half. Q modified.</p> <p>From an operator's perspective, is it important for the operator to know how a short impacts the RTD? Is there even a way for the operator to diagnose a short? Or is the important knowledge piece for the operator simply to know that IF an RTD fails low, programmed pwr level will lower. If no ability exists for the operator to diagnose a short and the operator would not use that piece of knowledge in operation of the plant, then it may not contain enough operational validity. Q modified.</p>

66	F	1				X								N	<u>U</u> S	G2.1.19 LOD is low due to prominence of the distractors. Major EOP actions are based upon ECCS flow, SCM, and SL Rad. Question idea may work with less prominent distractors so as to add plausibility. Can the question be asked for only CCW flow indication available to RCPs: A: Unit 1 and Unit 2 B: Neither unit C: Unit 1, but not Unit 2 D: Unit 2, but not Unit 1 Discussed and determined to be OK.
67	F	2				X								N	<u>U</u> S	G2.1.30 Credibility of C(1) and D(1): Most valves with controls in the main control room can also be operated in the field, therefore, these choices do not contain much credibility. Q replaced. Question seems to be testing a generic K/A in a manner that makes it an extension of a Tier 2 systems question, which NUREG-1021 prohibits, or at least discourages. Q replaced. Suggestion: Ask a generic question of allowances for waiving peer checks of independent verification for components in a high radiation area. This would be generic in nature, yet test very operationally valid knowledge for local operation of components. Q replaced.
68	F	2												N	S	G2.1.44
69	F	2												B	E S	G2.2.14 For the calibration to be completed by the end of the shift, it will need to be started more than four hours from the end of the shift. It is really no secret that it will be completed that shift, so it may be OK to just state that. I.E. The calibration has just started and will be completed during the shift. Intent incorporated. Do ROs do anything with EOOS? If not, how can they use RO knowledge to answer the Q? Yes
70	F	2	X											N	E S	G2.2.43 Does the last bullet in the stem serve a purpose? It states that no mylar was placed, but because the second part of the answer is telling them that it was actually required to be placed – how does the last bullet prove useful? Deleted. Can “EXPECTED” be argued as correct? There may be a reasonable argument that the control room was notified by virtue that your tagging process may have alarm identification as a requirement. Possible fix could be to state in the stem that the alarm WAS identified in the pre-job brief and then test whether the alarm (IS)/(IS NOT) required to be announced when it annunciates. Discussed and revised procedure – OK.

71	F	2												N	<u>S</u> S	G2.3.15
72	H? F	2												N	E S	<p>G2.3.7 Evaluate LOK. The question may be LOK=F, because all they need to know if that one job is not in a contaminated area and the other is in a contaminated area. Not much analysis or high cognitive thought is required. Discuss. Changed.</p> <p>Question really does not test operator knowledge as it is just basic rad worker information. A more operationally valid question may be something that test an emergent entry into the RCA to quickly isolate a leak. Do they have to take the time to sign in to an RWP and ED, or can they grab a pre-logged into ED and run in to isolate the leak? My previous site had EDs ready to go in case of an emergency – maybe your site has something similar. Discussed – OK.</p>
73	H	2												N	E S	<p>G2.4.20 Question needs to test what the crew is required to do “in accordance with a procedure” rather than what they “will” do. This question also needs to test the exact wording of the Caution statement because it is not stated as an absolute requirement due to the use of the word “should.” I.E. Prior to CSAS, the CAUTION in 1-EOP-03, states that the crew should use (FIG 1A)/(FIG 1B) to verify subcooling. Etc for part 2. Incorporated.</p> <p>I understand the redaction on the other question that required one of these figures as a reference. Noted</p>
74	F	2				X								B	U S	<p>G2.4.25 Credible Distractor: “B” may not be plausible because there may not be enough operators on shift to station an operator at ALL locations and still perform required shift activities. Q modified.</p> <p>Credible Distractor: “D” does not appear to be plausible because cross connecting does not exist. Q modified.</p>
75	H	2												N	E S	<p>G2.4.47 “D” is highlighted as the correct answer (100F). The analysis for “D” states that 100 F/hr is the correct answer because subcooling is not met per Fig 1B, which is required with containment temp > 200F. The stem provides containment temp of 185 F, so this explanation is confusing. Isn't 100 F in any one hour the correct answer because adequate subcooling exists as indicated on Fig 1A. Fig 1A is required to be used because containment temperature is less than 200 F? Analysis enhanced.</p>

SRO																
																GENERAL – Please review the SRO-only guidance in NUREG-1021. This is helpful with making an initial screen of the SRO-only knowledge.
																GENERAL – It has been standard practice to provide a reference to applicants when greater than one hour tech spec knowledge is needed to arrive at the correct answer. It appears that St. Lucie may require their operators to know greater than one hour tech specs from memory, as evidenced on some of the questions. When a question requires this knowledge, I am requesting that the facility Operations Representative and the Training Management Representative make a statement for that question that re-iterates the facility requirement for their operators to know this knowledge in a closed book environment. The intent is to have this determined before the exam is administered and avoid this argument in the post-exam arena.
76	H	2	X		X	x						x	B	<u>S</u>		<p>025 G2.4.9 Stem Focus: What is the status of the “B” train of SDC? Do plant procedures allow for both trains to be in service? Does the question force the applicant to make an assumption on the “B” train status? Incorporated.</p> <p>Credible Distractor: With a LOOP while on SDC, how is an NOP a credible answer choice to address a loss of SDC? A(1) and B(1) are not plausible. Q revised.</p> <p>Credible Distractor: When preps are being made to remove the reactor head, how is an answer choice containing “reduced inventory” credible? B(2) and D(2) are not plausible. Q revised.</p> <p>Partial: The word choices used in the question analysis use relative terms like, “more appropriate,” which begs one to ask if the question contains answer choices of varying degrees of correctness rather than one and only one absolutely correct answer and three other plausible, yet unequivocally wrong choices. Q revised.</p> <p>Not SRO-only: AOP Entry Conditions are RO-required knowledge; therefore, the first part of the question does not require SRO-only knowledge. The second half of the question only requires one to know that the plant is not in reduced inventory, which is also not SRO-only knowledge. Q revised.</p> <p>Cannot find the procedures, in their entirety, (ONPs) within the provided reference set. Either help show where the procedures are within the reference set, or provide them in an exam-secure manner. Q revised.</p>

77	H	2	X											N	E S	<p>038EA2.01</p> <p>Stem Focus: There is very little information in the stem. Where are they in the procedure? Why are they cooling the RCS? Much is implied, but it would be better to specifically tell the applicant what is being done? I.E. The crew is cooling the RCS iaw 1-EOP-04 to facilitate isolation of the ruptured SG. Added</p> <p>Stem Focus: Recommend linking the answer with the question being asked. Currently the question statement solicits what the EOP Bases requires, which is 15F of margin to the lift setting on MSSVs. This does not appear in the question; therefore, there is arguably no correct answer choice. Suggest changing the correct answer to 15F or modifying the question statement to match the answer choice. In other words, the EOP Bases do not require 35F of margin. Q modified.</p> <p>If the above comment is addressed by changing the question statement, then suggest changing 35F to 30F because of the 1% tolerance. If you need more of a spread in values, you could lower the 22F distractor to 15F. Q modified.</p> <p>Consideration for Question Statement: Which one of the following (1) describes the temperature indication to be used when the RCS is required to be cooled to less than 510F prior to isolating the ruptured SG, and (2) states how many degrees F of margin exists when the RCS is cooled to 510F before the first MSSV could lift if it is set at the lowest possible lift pressure allowed by Tech Specs? Q modified.</p> <p>1-EOP-04 requires the RCS to be cooled to less than a __ (1) __ of 510 F, which is approximately __ (2) __ F below the saturation temperature which would cause the MSSV to lift if it was set at the lowest lift pressure allowed by Tech Specs. Q modified.</p> <p>With respect to the above suggestion, you may have a better way to solicit the answer, but the goal I was trying to accomplish was to have the question statements and answers better align and tighten the wording so ensure a technically correct answer. Q modified.</p>
78	H	2												B	S S	<p>040 G2.4.11</p> <p>Note: 2010 NRC Exam Question noted</p> <p>Question is acceptable as an SRO-only procedure selection question because understanding when a SG is isolated after experiencing a failed open MSSV coincident with a SGTR is important for knowing when that SG can be unisolated. noted</p>

79	H	2										x		N	E S	056 G2.2.12 The question does test surveillance procedure knowledge as it relates to the given electrical line-up. Is the LOOP window dressing? Could this question be written without a LOOP, but still have the exact same electrical lineup and then ask the exact same questions? If so, then the KA may not be met at the SRO level. The second part of the question does appear to be SRO knowledge as it pertains to Tech Spec application, but it may not test the required LOOP aspects of the K/A. Discuss. OK with minor enhancements.
80	H	2												N	S S	057AA2.06 Walk me through this question so that I technically have a better grasp. With my current understanding, I have no comments, but I want to ensure that is the case after obtaining a better understanding. OK
81	H	2	X											N	E S	CE06EA2.1 "D" is highlighted as the correct answer, yet "C" is designated as the correct answer in the Distractor Analysis section. Which answer is correct? The supporting references appear to support "D" as the correct answer. Corrected. Stem Focus: Double checking that ADVs full open is operationally valid with a rising Tcold for 3 minutes. SG level has not yet lowered to the point where the SGs are dry, so can Tcolds be lowering for 3 minutes with ADVs full open? Yes. There is no secret that the question is testing which parameter is being used to send them to OTC. The question statement could be stated more precisely. Consider: Which one of the following (1) describes which parameter is requiring OTC in accordance with 1-EOP-6, and the required procedure path for performing OTC? Changed. Also consider stating in the list of conditions that operators are performing 1-EOP-06, Step 11, "Verify RCS Heat Removal." Added

82	H	2	X											N	<p>E 069G2.4.46</p> <p>S What is the containment design pressure? Have they reached it? Does the applicant need to make an assumption that they reached it? App E does not permit applicants to make assumptions. Does a containment pressure greater than the design limit need to be provided? Incorporated.</p> <p>For classification questions in written questions and JPMs, care needs to be taken to eliminate the employment of using emergency director judgment to elevate the classification (see suggestion below). Incorporated.</p> <p>There does not appear to be enough information to know exactly why the S-17 alarm cleared. Containment failure is one possibility, but the conditions in the stem do not drive this as the only possibility. A reason not listed in the answer could be argued as a reason given the conditions in the stem. Consider: Which one of the following: (1) describes a possible cause of S-17 clearing, and based on that cause, (2) describe the correct emergency classification without using shift manager discretion to elevate the classification? Incorporated.</p> <p>Providing EPIP-01 in its entirety, as the documentation states, would provide a lot of information that could influence other questions. Plant Operations modes, is just one example that may provide information to another question if mode is used to enhance plausibility or drive the correct answer. Evaluate the pages needed to be supplied to the applicants and then review the entire exam to ensure that the information being provided cannot be used in any way to help eliminate a distractor or decipher the correct answer. The more information provided in a reference, the larger this review task will be. Incorporated.</p>
83	F	2												N	<p>S 037G2.4.18</p> <p>S</p>

84	H	2	X		X									M	<p>069AA2.02</p> <p>UES</p> <p>This question appears to test greater than one hour Tech Specs; therefore, I will need a statement in the question documentation that attests to Operations and Training Representatives reaffirming that this is closed book knowledge for your site. Statement added to Q Analysis.</p> <p>Tech Spec 3.6.3.1 is what the question is testing, yet 3.6.3.1 was not provided with the question to support the correct answer. Added</p> <p>When reviewing Tech Spec 3.6.3.1, it was noted that the Mode of Applicability was Modes 1, 2, 3, and 4. In order for the question to have the ability to solicit a correct answer, it would appear that the stem would need to indicate which Mode the Unit was in, or provide conditions on which the mode could be determined. Added 100% power to stem.</p> <p>Credible Distractor: "D" is not credible because what it really says is that a third in-series valve would need to need in the form of a manual isolation, in addition to V5203 being deactivated and V5200 already passing the operability test. Is there a situation in the plant where you need to have three valves for isolation? Modified.</p> <p>Does the question and the answers have an element of time dependency? In other words, the applicant is forced to make an assumption as to <u>when</u> you are soliciting the answer. "B" does not become a correct answer until 4 hours has elapsed. Incorporated.</p>
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85	H	2			X								B	<u>S</u> 011AA2.1 Note: 2009 NRC SRO Exam noted Question does not state that a reference has been provided. Making note of this because other questions do make that statement when a reference has been provided for that question. Added It is not operationally valid to provide a redacted 1-EOP-99, Figure 1A/1B. At no time during the operation of the plant will an operator ever see this form with redactions. OK – reason was to avoid providing help on an RO Q. No actual impact for this Q. Plausibility of C(1) and D(1): Is it ever wrong to go to EOP-15? It may be more optimal to go to EOP-05 (even when the conditions make this the correct answer), but going to EOP-15 will still mitigate the event and would not be incorrect. This reasoning damages the credibility of someone choosing EOP-05 because EOP-15 can never be wrong. Q modified. Plausibility of B(2) and D(2): Why is raising SI flow plausible. Temperatures are low and pressure is very high with pressurizer level recovering, which makes it difficult to see why operators would want o raise SI flow. Q modified. Consideration: Change first part to EOP-15 (IS)/(IS NOT) required to be implemented. This will avoid the situation where EOP-15 is always an OK path to take. Then consider changing the second part to test two different actions instead of two different reasons for an action. Changed 1st part and modified stem to raise plausibility of 2nd part.
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86	H	2			x							x	N	<u>S</u> 003G2.4.31 SRO-only: As stated in the SRO-only guidance in NUREG-1021, "Assessing plant conditions and then selecting a procedure or section of a procedure ..." Your justification states that it is SRO because it is a contingency action in an AOP. Equipment protection and tripping RCPs is RO knowledge – there is no procedure selection aspect to answering that part of the question. ROs typically would pull the ARP and implement it with consultation with the SRO. Q replaced. LCO Conditions and Mode of Applicability are also both RO knowledge as stated in the SRO-only guidance. Q replaced. Keep in mind that Tech Specs are, in and of themselves, an abnormal condition procedure. The KA only requires knowledge of "response" procedures, so one potential option is to test something from the Tech Spec Bases for loop operability, etc. Q replaced. Credible Distractor: C(1) is not credible because an AOP is being performed. At a minimum "something" must be done to close out the AOP. If I am an applicant, I know that even if I don't have the required knowledge for the question, I still know that I can argue that operators need to do "something" in order to close out the AOP. Q replaced.
87	H	2											N	<u>S</u> 008A2.01

88	H	2												x	N	<u>S</u> 010A2.01 Why is "A" not correct? Action (a) still needs to be tracked even if Action (b) is the more limiting action. Suggestion would be to test whether Action (b) (IS)/(IS NOT) required to be performed. Effectively this is testing the same knowledge without introducing an alternate correct answer choice. Incorporated. NUREG-1021 SRO-only guidance states that ROs are required to know the "above-the-line" information for an LCO. For this question, it appears that the RO can make a determination that they do not have two heaters powered by 1E power supplies. Q modified as discussed. Suggestion: Construct the question to initially have two required heaters inoperable and then a few hours later make one of those required heaters operable again. That will set up some options for answer choices. When is action (a) tracking started, etc may set up some credible answer choices. Discuss. Q modified as discussed. If there are aspects of the AOP or Tech Specs for which you feel were missed on the review, please present a little more justification as to how the question is testing SRO-only knowledge. Q modified as discussed.
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89	H	2				x								N	<u>E</u> S	<p>013G2.4.11</p> <p>Credible Distractors: A(1) and B(1) are not plausible. Tripping is always going to be an option afforded by Tech Specs even when bypass is an option. Therefore, when presented with the ability to trip, bypass does not retain a reasonable amount of plausibility because you can always go directly to trip. Suggestion: Change the first part to test whether Tech Specs (DO)/(DO NOT) allow placing in bypass. Incorporated.</p> <p>Is the knowledge tested in this question closed book knowledge at St. Lucie? If so, I am requesting a statement within the question documentation that this is the case. Typically, Tech Spec knowledge of greater than one hour is tested with a reference provided. How does your site differentiate which items are closed book knowledge items and which ones are not for greater than one hour tech spec actions? Ops statement added to question analysis.</p> <p>The first part of the question statement should state what required actions are being solicited. I.E., Which one of the following describes the required AOP-99.01 actions, or Which one of the following describes the tech spec actions... It is always a good idea to tie the answer to the procedure when possible. Added</p>
90	H	2												N	<u>S</u> S	<p>039G2.4.21</p> <p>This question is a 2x2 even though display format was chosen to be different than the other 2x2 questions on the exam. Do you want the question format to be consistent with the other 2x2 questions? No change.</p>
91	H	2											x	N	<u>E</u> S	<p>015G2.4.31</p> <p>The distractor analysis states that LCO 3.2.1 is not applicable, yet the Tech Specs have applicability for Mode 1 and the reactor is in Mode 1. This analysis may need some revision. Changed to no longer address LHR.</p> <p>SRO-only: The LHR Tech Specs are less than one hour Tech Spec Actions; therefore they are required RO knowledge. The applicant can therefore determine the correct answer by elimination of the distractors using RO knowledge. Possible fix: Change the second part to test whether Tq (IS)/(IS NOT) required to be monitored once per 12 hours. Incorporated.</p> <p>This question again requires greater than one hour Tech Spec knowledge without a reference. A statement from the facility re-iterating that your operators are required to know greater than one hour Tech Specs from memory is needed to ask this question in a closed book format. Statement added.</p>

92	H	2											N	<div>S</div>	029A2.03
93	H	2									x	B	<div>UE</div> <div>S</div>	072A2.03 Note: 2014 NRC exam Q93. noted SRO-only: The question statement indicates that IF the RIS is not restored within 48 hours, then its bistable may be maintained in bypass. I could not see any mention of 48 hours in the attached supporting documentation. Action 13 is highlighted, and it states that with the number of operable channels one less than the total, that the bypass must occur within one hour. Concern: One hour or less Tech Spec Actions are required RO knowledge. Discuss the specifics of the question statement and whether or not this is truly a one hour action, Also discuss the 48 hours in the question statement. Modified stem and enhanced analysis.	
94	F	2			X						x	N	<div>U</div> <div>S</div>	G2.1.3 Question answer should be tied to a procedure by stating “in accordance with..” in the question statement. I.E.: Which one of the following describes the relief practices in accordance with ...”? Q replaced. Credible Distractors: B(2) and D(2) are not plausible. The SM is the senior license individual. There is not requirement for the Ops Director to be in the control room – he just happens to be there. Q replaced. SRO-only: The situation you are testing, it appears that an RO would also need to know who can approve the turnover of their boards. This just falls out logically, that if I am the ATC, I cannot just turnover as normal, I need to get the SM to approve it. Q replaced.	

95	H	2										x		N	<u>U</u> S	<p>G2.1.8</p> <p>The question does not appear to test a generic Tier 3 concept. The Q is testing a very specific systems related action, rather than a generic concept, which is necessary for a Tier 3 question. Q replaced with original Q100.</p> <p>ES-401, Page 6 of 50 Ensure that the questions selected for Tier 3 maintain their focus on plant-wide generic knowledge and abilities and do not become an extension of Tier 2, "Plant Systems." Q replaced with original Q100.</p> <p>Possibilities to test this KA at the SRO level may include a site evacuation, actions during a security event, actions during a fire (depending on responsibilities at your site), etc. (Actually, Q100 may fit this KA, if it would be easier to write another Q to Q100 Q replaced with original Q100.</p>
96	H	2												N	S S	G2.2.13
97	F	2												N	S S	G2.2.7
98	H	2				x								B	E S	<p>G2.3.11</p> <p>Credible Distractor: "B" is not plausible because it implies that you really never needed the rad monitor as long as the calc was verified. Distractor modified.</p> <p>Is grab sample a defined term? Show the definition of grab sample for two reasons: (1) evidence that the term grab sample is used at your site, and therefore a credible choice, and (2) to ensure that there is not an alternate correct answer that could be successfully argued. Enhanced. This is common terminology used in procedures.</p>
99	H	2												B	E S	<p>G2.4.23</p> <p>The way you chose to write the question, IC-2 appears to not be relevant. The pre-review comments suggested IC-2 as not being met, but it only makes sense to include it as not being met if it is relevant to the answer choices. I think having MV-AC being met would improve the plausibility of the distractors and simplify the answer choices. Leaving the answer choices to be:</p> <p>A. CI-1, CTPC-3, IC-2, PC-3 B. CI-1, CTPC-3, PC-3, IC-2 C. CTPC-3, CI-1, IC-2, PC-3 D. CTPC-3, CI-1, PC-3, IC-2 Incorporated.</p>

100	F	2													N	<u>S</u> S	G2.4.12 If this Q is chosen to be used as a replacement Q for Q95, then possible options for this KA may be who can authorize dose for life-saving activities, do these activities need to be voluntary, what is that limit. Original is now Q95. New question is also OK.