

Facility: <u>Harris Nuclear Plant</u>		Date of Examination: <u>March 5, 2018</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>05000400/2018301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, P, R	Perform a manual Shutdown Margin Calculation (OST-1036) (JPM ADM-019-d)  <i>K/A G 2.1.25</i>  <b>2018 NRC RO A1-1</b>
Conduct of Operations	M, R	Determine Rod Misalignment Using Thermocouples (AOP-001) (JPM ADM-062-f)  <i>K/A G 2.1.7</i>  <b>2018 NRC RO A1-2</b>
Equipment Control	M, R	Perform a Quadrant Power Tilt Ratio (QPTR) calculation to determine control rod misalignment (OST-1039) (JPM ADM-010-i)  <i>K/A G 2.2.12</i>  <b>2018 NRC RO A2</b>
Radiation Control	D, R	Using Valve Maps And Survey Maps Determine Stay Times For A Clearance (PD-RP-ALL-0001) (JPM ADM-051-d)  <i>K/A G 2.3.4</i>  <b>2018 NRC RO A3</b>
Emergency Plan	N/A	NOT SELECTED FOR RO  <b>2018 NRC RO A4</b>
NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).		
* Type Codes & Criteria:		
	(C)ontrol room, (S)imulator, or Class(R)oom	<b>(4)</b>
	(D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes)	<b>(2)</b>
	(N)ew or (M)odified from bank ( $\geq 1$ )	<b>(2)</b>
	(P)revious 2 exams ( $\leq 1$ ; randomly selected)	<b>(1)</b>

## 2018 NRC RO Admin JPM Summary

**2018 NRC RO A1-1** - Perform a manual Shutdown Margin Calculation (OST-1036) (JPM ADM-019-d) **PREVIOUS** from the 2014 Exam. (Randomly selected from the Admin JPM bank)

*K/A G2.1.25 - Ability to interpret reference materials, such as graphs, curves, tables, etc.  
(CFR: 41.10 / 43.5 / 45.12) RO 3.9 SRO 4.2*

The plant is operating at 92% power and the CRS will direct the candidate to complete OST-1036, Shutdown Margin Calculation Modes 1-5, Section 7.3, for the current plant conditions.

**2018 NRC RO A1-2** - Determine Rod Misalignment Using Thermocouples (AOP-001) (JPM ADM-062-b) **MODIFIED**

*K/A G2.1.7 - Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.  
(CFR: 41.5 / 43.5 / 45.12 / 45.13) RO 4.4 / SRO 4.7*

The plant is at 95% power with a load reduction in progress when a control rod is observed indicating 24 steps higher than group demand. The candidate must perform Attachment 2 of AOP-001, Malfunction of Rod Control and Indication System, to calculate the temperature difference between the affected thermocouple and its symmetric thermocouples. .

**NOTE:** Modified because the thermocouples A08, E10, F03, G01, K11, L14, have been returned to operable status. Additionally a different control rod was selected and the thermocouple indications were modified to result in a different final value.

**2018 NRC RO A2** - Perform a Quadrant Power Tilt Ratio (QPTR) calculation to determine control rod misalignment (OST-1039) (JPM ADM-010-i) **MODIFIED**

*K/A G2.2.12 - Knowledge of surveillance procedures.  
(CFR: 41.10 / 45.13) RO 3.7 SRO 4.1*

The candidate must perform a QPTR calculation in accordance with surveillance procedure OST-1039, Calculation of Quadrant power Tilt Ratio, Weekly Interval and as required by the AOP-001, Malfunction of Rod Control and Indication System for a misaligned rod at 90% power. The candidate should calculate a QPTR value between 1.02 and 1.09.

**NOTE:** Modified due to the Cycle 21 Nuclear Instrument current equivalent reading being significantly changed from the Cycle 19 values. The change in these values result in a QPTR reading that is different from the previous answer.

## 2018 NRC RO Admin JPM Summary

**2018 NRC RO A3** - – Using Valve Maps And Survey Maps Determine Stay Times For A Clearance (PD-RP-ALL-0001) (JPM-ADM-051-d) - **DIRECT**

*K/A G2.3.4 - Knowledge of radiation exposure limits under normal or emergency conditions.  
(CFR: 41.12 / 43.4 / 45.10) RO 3.2 SRO 3.7*

The candidate will be supplied a survey map of a location in the RAB and a clearance mission to complete in this radioactive area. The location also contains one or more hot spots. They must determine the individual stay times for two Auxiliary Operators (AO) without exceeding the annual administrative dose limits. They will be provided Survey Maps, Simplified plant drawings to locate valves, Plant Maps of the area and a plant valve list to determine the location of the valves they will be hanging a clearance on. The given information will supply the accumulated annual whole body doses for the two AOs, one of which recently worked for another utility. They must perform their calculations based on Duke Energy Administrative Dose Limits.

**2018 NRC RO A4** – Not selected

Facility: <u>Harris Nuclear Plant</u>		Date of Examination: <u>March 5, 2018</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>05000400/2018301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, R	Perform Review of Daily Surveillance Requirements Log (OST-1021) (JPM ADM-014-f-SRO)  <i>K/A G 2.1.18</i>  <b>2018 NRC SRO A1-1</b>
Conduct of Operations	M, R	Determine Rod Misalignment Using Thermocouples and Evaluate Technical Specifications (AOP-001) (JPM ADM-062-f-SRO)  <i>K/A G 2.1.7</i>  <b>2018 NRC SRO A1-2</b>
Equipment Control	M, R	Perform a Quadrant Power Tilt Ratio (QPTR) calculation to determine control rod misalignment and Evaluate Technical Specifications (OST-1039) (JPM ADM-010-i-SRO)  <i>K/A G 2.2.12</i>  <b>2018 NRC SRO A2</b>
Radiation Control	N, R	Complete review and approval of OP-120.07, Attachment 3 Waste Gas Decay Tank Release Log (OP-120.07) (JPM ADM-075-a-SRO)  <i>K/A G2.3.4</i>  <b>2018 NRC SRO A3</b>
Emergency Plan	N, R	Determine Initial Protective Action Recommendations (PEP-110) (JPM ADM-076-a-SRO)  <i>K/A G2.4.44</i>  <b>2018 NRC SRO A4</b>
NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).		
* Type Codes & Criteria:		
	(C)ontrol room, (S)imulator, or Class(R)oom	<b>(5)</b>
	(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)	<b>(1)</b>
	(N)ew or (M)odified from bank (≥ 1)	<b>(4)</b>
	(P)revious 2 exams (≤ 1; randomly selected)	<b>(0)</b>

## 2018 NRC SRO Admin JPM Summary

### **2018 NRC SRO A1-1** - Perform Review of Daily Surveillance Requirements Log (OST-1021) (JPM ADM-014-f-SRO) **DIRECT**

*K/A G2.1.18 - Ability to make accurate, clear, and concise logs, records, status boards, and reports.  
(CFR: 41.10 / 45.12 / 45.13) RO 3.6 SRO 3.8*

The candidate must perform the CRS review of the control board readings log, identify all errors (4) and determine the Technical Specification application, as necessary.

### **2018 NRC SRO A1-2** - Determine Rod Misalignment Using Thermocouples and Evaluate Technical Specifications (AOP-001) (JPM ADM-020-b-SRO) **MODIFIED**

*K/A G2.1.7 - Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.  
(CFR: 41.5 / 43.5 / 45.12 / 45.13) RO 4.4 / SRO 4.7*

The plant is at 95% power with a load reduction in progress when a control rod is observed indicating 24 steps higher than group demand. The candidate must perform Attachment 2 of AOP-001, Malfunction of Rod Control and Indication System, to calculate the temperature difference between the affected thermocouple and its symmetric thermocouples. For this JPM the SRO will need to determine Technical Specification requirements for a failed control rod position indicator.

**NOTE:** Modified because the thermocouples A08, E10, F03, G01, K11, L14, have been returned to operable status. Additionally a different control rod was selected and the thermocouple indications were modified to result in a different final value.

### **2018 NRC SRO A2** - Perform a Quadrant Power Tilt Ratio (QPTR) calculation to determine control rod misalignment and Evaluate Technical Specifications . (OST-1039) (JPM ADM-010-i-SRO) **MODIFIED**

*K/A G2.2.12 - Knowledge of surveillance procedures.  
(CFR: 41.10 / 45.13) RO 3.7 SRO 4.1*

The candidate must perform a QPTR calculation in accordance with surveillance procedure OST-1039, Calculation of Quadrant power Tilt Ratio, Weekly Interval and as required by the AOP-001, Malfunction of Rod Control and Indication System for a misaligned rod at 90% power. The candidate should calculate a QPTR value between 1.02 and 1.09.

**NOTE:** Modified due to the Cycle 21 Nuclear Instrument current equivalent reading being significantly changed from the Cycle 19 values. The change in these values results in a QPTR reading that is different from the previous answer. The change in this reading will require the candidate to apply a different action statement from the Technical Specification when compared to the previous JPM.

## 2018 NRC SRO Admin JPM Summary

**2018 NRC SRO A3** - Complete review and approval of OP-120.07, Attachment 3 Waste Gas Decay Tank Release Log  
(OP-120.07) (JPM-ADM-075-a-SRO) **NEW**

*K/A G 2.3.6 Ability to approve release permits.*

*(CFR: 41.13 / 43.4 / 45.10) RO 2.0 SRO 3.8*

The candidate will be provided with the pre-release data provided by the RWCR AO and Shift Chemistry Technician along with the completed OP-120.07, Section 8.39 and Attachment 3 for authorization to commence the release of a Waste Gas Decay tank. They must determine that three items (Estimated release duration, RCDT Vent position, and the RM-11 High (Max) Setpoint) dispositions are not correct and the release should not be approved to commence.

**2018 NRC SRO A4** - Determine Initial Protective Action Recommendations (PEP-110)  
(JPM-ADM-076-a) **NEW**

*K/A G2.4.44 - Knowledge of emergency plan protective action recommendations.*

*(CFR: 41.10 / 41.12 / 43.5 / 45.11) RO 2.4 SRO 4.4*

Given a set of initial conditions and PEP-110, the candidate must determine the initial Protective Action Recommendations for the event in progress.

Facility: <u>Harris Nuclear Plant</u>	Date of Examination: <u>March 5, 2018</u>	
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input checked="" type="checkbox"/> <b>SRO-U (Bold)</b> <input checked="" type="checkbox"/>	Operating Test Number: <u>05000400/2018301</u>	
Control Room Systems: 8 for RO, 7 for SRO-I, and 2 or 3 for <b>SRO-U</b>		
System/JPM Title	Type Code*	Safety Function
a. <b>Initiate Emergency Boration Following a Reactor Trip (AOP-002) (JPM-CR-037-f)</b> <i>K/A APE024 AA1.17</i>	<b>A, L, M, S</b>	<b>1</b>
b. <b>Manually Load Safeguards Equipment On AC Emergency Buses After a LOSP (EOP-ECA-0.2) (JPM-CR-301-a)</b> <i>K/A 006 A4.04</i>	<b>EN, L, N, S</b>	<b>2</b>
c. Take Corrective Action For Failure of CSIP Mini-Flow Valves to Re Position (EOP-E-0) (JPM-CR-225-e) <i>K/A 006 A4.07</i>	A, D, S	3
d. Initiate RCS Feed and Bleed (EOP-FR-H.1) (JPM-CR-068-d) <i>K/A EPE E05 EA1.1</i>	A, D, L, S	4P
e. Perform Containment Ventilation Isolation Valve ISI Test (OST-1056) (JPM-CR-288-b) <i>K/A 028 A4.01</i>	D, EN, S	5
f. <b>Restoration of Offsite Power to Emergency Buses (EOP ECA-0.0) (JPM-CR-291-b)</b> <i>K/A 055 EA1.07</i>	<b>A, D, L, P, S</b>	<b>6</b>
g. Take an Excore NI Channel Out Of Service at Power (OWP-RP-26) (JPM CR-019-c) <b>RO Only</b> <i>K/A 015 A4.03</i>	D, S	7
h. Respond to an Instrument Air Header Rupture at 50% power (AOP-017) (JPM-CR-234-d) <i>K/A APE 065 AA2.06</i>	D, S	8

In-Plant Systems: * 3 for RO, 3 for SRO-I, and 3 or 2 for <b>SRO-U</b>		
i. Manually isolate the SG "C" PORV and SHUT the SG "C" TDAFW Pump steam supply MOV (AOP-016) (JPM IP-257-b) <i>K/A 037 AAG2.1.30</i>	D, E, L	3
j. <b>Reset TD AFW Pump Mechanical Overspeed (OP-137) (JPM-IP-001-c)</b> <i>K/A 061 A2.04</i>	D, E, L, P, R	4S
k. <b>Perform Local Actions for Placing an OTΔT Channel in Test (OWP-RP-01) (JPM IP-209-d)</b> <i>K/A 012 A4.04</i>	D, E	7
* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power/Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6/4-6 /2-3 ≤ 9/≤ 8/≤ 4 ≥ 1/≥ 1/≥ 1 ≥ 1/≥ 1/≥ 1 ≥ 1/≥ 1/≥ 1 ≥ 2/≥ 2/≥ 1 ≤ 3/≤ 3/≤ 2 ≥ 1/≥ 1/≥ 1	(4, 4, 2) (9, 8, 3) (3, 3, 2) (2, 2, 1) (control room system) (6, 6, 4) (2, 2, 2) (2, 2, 2) (randomly selected) (1, 1, 1)

## 2018 NRC Control Room/In-Plant JPM Summary

### Simulator JPMs

#### **JPM a – Initiate Emergency Boration following a Reactor Trip (AOP-002) (JPM-CR-037-f) SRO Upgrade - Alternate Path - Modified**

*K/A APE024 AA1.17 Ability to operate and / or monitor the following as they apply to Emergency Boration: Emergency borate control valve and indicators  
(CFR 41.7 / 45.5 / 45.6) RO 3.9 SRO 3.9*

**Evaluated position:** Operator at the Controls (OATC) responsibilities.

**Turnover:** The plant was operating at 100% power when the 'A' MFW pump tripped. The crew performed a manual Reactor Trip in accordance with AOP-010, Feedwater Malfunctions. The crew has completed the immediate actions of EOP E-0, Reactor Trip or Safety Injection and have transitioned to ES-0.1, Reactor Trip Response. RCS temperature has been stabilized in accordance with EOP-ES-0.1 step 4.

**Task:** Initiate Emergency Boration following a Reactor Trip after identifying that 2 or more control rods have not fully inserted.

**Verifiable actions:** The candidate will attempt to start a Boric Acid pump and determines that the pump has failed to start. The pump failure will require the candidate to establish an alternate flow path by opening either of the two RWST valves to the suction of the CSIP, shutting either of the two VCT outlet valves and then raise flow to > 90 gpm using a FCV with the flow rate indication on a meter on the MCB.

**Alternate Path – YES.** The only available Boric Acid Pump will fail when started requiring the candidate to utilize an alternate boration flow path and also establish a flow rate to the CSIP of > 90 gpm using FK-122.1 in manual.

**JPM completion:** After the candidate has established and verified at least 90 gpm charging flow from the RWST to the RCS on FI-122A.1, evaluation on this JPM is complete.

**Modification:** Modified by placing one Boric Acid pump out of service and failing the remaining pump so that no boric acid pumps are available. This change requires the candidate to complete step 1 then step 6 (boration from the RWST) of AOP-002, vice step 2 through 5 (boration from the Boric Acid Storage Tank).

#### **JPM b – Manually Load Safeguards Equipment On AC Emergency Buses After a LOSP (EOP-ECA-0.2) (JPM-CR-301-a) SRO Upgrade - NO - New**

*K/A 006 A4.04 Ability to manually operate and/or monitor in the control room: RHRS  
(CFR: 41.7 / 45.5 to 45.8) RO 3.7 SRO 3.6*

**Evaluated position:** Operator at the Controls (OATC) responsibilities.

**Turnover:** The plant was operating at 100% power when a LOCA occurred. As a result of the LOCA a Reactor Trip / Safety Injection have been actuated. Offsite Power was lost during the Reactor Trip and both Diesel Generators failed to start. EOP-ECA-0.0, Loss of All AC Power was entered and offsite power was restored to both Emergency Busses. The crew has transitioned to EOP-ECA-0.2, Loss of All AC Power Recovery With SI Required. Steps 1-3 have been completed.

## 2018 NRC Control Room/In-Plant JPM Summary

### Simulator JPMs (continued)

#### JPM b (continued)

**Turnover:** (Continued) The CRS has directed you to continue EOP-ECA-0.2 starting at step 4 in preparation to Manually Load Safeguards Equipment On AC Emergency Buses.

**Task:** Manually Load Safeguards Equipment On AC Emergency Buses After A LOSP.

**Verifiable actions:** The candidate will be required to perform EOP-ECA-0.2 steps 4 and 5.a-e which will check the status of CCW flow to the RCP Thermal Barrier Hx to isolate CCW to the RCP Seals prior to starting the CCW pumps. Once CCW to the RCP Thermal barrier Hx is isolated the OATC will coordinate the restoration of control power to the CCW pumps with an AO locally in the switchgear. The first CCW pump will automatically start on low pressure once the control switch is returned to the auto position. With control power restored to the CCW pumps the OATC will start the standby CCW pump and both RHR pumps.

**Alternate Path** – NO this failure does not meet the criteria in NuReg 1021, Rev 11 Appendix C as determined by the Chief Examiner. The Chief Examiner determined that the procedural layout of EOP-ECA-0.2 did not constitute an exit step that directs the use of an alternate method, because the following actions from the RNO for step 4.d are bulleted items. When checking the status of the RCP Thermal Barrier Hx CCW will not be isolated to the heat exchanger. The outside containment isolation valve 1CC-251 will be open when checked in step 4.d. This will require the candidate to implement an alternate method of isolating the heat exchanger. Attempts to shut the 1CC-251 from the MCB or locally will fail. This will require shutting the inside Containment isolation valve 1CC-249 from the MCB.

**JPM completion:** When Both RHR pumps and two CCW pumps are running the SRO will notify the OATC that the task is complete. Another operator will align Containment Fan coolers and continue implementing the procedure.

#### JPM c – Take Corrective Action For Failure of CSIP Mini-Flow Valves to Re-Position (EOP-E-0) (JPM-CR-225-e) - Direct

*K/A 006 A4.07 Ability to manually operate and/or monitor in the control room: ECCS pumps and valves (CFR: 41.7 / 45.5 to 45.8) RO 4.4 SRO 4.4*

**Evaluated position:** Operator at the Controls (OATC) responsibilities.

**Turnover:** The plant was operating at 100% when a technicians error resulted in an automatic Reactor Trip / Safety Injection signal. The crews is performing EOP-E-0, Reactor Trip or Safety Injection and are at step 37. The CRS has directed the OATC to begin at step 37 and continue performing EOP-E-0.

**Task:** Obtain adequate flow through a running CSIP.

**Verifiable actions:** The candidate will be required to change valve positions and stop one CSIP to secure the ECCS High Head injection flow path and establish a Normal Charging flow path from the lineup to RCS.

**Alternate Path** – YES. During the valve alignment 1CS-214, Common Normal Mini-flow Isolation Valve, will fail to open. This failure will require the operator to use RNO actions to ensure minimum Charging Flow is established for the running CSIP prior to terminating SI flow by shutting BIT outlet valves 1SI-3 and 1SI-4.

## 2018 NRC Control Room/In-Plant JPM Summary

### Simulator JPMs (continued)

#### JPM c – continued

**JPM completion:** When Charging + Seal Injection flow is being maintained at >60 gpm the CRS will notify the OATC that the task is complete and another operator will continue implementing the procedure.

#### JPM d – Initiate RCS Feed and Bleed (EOP-FR-H.1) (JPM-CR-068-d) – Direct

*K/A EPE E05 EA1.1 Ability to operate and / or monitor the following as they apply to the (Loss of Secondary Heat Sink): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.  
(CFR: 41.7 / 45.5 / 45.6) RO 4.1 SRO 4.0*

**Evaluated position:** Operator at the Controls (OATC) responsibilities.

**Turnover:** The plant status is 'A' MDAFW pump is under clearance, the Reactor tripped from 100% power due to a loss of off-site power followed by a Small Break LOCA. Adverse Containment values are in effect. Emergency Diesel 1B-SB tripped when it started, the cause is being investigated. locked out on an electrical fault and the TDAFW pump failed when it started. The crew is performing EOP-FR-H.1, Response To Loss Of Secondary Heat Sink. The foldout criteria for initiation of RCS Feed and Bleed have just been met.

**Task:** Perform the actions to initiate RCS feed and bleed.

**Verifiable actions:** The candidate will be required to locate and operate the SI, and Phase A RESET switches, control switches for 1IA-819, 1SI-287, 1RC-900, 1RC-902 and 1RC-904 while monitoring progress using MCB indications.

**Alternate Path** – YES. The PRZ PORVs will not open when the control switches are operated on the MCB. The candidate will be required to verify adequate RCS bleed path by implementing the RNO action and open the RCS vents with power available.

**JPM completion:** When the RCS Vent Valves with power available are OPENED and the CRS has been informed that RCS Feed and bleed has been established, evaluation on this JPM is complete.

#### JPM e – Perform Containment Ventilation Isolation Valve ISI Test (OST-1056) (JPM-CR-288-b) – Direct

*K/A 028 A4.01 - Ability to manually operate and/or monitor in the control room: HRPS controls  
(CFR: 41.7 / 45.5 to 45.8) RO 4.0 SRO 4.0*

**Evaluated position:** Balance of Plant (BOP) Operator responsibilities.

**Turnover:** The plant is at 100% power. OST-1056, Containment Ventilation Isolation Valve ISI Test Quarterly Interval MODE1-6 is being performed to test the operability of the Containment ventilation isolation valves per the ISI program. The Airborne Radioactive Removal & Normal Purge Systems were shutdown in accordance with OP-168, Containment Ventilation And Vacuum Relief. The CRS has directed the BOP to continue OST-1056 at Section 7.2 step 2.

## 2018 NRC Control Room/In-Plant JPM Summary

### Simulator JPMs (continued)

#### JPM e (continued)

**Task:** Critical tasks of OST-1056, Containment Ventilation Isolation Valve ISI Test Quarterly Interval Modes 1 – 6, Section 7.2 completed.

**Verifiable actions:** The candidate will be required to perform stroke timing of containment ventilation valves and document the results on Attachment 2 of OST-1056

**Alternate Path – NO.** There are no failures with this task

**JPM completion:** When OST-1056, Section 7.2 and documentation of timings on Attachment 2 are complete for the Train A components (1CP-5, 1CP-9, 1CB-2 and CB-D51SA, evaluation on this JPM is complete and another operator will continue implementing the procedure.

#### JPM f – Restoration of Offsite Power to Emergency Buses (EOP-ECA-0.0)

(JPM-CR-291-b) **SRO Upgrade - Alternate Path – Previous** from the 2016 Exam.  
(Randomly selected from the Simulator JPM bank)

*K/A 055 EA1.07 Ability to operate and monitor as they apply to station blackout: Restoration of power from offsite*

*(CFR: 41.7 / 45.5 / 45.6) RO 4.3 SRO 4.5*

**Evaluated position:** Balance of Plant (BOP) Operator responsibilities.

**Turnover:** The plant was operating at 100% power. 'A' EDG is under clearance due to the generator field not flashing during OST-1013. The failure of a major line on the Duke grid resulted in the cascading trip of several units and low grid frequency. A loss of offsite power occurred. 'B' EDG failed to start and the problem is being investigated. The crew is implementing EOP-ECA-0.0. The load dispatcher has stabilized the grid and has given permission to restore offsite power to 6.9 KV buses and to reset any tripped Start Up XFMR lockout relays (there are currently no lockout relays tripped).

**Task:** Energizing ONE Emergency Bus from the SUT (either the 1A-SA energized or 1B-SB energized).

**Verifiable actions:** The candidate will be manipulating electrical supply breaker switches on the MCB to restore power to the dead Emergency Bus.

**Alternate Path – YES -** During the lineup for power restoration on the A-SA Emergency Bus the supply breaker from offsite (Breaker 105) will fail to close. The candidate will be required to continue Attachment 1 using the guidance for the B-SB Emergency Bus to complete restoration of offsite power to a (one) AC emergency bus.

**JPM completion:** Emergency Bus 1B-SB is being powered via offsite power and the 480 V breakers powering emergency equipment is energized and the CRS is informed, evaluation on this JPM is complete.

## 2018 NRC Control Room/In-Plant JPM Summary

### Simulator JPMs (continued)

#### **JPM g** – Place an Excore NI Channel Out Of Service at Power (OWP-RP-26)

(JPM CR-019-c) RO Only – Direct

*K/A 015 A4.03 Ability to manually operate and/or monitor in the control room: Trip bypasses (CFR: 41.7 / 45.5 to 45.8) RO 3.8 SRO 3.9*

**Evaluated position:** Balance of Plant (BOP) Operator responsibilities.

**Turnover:** The unit is operating at 100% power. Nuclear Instrument 44 has failed low. The CRS has directed the candidate to remove NI-44 from service in accordance with OWP-RP-26, Reactor Protection.

**Task:** NI-44 removed from service in accordance with OWP-RP-26

**Verifiable actions:** The candidate will be required to place rod control to manual. The candidate will then remove the detector from service at the detector current comparator drawer, the miscellaneous control and indication panel, and the comparator and rate drawer. The candidate will then contact I&C to lift leads from the circuit. They will then check the bi-stable status panels for proper responses. The candidate will also have to remove the channel from scan on the ERFIS computer.

**Alternate Path** – NO. There are no failures with this task.

**JPM completion:** When N44 has been removed from service in accordance with OWP-RP-26 and the CRS is informed, evaluation on this JPM is complete.

#### **JPM h** – Respond to a Rupture in the Instrument Air Header at 50% power (AOP-017)

(JPM-CR-234-d)

*K/A APE 065 AA2.06 Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip reactor if instrument air pressure is decreasing (CFR: 43.5 / 45.13) RO 3.6 SRO 4.2*

**Evaluated position:** Operator at the Controls (OATC) responsibilities.

**Turnover:** The unit is operating at ~50% power during a startup. Startup is on hold due to chemistry concerns. Maintain present conditions.

Soon after taking the watch an Instrument Air leak will develop. The candidate will be expected to respond to the low pressure annunciators and enter AOP-017.

**Task:** Trips the Reactor, carries out immediate actions of EOP-E-0, and then continues the actions directed by AOP-017 for low air pressure

**Verifiable actions:** The candidate will be expected to manually trip the Reactor perform the immediate actions of EOP-E-0 then be directed to continue with AOP-017. They will have to contact Auxiliary Operators to vent and depressurize the remaining air from the system. Continuing with the procedure requires the candidate to locate and place multiple MCB controls to manual and zero demand.

**Alternate Path** – NO. There are no additional failures with this task.

**JPM completion:** When the candidate completes AOP-017, Attachment 2 and CRS is informed, evaluation on this JPM is complete.

## 2018 NRC Control Room/In-Plant JPM Summary

### In-Plant JPMs

#### **JPM i – Manually isolate the SG “C” PORV and SHUT the SG “C” TDAFW Pump steam supply MOV (AOP-016) (JPM IP-257-b) SRO Upgrade - Direct**

*K/A 037 G2.1.30 Ability to locate and operate components, including local controls.*

*(CFR: 41.7 / 45.7) RO 4.4 SRO 4.0*

**Evaluated position:** Auxiliary Operator in the Turbine Building (AO TB)

**Turnover:** The Unit was initially at 100% power when tube leakage developed in ‘C’ SG. The Reactor is now shutdown and the crew is currently performing AOP-016, Excessive Primary Leakage, Attachment 11, Plant Shutdown Actions for Primary-To-Secondary Leakage Action Level 2 and 3. While attempting to isolate SG ‘C’, the SG ‘C’ PORV failed to fully SHUT from the MCB. SG ‘C’ pressure is 1015 psig. The CRS has directed you to perform AOP-016, Attachment 11, Step 12.b RNO, for SG ‘C’.

**Task:** 1MS-63 (MS Line C PORV Isol Vlv) and 1MS-72 (MS "C" to Aux FW Turbine) manually shut

**Verifiable actions:** The candidate will be required to perform local actions for AOP-016, Attachment 11, Step 12.b RNO. The JPM cues include information of the proper status of the Valve operator and the expected candidate actions.

**Alternate Path** – NO. There are no additional failures with this task.

**JPM completion:** When 1MS-63 and 1MS-72 are closed and the MCR is informed, evaluation on this JPM is complete.

#### **JPM j – Reset the Turbine Driven AFW Pump Mechanical Overspeed (OP-137) (JPM-IP-001-c) SRO Upgrade - Direct – Previous from the 2014 Exam. (Randomly selected from the In-Plant JPM bank)**

*K/A 061 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: pump failure or improper operation*

*(CFR: 41.5 / 43.5 / 45.3 / 45.13) RO 3.4 SRO 3.8*

**NOTE: This JPM is inside the RCA.**

**Evaluated position:** Auxiliary Operator in the RAB (AO RAB)

- **Turnover:** The plant was manually tripped from 100% power due to a loss of the ‘A’ MFW pump. DP-1B-SB is available. The Turbine-driven AFW pump is needed for plant cooldown but the pump tripped on overspeed. The cause of the overspeed trip has been identified and corrected. Main Steam to TDAFW Pump isolation valves 1MS-70 and 1MS-72 are shut. The Mechanical Overspeed Trip Linkage is currently in the tripped position. The CRS has directed the AO to reset the Turbine-driven AFW pump mechanical overspeed trip linkage in accordance with OP-137, Auxiliary Feedwater System, Section 8.4.

**Task:** The Turbine-driven AFW pump turbine trip and throttle valve is latched.

## 2018 NRC Control Room/In-Plant JPM Summary

### In-Plant JPMs (continued)

#### JPM j (continued)

**Verifiable actions:** The candidate will be required to align the Aux Feedwater Overspeed Trip mechanism with the tappet nut correctly oriented and the connecting rod locked in the latched position. Additionally the candidate must identify the local indication for the Turbine Overspeed Trip status.

**Alternate Path** – NO. There are no additional failures with this task.

**JPM completion:** When the mechanical overspeed linkage is reset and the MCR is informed the Trip and Throttle valve maybe opened from the MCB, evaluation on this JPM is complete.

#### JPM k – Perform Local Actions for Placing an OTΔT Channel in Test (OWP-RP-01) (JPM IP-209-d) Direct

*K/A 012 A4.04 Ability to manually operate and/or monitor in the control room: Bi-stable, trips, reset and test switches  
(CFR: 41.7 / 45.5 to 45.8) RO 3.3 SRO 3.3*

**Evaluated position:** Reactor Operator in the Reactor Auxiliary Building (RO RAB)

**Turnover:** The unit is operating at 100% power when Loop 1 Hot Leg temperature input to  $T_{avg}$  and OTΔT failed low. To comply with Technical Specifications, the CRS is directing you to perform the local actions of OWP-RP-01 for troubleshooting and tripping bi-stables for Loop 1  $T_{avg}$  and OTΔT. Inform the Control Room when all switches have been positioned to allow the Control Room to complete the actions required in the Control Room.

**Task:** Place the PIC Cabinet Master Test switches and bi-stables in the Test position..

**Verifiable actions:** The candidate will be required to reposition multiple test switches on PIC card within the PIC 1 cabinet on the RAB 304' elevation. The candidate will be required to identify the individual PIC card and test switch and operate the toggle switch. The candidate will be provided a copy of OWP-RP-01, to complete the task.

**Alternate Path** – NO. There are no additional failures with this task.

**JPM completion:** When the required switches in PIC 1 have been placed in the TEST position and the MCR is informed, evaluation on this JPM is complete.

Facility: Harris		Exam Date: 03/05/2018											
Admin JPMs	1 ADMIN Topic and K/A	2 LOD (1-5)	3 Attributes							4 Job Content		5 U/E/S	6 Explanation
			I/C Focus	Cues	Critical Steps	Scope (N/B)	Overlap	Perf. Std.	Key	Minutia	Job Link		
RO A1-1	G2.1.25	3			X							E	
1. Critical Steps: Step 3 should probably be Critical since you need to properly apply the given 92% power to get 171 steps RIL. Same for Step 6: you use 600ppm to get correct power defect. 2. Step 4: add: "on Bank D". 3. Step 7: Is filling in "Curve <b>C-21-3</b> " critical? Getting 2650 pcm is, but if they happen to write down the wrong curve # they probably shouldn't fail for it. 4. Step 9, add the underlined words or similar: "Refers to given conditions and enters 1724 pcm <u>in the 1<sup>st</sup> blank, zeroes in the next four blanks, and 1724 in the final blank.</u> " Probably only 1724 in the final blank should be critical, in case they skip the first five blanks. 5. Answer Key: Would be easier for us to grade if it looked much more like Att. 3. Step 9: Transcribing error: <b>2520 should be 2560</b> . Which makes the <b>correct answer (2440) 2370 pcm</b> . 6. The files named "Curve book Section C" & "Curve book Section F" each have a page <b>marked up like the Answer Key</b> . (p. 3 & p. 1 respectively) Make sure the applicants don't see these. <b>Will the applicants be given pages like this, or whole Curve Books?</b>													
RO A1-2	G2.1.7	2		X					X			E	
1. Cue: In Step 3, you can't circle E07 on the table because it's not there. (Which the preceding Note tells you.) The Answer Key shows it correctly. 2. Performance Standard: Step 5, the $\pm 2^\circ\text{F}$ band isn't warranted. Two simple averages are calculated, and they come out to integer answers. Per the Examiner Note here, if they include adjacent TCs with <u>symmetric</u> TCs, they'd get it right for the wrong reason. 3. F8 is a Control Bank 'C' rod. Does that fit the scenario of a "load reduction"? 'D' Bank would have to be at the overlap point (128 steps?) minus at least 24 steps, so $\leq 104$ steps?													
RO A2	G2.2.12	2			X				X	X		E	
1. IC4: probably easier to just have ERFIS OOS. 2. Perf. Standard: OST-1039 Section 3.0 isn't covered in the guide. Recommend we pre-fill it out. 3. Critical Steps: 6 & 7 should probably be critical, and 15 not. See markup for discussion. 4. Key: $\pm 5\%$ is not the same as $\pm 0.0005$ . The ranges given match $\pm 0.0005$ , which is acceptable, so <b>delete all instances of <math>\pm 5\%</math></b> .													
RO A3	G2.3.4	2		X								E	
1. Cues: Is Worker 2's extended limit 3.4 rem, or "approximately 3.0 rem at the 90% exclusion limit"? And was the extension granted for this job, or back when he returned from Nine Mile Point?													
SRO A1-1	G2.1.18	2		X								E	
1. Cues: The OST-1021 package should also have Attachment 6, Certifications and Reviews. 2. Cues: p. 33 of the OST, the value for TDG6903A is circled in red. The Performance Standard indicates that it NOT be circled, and the applicants should find that out-of-spec reading. 3. Cues: 4 of the out-of-spec readings are from dayshift, at least 12 hours ago. This could cause confusion among the applicants over 1) why the dayshift crew missed them, and 2) what to do now about certainly one, and possibly two, TS action statements were missed.													
SRO A1-2	G2.1.7	2							X			E	
1. Performance Standard: Step 5, the $\pm 2^\circ\text{F}$ band isn't warranted. Two simple averages are calculated, and they come out to integer answers. Per the Examiner Note here, if they include adjacent TCs with symmetric TCs, they'd get it right for the wrong reason. 2. F8 is a Control Bank 'C' rod. Does that fit the scenario of a "load reduction"? 'D' Bank would have to be at the overlap point (128 steps?) minus at least 24 steps, so $\leq 104$ steps?													
SRO A-2	G2.2.12	2		X	X				X	X		E	
1. Cues: In the Initial Conditions, "ERFIS points ANM9112U & ANM9113L have a BAD quality code" is confusing until you get to OST-1039 Step 7.3.10 to see why it matters. And it makes Step 7.1 a little more complicated, where you're deciding whether to use the computer program or do it manually. What if this was just: "ERFIS is OOS"? 2. Critical Steps: Steps 6 & 7 should probably be critical because if you don't properly transcribe the PRNI readings and normalized currents to the data table you won't get the correct answers. 3. Critical Steps: Step 15 might not be critical. There's nothing to <u>do</u> at this step, just "Check QPTR is $\leq 1.02$ ." No blank to write Yes, No, or a value in, no RNO, no TS reference. 4. Performance Standard: Prior to Perf. Step 2 is a "Procedure Note" which paraphrases P&L 3.1.1, which is fine, but it's not relevant to the task. More importantly though, the Perf. Standard doesn't say how the applicants should disposition the three P&Ls, which all have check-boxes. Recommend those be pre-filled out. 5. Pictures of the NI drawers are less than optimal.													

6. Key: When calculating a range for acceptable answers for flux tilt, "±5%" and "±0.0005" are not mathematically the same, yet both are given in Step 14. The ranges given result from using ±0.0005, and they're acceptable. Delete mentions of ±5%.

SRO A-3	G2.3.4	2		X	X*				X			U
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1. Cues: should give the applicants a marked-up OP-120-07 Section 8.39, since in the control room they wouldn't be presented Att. 3 without that.
2. CT Justification table is all wrong, maybe from a previous version of the JPM.
3. Answer Key: there isn't one. Which would be alright, but the Performance Standards don't provide enough information to grade applicant performance.
4. Cues: Possible discrepancies in the applicant handout sheets. a) Att. 3 Step 21 release flowrate should probably be 1.5E+1 cfm instead of 1.5 cfm. b) Release type should maybe be Elevated vice Ground. c) Chemistry sample start time is missing.

SRO A-4	G2.4.44	2							X			S
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1. References Rev. 25 of PEP-110, but the revision is up to at least 27. Doesn't seem to affect the answer.
2. Key: would be nice. Just PEP-110 Att. 3 p. 1 of 3 marked up showing the path through the flowchart.
3. Applicant Cue/Answer Sheet: Asking about KI ("Yes/No") is somewhat leading. Recommend giving them whatever form they'd normally record PARs on. Would be more realistic also.

Simulator/In-Plant JPMs	1 Safety Function and K/A											
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a. Initiate Emergency Boration Following a Reactor Trip	1 APE024 AA1.17	2			X							E	1. JPM step 2 should be designated as a critical step because it is required for successful completion of the task standard. See NUREG-1021 Appendix C.
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b. Manually Load Safeguards Equipment on AC Emergency Buses After a LOSP	2 006 A4.04	2										E	1. The step 4 critical <b>and</b> alternate path justifications state that 1CC-251 fails to open vice fails to shut. 2. Need to discuss the alternate path justification.
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c. Take Corrective Action for Failure of CSIP Mini-Flow Valves to Reposition	3 006 A4.07	2			X							E	1. Need to discuss whether or not step 12 is really a critical step require for completion of the stated task standard.
--	-------------------	---	--	--	---	--	--	--	--	--	--	---	---

d. Initiate RCS Feed and Bleed	4P EPE E05 EA1.1	2										S	1. Need to ensure, based on the simulator, conditions, that there is not a maximum time after which the feed and bleed conditions established would not be effective. Is it effective at all for the given conditions? Is this time critical?
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e. Perform Containment Ventilation Isolation Valve ISI Test	5 028 A4.01	3	X					X				E	1. The evaluator will <b>not</b> be performing additional component timing. You may use a surrogate for this. 2. The K/A difficulty ratings listed on the JPM sheet are incorrect. 3. Adjust JPM to have the prerequisites and step 1 already signed off. 4. The task standard is vague and references critical tasks.
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f. Restoration of Offsite Power to Emergency Buses	6 055 EA1.07	2						X(?)				E	<ol style="list-style-type: none"> <li>1. Is the task standard correct if the applicant attempts to energize the B Bus first?</li> <li>2. Please include details in the task standard on how to verify that the relays are reset.</li> </ol>
g. Take an Excure NI Channel Out of Service at Power	7 015 A4.03	2			X							E	<ol style="list-style-type: none"> <li>1. There are three step 18s in the JPM.</li> <li>2. Please explain how step 4 is critical. Your rod control lesson plan states that a low NI failure has no effect on the rod control system.</li> </ol>
h. Respond to an Instrument Air Header Rupture at 50% power	8 APE 065 AA2.06	2						X				E	<ol style="list-style-type: none"> <li>1. The task standard only partly matches the critical steps.</li> <li>2. Need to discuss the performance standards on step 3 and 4.</li> <li>3. Step 18 description does not match the procedure.</li> </ol>
i. Manually isolate the SG "C" PORV and shut the SG "C" TDAFW Pump steam supply MOV	3 037 AAG2.1.30	2	X	X								E	<ol style="list-style-type: none"> <li>1. The start time cannot be when arriving at the first component. What if they cannot find it? How would we calculate two times the validation time and be able to legally stop the JPM?</li> <li>2. Need to discuss if any keys are needed for this task and, if so, what are the requirements for this JPM.</li> <li>3. Why are we providing a cue for the MOV breaker without prompting by the applicant? It is not addressed in the procedure.</li> <li>4. See markup questioning how check boxes in step 12 of the procedure should be handled by applicant. We will discuss during prep week.</li> <li>5. Should there be examiner's cues concerning noise?</li> </ol>
j. Reset TD AFW Pump Mechanical Overspeed	4S 061 A2.04	2	X									E	<ol style="list-style-type: none"> <li>1. Same problem with start time as described in JPM i.</li> <li>2. The initial conditions on the cue sheet need to be enhanced for 1MS-70 and 72. It reads like they are two MSIVs.</li> <li>3. See markup provided for other edits.</li> </ol>
k. Perform Local Actions for Placing an OTΔT Channel in Test	7 012 A4.04	2										E	<ol style="list-style-type: none"> <li>1. The task standard needs to be more specific.</li> <li>2. See markup provided for other edits.</li> </ol>

**Instructions for Completing This Table:**

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

1. Check each JPM for appropriate administrative topic requirements (COO, EC, Rad, and EP) or safety function requirements and corresponding K/A. Mark in column 1. (ES-301, D.3 and D.4)
2. Determine the level of difficulty (LOD) using an established 1–5 rating scale. Levels 1 and 5 represent an inappropriate (low or high) discriminatory level for the license that is being tested. Mark in column 2 (Appendix D, C.1.f)
3. In column 3, “Attributes,” check the appropriate box when an attribute is **not met**:
  - The initial conditions and/or initiating cue is clear to ensure the operator understands the task and how to begin. (Appendix C, B.4)
  - The JPM contains appropriate cues that clearly indicate when they should be provided to the examinee. Cues are objective and not leading. (Appendix C, D.1)
  - All critical steps (elements) are properly identified.
  - The scope of the task is not too narrow (N) or too broad (B).
  - Excessive overlap does not occur with other parts of the operating test or written examination. (ES-301, D.1.a, and ES-301, D.2.a)
  - The task performance standard clearly describes the expected outcome (i.e., end state). Each performance step identifies a standard for successful completion of the step.
  - A valid marked up key was provided (e.g., graph interpretation, initialed steps for handouts).
4. For column 4, “Job Content,” check the appropriate box if the job content flaw **does not meet** the following elements:
  - Topics are linked to the job content (e.g., not a disguised task, task required in real job).
  - The JPM has meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding and ability to safely operate the plant. (ES-301, D.2.c)
5. Based on the reviewer's judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 5.
6. In column 6, provide a brief description of any (U)nacceptable or (E)nhancement rating from column 5.

Save initial review comments and detail subsequent comment resolution so that each exam-bound JPM is marked by a (S)atisfactory resolution on this form.

Facility: Harris			Scenario: 1				Exam Date: 03/05/2018			
1	2	3	4	5	6	7	8	9	10	
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation	
1							X	S	1. Need specific criteria for critical task #2.	
2					X			S	3. See markup provided for additional enhancements and comments.	
3								S		
4							X	S		
5					X		X	S		
6								S		
7						X		E		
8						X		S		
8	0	0	0		2	2	5	E	Further evaluation will be performed during on-site prep week.	

Facility: Harris		Scenario: 2				Exam Date: 03/05/2018				
1	2	3	4	5	6	7	8	9	10	
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation	
1							X	S	1. For event 1, need to discuss if the BOP taking raising power with the turbine is actually taking manual control of an automatic function. 2. Need to discuss if critical task #3 is the correct critical task for what is intended. 3. See markup provided for additional enhancements and comments.	
2					X			S		
3					X			S		
4					X			S		
5					X			S		
6						X		S		
7						X		E?		
8						X	X	S		
9							X	S		
9	0	0	0		4	3	6	E	Further evaluation will be performed during on-site prep week.	

<b>Facility:</b> Harris		<b>Scenario:</b> 3					<b>Exam Date:</b> 03/05/2018			
1	2	3	4	5	6	7	8	9	10	
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation	
1							X	S	1. The initial conditions and the description for event 8 do not match concerning the "B"	
2					X		X	S	RHR pump.	
3					X	X		S	2. What is the 10 minutes based on for critical task #2. Does the leak size and other	
4					X			S	Parameters meet the RCP trip criteria stated in the WOG.	
5					X		X	S	3. See markup provided for additional enhancements and comments.	
6								S		
7						X		S		
8								S		
9								S		
9	0	0	0		4	2	6	E	Further evaluation will be performed during on-site prep week.	

Facility: Harris			Scenario: 4				Exam Date: 03/05/2018			
1	2	3	4	5	6	7	8	9	10	
Event	Realism/Cred.	Required Actions	Verifiable actions	LOD	TS	CTs	Scen. Overlap	U/E/S	Explanation	
1							X	S	1. Check scenario termination criteria. It does not make sense.	
2					X		X	S	2. Please verify evaluators note on page 63.	
3					X	X		S	3. See markup provided for additional enhancements and comments.	
4					X			S		
5					X	X		S		
6								S		
7						X		S		
8						X		S		
9							X	S		
9	0	0	0		4	4	6	E	Further evaluation will be performed during on-site prep week.	

**Instructions for Completing This Table:**

Use this table for each scenario for evaluation.

- 2 Check this box if the events are not related (e.g., seismic event followed by a pipe rupture) **OR** if the events do not obey the laws of physics and thermodynamics.
- 3, 4 In columns 3 and 4, check the box if there is **no** verifiable or required action, as applicable. Examples of required actions are as follows: (ES-301, D.5f)
  - opening, closing, and throttling valves
  - starting and stopping equipment
  - raising and lowering level, flow, and pressure
  - making decisions and giving directions
  - acknowledging or verifying key alarms and automatic actions (Uncomplicated events that require no operator action beyond this should **not** be included on the operating test unless they are necessary to set the stage for subsequent events. (Appendix D, B.3).)
- 5 Check this box if the level of difficulty is **not** appropriate.
- 6 Check this box if the event has a TS.
- 7 Check this box if the event has a critical task (CT). If the same CT covers more than one event, check the event where the CT started **only**.
- 8 Check this box if the event overlaps with another event on any of the last two NRC examinations. (Appendix D, C.1.f)
- 9 Based on the reviewer's judgment, is the event as written (U)nacceptable (requiring repair or replacement), in need of (E)nhancement, or (S)atisfactory? Mark the answer in column 9.
- 10 Record any explanations of the events here.

In the shaded boxes, sum the number of check marks in each column.

- In column 1, sum the number of events.
- In columns 2–4, record the total number of check marks for each column.
- In column 5, based on the reviewer's judgement, place a checkmark only if the scenario's LOD is not appropriate.
- In column 6, TS are required to be  $\geq 2$  for each scenario. (ES-301, D.5.d)
- In column 7, preidentified CTs should be  $\geq 2$  for each scenario. (Appendix D; ES-301, D.5.d; ES-301-4)
- In column 8, record the number of events not used on the two previous NRC initial licensing exams. A scenario is considered unsatisfactory if there is  $< 2$  new events. (ES-301, D.5.b; Appendix D, C.1.f)
- In column 9, record whether the scenario as written (U)nacceptable, in need of (E)nhancement, or (S)atisfactory from column 11 of the simulator scenario table.

Facility: Harris		Exam Date: 03/05/2018								
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	8	0	2	0	2	0	0	E		
2	9	0	4	0	3	0	0	E		
3	9	0	4	0	2	0	0	E		
4	9	0	4	0	4	0	0	E		

**Instructions for Completing This Table:**

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

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

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

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

- a. Events. Each event is described on a Form ES-D-2, including all switch manipulations, pertinent alarms, and verifiable actions. Event actions are balanced between at-the-controls and balance-of-plant applicants during the scenario. All event-related attributes on Form ES-301-4 are met. Enter the total number of unsatisfactory events in column 2.
- b. TS. A scenario includes at least two TS entries/actions across at least two different events. TS entries and actions are detailed on Form ES-D-2. Enter the total number of unsatisfactory TS entries/actions in column 4. (ES-301, D.5d)
- c. CT. Check that a scenario includes at least two preidentified CTs. This criterion is a target quantitative attribute, not an absolute minimum requirement. Check that each CT is explicitly bounded on Form ES-D-2 with measurable performance standards (see Appendix D). Enter the total number of unsatisfactory CTs in column 6.

7 In column 7, calculate the percentage of unsatisfactory scenario elements:  $\left(\frac{2 + 4 + 6}{1 + 3 + 5}\right) 100\%$

8 If the value in column 7 is > 20%, mark the scenario as (U)nsatisfactory in column 8. If column 7 is ≤ 20%, annotate with (E)nhancement or (S)atisfactory.

9 In column 9, explain each unsatisfactory event, TS, and CT. Editorial comments can also be added here.

Save initial review comments and detail subsequent comment resolution so that each exam-bound scenario is marked by a (S)atisfactory resolution on this form.

Site name: Harris

Exam Date: 03/05/2018

## OPERATING TEST TOTALS

	Total	Total Unsat.	Total Edits	Total Sat.	% Unsat.	Explanation
Admin. JPMs	9	1	7	1		
Sim./In-Plant JPMs	11	0	10	1		
Scenarios	4	0	4	0		
<b>Op. Test Totals:</b>	24	1	21	2	4	

**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).

Facility: <u>HARRIS</u>		Date of Exam: <u>MARCH 2018</u>															
Tier	Group	RO K/A Category Points											SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6
	2	1	2	2	N/A			1	2	N/A			1	9	2	2	4
	Tier Totals	4	5	5	N/A			4	5	N/A			4	27	5	5	10
2. Plant Systems	1	2	3	3	5	2	3	3	2	3	2	28	3	2	5		
	2	1	1	0	1	1	1	1	1	1	1	10	1	1	3		
	Tier Totals	3	4	3	4	3	3	4	4	3	4	3	38	3	3	8	
3. Generic Knowledge and Abilities Categories					1	2	3	4	10	1	2	3	4	7			
					3	3	1	3		2	2	1	2				

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

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
007EK2.03	Reactor Trip - Stabilization - Recovery / 1	3.5	3.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor trip status panel
009EK2.03	Small Break LOCA / 3	3	3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/Gs
015AG2.1.23	RCP Malfunctions / 4	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
025AA2.07	Loss of RHR System / 4	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pump cavitation
026AA1.01 <i>Ann. 0.2</i>	Loss of Component Cooling Water / 8	<i>3.1</i>	<i>3.2, 3.3</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>CCW temperature indications in Loads on the CCWS in the Control Room</i>
027AG2.2.22	Pressurizer Pressure Control System Malfunction / 3	4.0	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.
038EA1.10	Steam Gen. Tube Rupture / 3	3.7	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control room radiation monitoring indicators and alarms
054AK1.01	Loss of Main Feedwater / 4	4.1	4.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MFW line break depressurizes the S/G (similar to a steam line break)
055EK1.02	Station Blackout / 6	4.1	4.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Natural circulation cooling
056AG2.4.9	Loss of Off-site Power / 6	3.8	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
057AK3.01	Loss of Vital AC Inst. Bus / 6	4.1	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions contained in EOP for loss of vital ac electrical instrument bus

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
058AA2.03	Loss of DC Power / 6	3.5	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DC loads lost; impact on ability to operate and monitor plant systems
062AA2.06	Loss of Nuclear Svc Water / 4	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The length of time after the loss of SWS flow to a component before that component may be damaged
065AK3.04	Loss of Instrument Air / 8	3	3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cross-over to backup air supplies
077AA1.03	Generator Voltage and Electric Grid Disturbances / 6	3.8	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Voltage regulator controls
WE04EK1.3	LOCA Outside Containment / 3	3.5	3.9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Annunciators and conditions indicating signals, and remedial actions associated with the (LOCA Outside Containment).
WE05EK2.2	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.9	4.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.
WE11EK3.4	Loss of Emergency Coolant Recirc. / 4	3.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001AK1.22	Continuous Rod Withdrawal / 1	3.2	3.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Delta flux ( I)
036AK3.02	Fuel Handling Accident / 8	2.9	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Interlocks associated with fuel handling equipment
037AA2.01	Steam Generator Tube Leak / 3	3	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unusual readings of the monitors; steps needed to verify readings
051AA2.02	Loss of Condenser Vacuum / 4	3.9	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conditions requiring reactor and/or turbine trip
068AA1.28	Control Room Evac. / 8	3.8	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PZR level control and pressure control
076AK2.01	High Reactor Coolant Activity / 9	2.6	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Process radiation monitors
we02EG2.4.20	SI Termination / 3	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
WE03EK2.2	LOCA Cooldown - Depress. / 4	3.7	4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.
WE08EK3.3	RCS Overcooling - PTS / 4	3.7	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.

KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G														TOPIC:		
		RO	SRO																	
003K6.02	Reactor Coolant Pump	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCP seals and seal water supply
004K2.06	Chemical and Volume Control	2.6	2.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control instrumentation
004K6.31	Chemical and Volume Control	3.1	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seal injection system and limits on flow range
005A1.05	Residual Heat Removal	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Detection of and response to presence of water in RHR emergency sump
006K3.02	Emergency Core Cooling	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fuel
007A1.03	Pressurizer Relief/Quench Tank	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring quench tank temperature
007A4.01	Pressurizer Relief/Quench Tank	2.7	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PRT spray supply valve
008K4.07	Component Cooling Water	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operation of the CCW swing-bus power supply and its associated breakers and controls
010K5.02	Pressurizer Pressure Control	2.6	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Constant enthalpy expansion through a valve
012G2.4.1	Reactor Protection	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
012K3.01	Reactor Protection	3.9	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CRDS

KA	NAME / SAFETY FUNCTION:	IR	RO	SRO	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G													TOPIC:
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
013K2.01	Engineered Safety Features Actuation	3.6	3.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ESFAS/safeguards equipment control	
013K5.02	Engineered Safety Features Actuation	2.9	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety system logic and reliability	
022A3.01	Containment Cooling	4.1	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initiation of safeguards mode of operation	
026A4.05	Containment Spray	3.5	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment spray reset switches	
039A3.02	Main and Reheat Steam	3.1	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Isolation of the MRSS	
039K4.06	Main and Reheat Steam	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prevent reverse steam flow on steam line break	
059A2.12	Main Feedwater	3.1	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Failure of feedwater regulating valves	
061K3.02	Auxiliary/Emergency Feedwater	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/G	
062A1.01	AC Electrical Distribution	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Significance of D/G load limits	
062G2.4.45	AC Electrical Distribution	4.1	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to prioritize and interpret the significance of each annunciator or alarm.	
063K1.02	DC Electrical Distribution	2.7	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AC electrical system	

KA	NAME / SAFETY FUNCTION:	IR													TOPIC:			
		RO	SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G				
064K1.04	Emergency Diesel Generator	3.6	3.9	✓														DC distribution system
073K5.02 K4.01	Process Radiation Monitoring	4.0	4.3															Radiation intensity changes with source distance Release termination when radiation exceeds setpoint
076K2.04	Service Water	2.5	2.6	✓														Reactor building closed cooling water
078A4.01	Instrument Air	3.1	3.1										✓					Pressure gauges
103A2.03	Containment	3.5	3.8										✓					Phase A and B isolation
103A2.05	Containment	2.9	3.9										✓					Emergency containment entry

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
002K6.07	Reactor Coolant	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pumps
015K2.01	Nuclear Instrumentation	3.3	3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NIS channels, components and interconnections
016K5.01	Non-nuclear Instrumentation	2.7	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Separation of control and protection circuits
033A1.02	Spent Fuel Pool Cooling	2.8	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation monitoring systems
034A4.01	Fuel Handling Equipment	3.3	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Radiation levels
035A3.02	Steam Generator	3.7	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MAD valves
071G2.1.30	Waste Gas Disposal	4.4	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to locate and operate components, including local controls.
072K4.01	Area Radiation Monitoring	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment ventilation isolation
079K1.01	Station Air	3.0	3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IAS
086A2.04	Fire Protection	3.3	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Failure to actuate the FPS when required, resulting in fire damage



KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008AG2.4.24 G 2.4.18	Pressurizer Vapor Space Accident / 3	4.5 3.3	4.6 4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. <i>Knowledge of the specific bases for EOPs</i>
054AG2.4.35	Loss of Main Feedwater / 4	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
055EA2.04	Station Blackout / 6	3.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Instruments and controls operable with only dc battery power available
065AA2.04	Loss of Instrument Air / 8	2.2	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Typical conditions which could cause a compressor trip (e.g. high temperature)
we04EG2.4.3	LOCA Outside Containment / 3	2.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of events related to system operations/status that must be reported to internal organizations or outside agencies.
WE05EA2.2	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.7	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
078 <del>001</del> AG2.2.44	<del>Continuous Rod Withdrawal / 1</del> RCS Leak / 3	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
033AG2.4.46	Loss of Intermediate Range Ni / 7	4.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.
060AA2.05	Accidental Gaseous Radwaste Rel. / 9	3.7	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	That the automatic safety actions have occurred as a result of a high ARM system signal
074EA2.07	Inad. Core Cooling / 4	4.1	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The difference between a LOCA and inadequate core cooling from trends and indicators

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
004G2.4.35	Chemical and Volume Control	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
006G2.2.36	Emergency Core Cooling	3.1	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations
013A2.04 A2.01	Engineered Safety Features Actuation	3.6 4.6	4.2 4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of instrument bus LOC-A
059A2.06	Main Feedwater	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of steam flow to MFW system
064A2.16	Emergency Diesel Generator	3.3	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of offsite power during full-load testing of ED/G

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
002A2.04	Reactor Coolant	4.3	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Loss of heat sinks
011G2.4.50	Pressurizer Level Control	4.2	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.
041A2.02	Steam Dump/Turbine Bypass Control	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Steam valve stuck open

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
G2.1.35	Conduct of operations	2.2	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the fuel handling responsibilities of SRO's
G2.1.43	Conduct of operations	4.1	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use procedures to determine the effects on reactivity of plant changes
G2.2.19	Equipment Control	2.3	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of maintenance work order requirements.
G2.2.22	Equipment Control	4.0	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of limiting conditions for operations and safety limits.
G2.3.15	Radiation Control	2.9	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation monitoring systems
G2.4.11	Emergency Procedures/Plans	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
G2.4.23	Emergency Procedures/Plans	3.4	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO		
T1/G1	026AA1.01	<p>Phonecon 10/23/2017: HNP discussed being unable to create a T1/G1 question based on plant abnormal procedures for the K/A topic of Loss Of Component Cooling Water associated with CCW temperature indications, so selected a new K/A, keeping 026 and determined this item was better tied to a different randomly selected K/A:</p> <p>New K/A 026AA1.02: Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: Loads on the CCWS in the control room.</p>
T2/G1	073K5.02	<p>Phonecon 6/13/2017: HNP previously suppressed this K/A due to an inability to create a valid question on the topic of Process Radiation Monitors associated with a source distance relationship with liquid or gaseous monitors, so selected a new K/A, keeping 073 and randomly selecting from the remaining items for this K/A:</p> <p>New K/A 073K4.01: Knowledge of PRM system design feature(s) and/or interlock(s) which provide for the following: Release termination when radiation exceeds setpoint</p>

Tier / Group	Randomly Selected K/A	Reason for Rejection
SRO		
T2/G1	059A2.06	<p>Phonecon 6/14/2017: HNP does not have steam driven Main Feedwater Pumps therefore cannot create a valid question for Loss of steam flow to MFW system, so selected a new K/A, keeping 059 and randomly selecting from the remaining items for this K/A:</p> <p>New K/A 059A2.04: Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Feeding a dry S/G</p> <p>Phonecon 10/23: The replacement K/A (059A2.04) provided will cause overlap with SRO Q#2 therefore HNP has requested another K/A replacement. So selected a new K/A, keeping 059 and randomly selecting from the remaining items for this K/A:</p> <p>New K/A 059A2.01: Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Feedwater actuation of AFW system</p>
T1/G1	008AG2.4.2	<p>Phonecon 10/5/2017: HNP discussed being unable to create an SRO level question based on the guidance of ES-401 Attachment 2. This K/A topic dealing with APE 008, PZR Vapor Space Accident was tied with the Generic K/A 2.4.2, knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions, so selected a new K/A, keeping 008 and randomly selecting from the remaining SRO Level items for the Generic 2.4 K/As:</p> <p>New K/A 008AG2.4.18: Knowledge and specific bases for EOPs .</p>

T1/G2	001AG2.2.44	<p>Phonecon 2/23/2018: HNP discussed being unable to create an SRO level question based on the guidance of ES-401 Attachment 2. This K/A topic dealing with APE 001, Continuous Rod Withdrawal was tied with the Generic K/A 2.2.44, Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions, so selected a new K/A, keeping the Generic 2.2.44 and randomly selecting from the remaining T1/G2 SRO Level items for the K/As:</p> <p>New K/A 078AG2.2.44: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.</p>

Facility: Harris Nuclear Plant Test No. 05000400/2018301 Date of Exam: March 5, 2018 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.	<i>L</i>	<i>SR</i>	<i>CB</i>
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)	<i>L</i>	<i>SR</i>	<i>CB</i>
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	<i>L</i>	<i>SR</i>	<i>CB</i>
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).	<i>L</i>	<i>SR</i>	<i>CB</i>
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 <i>SR</i> ___ the licensee certifies that there is no duplication, or ___ other (explain).	<i>L</i>	<i>SR</i>	<i>CB</i>
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
	37 / 4	1 / 0	37 / 21
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	
	36 / 7	39 / 18	
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	<i>L</i>	<i>SR</i>	<i>CB</i>
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.	<i>L</i>	<i>SR</i>	<i>CB</i>
10. Question psychometric quality and format meet the guidelines in Appendix B.	<i>L</i>	<i>SR</i>	<i>CB</i>
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.	<i>L</i>	<i>SR</i>	<i>CB</i>
Printed Name/Signature		Date	
a. Author	Archie Lucky / <i>Archie Lucky</i>	2-28-18	
b. Facility Reviewer (*)	Scott Rua / <i>Scott Rua</i>	2-28-18	
c. NRC Chief Examiner (#)	Daniel M. Bacon / <i>Daniel M. Bacon</i>	2-28-2018	
d. NRC Regional Supervisor	Gerald J. McCoy / <i>Gerald J. McCoy</i>	3/2/2018	
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.		

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Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	#/Units	Backward	Q – K/A	SRO Only			
1	H	2	X											B	S	K/A 007EK2.03 This was question #1 on the 2009A NRC RO exam.
	<p>We need to discuss the stem focus. With no timeline or temperature trend given, can the applicant determine if they are in the far left or far right action column in the table? Would you not attempt to stop dumping steam (close the Group 1 Steam Dumps) by placing the bypass interlock switch in off or using the manual controller prior to closing the MSIVs? Also, controlling feed flow is listed in all three of the columns and may also be a partially correct answer. 1/31/18- Licensee provided additional information and added it to the plausibility and answer analysis. Question is Satisfactory.</p>															
2	H	2	X											B	E	K/A 009EK2.03 This was question #3 on the 2013 NRC RO exam.
	<p>The first part question is not closely related to the K/A and could be considered a “tack on.” We need to be very sensitive to asking questions that are not directly related to the randomly selected K/A when using two-part questions. We do not want to just add extra questions to the exam. The second part question has teaching in the stem. You could give initial conditions where pressure was somewhat higher than 230 psig and RHR flow was somewhat less than 1000 GPM and ask whether RHR or SGs would be used for RCS cooldown at this time. For the second part, you could ask if you would dump steam from the intact steam generators to the condenser or use the PORVs to reduce SG pressure less than RCS pressure IAW E-1. I think you would also need to state that dose was acceptable. Also, the MINIMUM statement in the second part question does not work with the 230 psig answer choices because the procedure states less than 230psig (What if RCS pressure = 230 psig?). 1/31/18- Licensee provided an edited question that removed teaching from the stem, but did not correct concern with tack on first part question or wording of second part question. 2/8/18- Licensee provided an edited question where the second part question is directly related to the K/A. The new question is Satisfactory.</p>															
3	H	2	X			X								N	E	K/A 015AG2.1.23
	<p>It could be argued that Choice C is also a sequence of actions that the OATC is required to perform, especially since they both have additional correct actions that the other choice does not have but are otherwise in the proper sequence. This leads potentially two correct answers. Choice D may not be plausible. Why would you wait 3 to 5 minutes to shut the spray valve? We can discuss better ways to test the exact same information without creating the same concerns. 1/31/18- Licensee provided an edited question. Choices C and D are not plausible on the new question. Why would anyone think that you should shut the spray valve for a pump that is operating? 2/8/18- Licensee provided an edited question with all choices being plausible. The new question is Satisfactory.</p>															

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4	H	2				X								B	E	K/A 025AA2.07 This was question #4 on the 2012 NRC RO exam.
	Choice D(2) is not plausible. Why would an applicant think that it is required to shut a suction valve for the B RHR pump when it is running? I do not agree with the plausibility statement with regards to the minimum flow recirculation valve. You could ask about how to monitor vessel level, vessel level requirements, vortexing, etc. to develop a second part question with all credible distractors. 1/31/18- Licensee provided an edited question. The new question is Satisfactory.															
5	H	3	X											N	E	K/A 026AA1.02
	There is a typographical error in the first paragraph of your plausibility and answer analysis (2006 vice 1006). The 1006 description in the plausibility and answer analysis appears to have a typographical error. There is no 9 degrees/minute temperature rise listed in the initial conditions. Need to be more descriptive of the type of bearings in the initial conditions (as listed in Attachment 1). Based on the question that you asked, it appears that Choice A would be the correct answer. Based on your analysis, if the C RCP stator winding was 253 degrees at 10:00.00 and rose at 8 degrees per minute, then a reactor trip would be required <b>BEFORE</b> 10:06.00. The temperature would be 301 degrees at 10:06.00, which is one degree above the limit. You need to ask something to the effect of what the earliest time a reactor trip is required based on the given conditions. 1/31/18- Licensee provided an edited question. The new question is Satisfactory.															
6	F	2												B	S	K/A 027AG2.2.22
	Question is Satisfactory.															
7	H	2	X											N	E	K/A 038EA1.10
	There is not enough information in the given conditions to determine whether there is a bigger leak in the A SG and a smaller leak in the B SG or a leak in the A SG and no leak in the B SG with shine causing the increased radiation levels on the B MSL as stated in the plausibility and answer analysis. An applicant could easily argue for two correct answers. 1/31/18- The licensee provided additional explanation of the question. The first part question is worded in a manner that only works with choices A and B. Could ask if a tube rupture is or is not occurring in the "B" SG. 2/8/18- Licensee provided an edited question. The new question is Satisfactory.															
8	H	2		X		X								B	U	K/A 054AK1.01
	Choices C and D are not plausible. How could Tavg stabilize at no-load with either a loss of reactor coolant or faulted steam generator casualty in progress? With so many given conditions focused solely on A SG parameters, it cues the applicants to a problem with the A SG. Question is Unsatisfactory due to more than one non-plausible distractor. 2/8/18- Licensee submitted a different bank question that was on a 2001 Farley exam. With regards to physics in the given conditions, it does not seem possible that steam flow from the A steam generator could be stable when steam generator pressure and level were lowering, feed flow pegged high, and all parameters on the other two steam generators stable. You could ask a question about main steam line isolation and meet this K/A.															

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2/17/18- Licensee submitted a new question. The new question does not meet the K/A. The question does not have anything to do with depressurizing the steam generator.

2/22/18- Licensee provided edited the question. Need to remove the information about the S/G depressurizing from the question and give a pressure and trend in the initial conditions. It would be much better match for the K/A to ask something about a main steam isolation due to lowering S/G press than what happens on lowering level.

2/23/18- Licensee edited the question. The second part question stem needs to state earliest time vice latest time. The first part question really is not necessary. The second part meets the K/A. You could go with four times.

2/26/18- Licensee edited the question. The question is Satisfactory.

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

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question a 1 (easy) to 5 (difficult); questions with a difficulty between 2 and 4 are acceptable.
3. Check the appropriate box if a psychometric flaw is identified:
  - "Stem Focus": The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
  - "Cues": The stem or distractors contain cues (e.g., clues, specific determiners, phrasing, length).
  - "T/F": The answer choices are a collection of unrelated true/false statements.
  - "Cred. Dist.": The distractors are not credible; single implausible distractors should be repaired, and more than one is unacceptable.
  - "Partial": One or more distractors are partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by the stem).
4. Check the appropriate box if a job content flaw is identified:
  - "Job Link": The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
  - "Minutia": The question requires the recall of knowledge that is too specific for the closed-reference test mode (i.e., it is not required to be known from memory).
  - "#/Units": The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
  - "Backward": The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those K/As that are designated "SRO-only." (K/A and license-level mismatches are unacceptable.)
6. Enter question's source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet the criteria of Form ES-401, Section D.2.f.
7. Based on the reviewer's judgment, is the question, as written, (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" status ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Backward	Q - K/A	SRO Only			
9	H	2												B	S	K/A 055EK1.02 This was question #9 on the 2012 NRC RO exam.
	Question is Satisfactory.															
10	H	3										X		B	U	K/A 056AG2.4.9 This was question #75 on the 2009A NRC RO exam.
	This question does not appear to test the K/A. Although, a loss of offsite power is listed in the given conditions, it does not seem to be relevant to the question that is asked or the answer choices. The question seems to be geared solely towards the RCS leak, without the LOOP having any effect. Although this question was used on a 2009 NRC exam, it was used in the Tier 3 generic category with the LOOP evolution portion of Tier 1 not being included. The plausibility and answer analysis does not address the LOOP in any way. The question is Unsatisfactory due to K/A mismatch. The question on the 2009A RO exam had nothing to do with a LOOP, you just tacked it on to the initial conditions for this exam. See ES-201 C.1.h. 1/31/18- Licensee provided a new question. The new question is Satisfactory.															
11	H	2												B	S	K/A 057AK3.01 This was question #11 on the 2012 NRC RO exam.
	Question is Satisfactory.															
12	H	3												B	S	K/A 058AA2.03 This was question #11 on the 2012 NRC RO exam.
	Question is Satisfactory.															

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
13	F	2	X									B	E	K/A 062AA2.06	
	<p>The question statement needs to be tied to a procedure.            1/31/18- Licensee provided an edited question. The procedure is referenced as requested. Subsequently identified that choices B.2 and D.2 may not be plausible because realigning NSW would also be to prevent damage due to overheating.            2/8/18- Licensee provided an edited question. The new question is Satisfactory.</p>														
14	H	2	X			X							B	E	K/A 065AK3.04  This was question #14 on the 2012 NRC RO exam.
	<p>The B(2) and D(2) answer choice wording is much longer than necessary and is unbalanced when compared to A(2) and C(2). See NUREG-1021 Appendix B. The short period of time portion of the B(2) and D(2) answer choices makes them not plausible. Please explain why this question is listed as high (comprehensive) cognitive level (LOK). It seems to be at the fundamental level. Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note.            1/31/18- Licensee edited the question. Question is Satisfactory with minor changes to the second part answer choices.</p>														
15	F	2				X							N	E	K/A 077AA1.03
	<p>Choice A is not plausible. If you are adjusting the <u>set point</u> reference switch, it seems that the voltage regulator would be operating in either manual or auto. The other three choices restore voltage and Choice D only stabilizes voltage. The order of the action is also questionable. Would you go to local control and then dispatch an operator to the switchgear room or dispatch the operator and then go to local control? Also, I could not find a reference to CS-1540 in any of the procedures that I found which applied to operation of the voltage regulator. I also could not find any training reference that discussed CS-1540. This question appears to be modified from a question on the 2012 NRC RO written exam.            1/31/18- Licensee provided a new question. The new question is Satisfactory with minor changes to the first part question stem.</p>														
16	H	2	X			X							N	U	K/A WE04EK1.3
	<p>With a containment pressure of 2.1 psig listed in the given conditions, it seems that there is a LOCA inside containment and outside containment. Choice B is not plausible without any information given in the initial conditions to determine whether it is required or not, it is on the foldout page prior to step 12 of E-1. Choice C is not plausible when there is no information given in the initial conditions to evaluate it. The plausibility statements do not work when containment pressure is 2.1 psig. Also, is this an RO question based on knowledge of procedure entry conditions or more of an SRO question based on procedure selection? Question is Unsatisfactory due to more than one non-plausible distractor.             2/8/18- Licensee submitted a two part question. The first part question is good. The second part question seems to be SRO procedure selection.            2/17/18- Licensee submitted a new question. Choices C is not plausible. How could you use RV level when pressurizer level is on scale and rising.            Choice D is also probably not plausible. I believe you generally always look for being above a value when looking at SCM, not a rising trend.</p>														

Q	1. LOK (5/4)	2. LOD (1/5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
17	2/21/18- Licensee submitted an edited question that replaced the vessel level distractor with pressurizer pressure. Pressurizer pressure is not acceptable as a distractor, especially with the given conditions. RCS subcooling is also not plausible. This question can be fixed using the answer choices of RCS pressure, PZR level, stable or rising, or rising ONLY. 2/23/18- Licensee edited the question. The question is Satisfactory.														
	H	2	X										B	E	K/A WE05EK2.2  This was question #17 on the 2012 NRC RO exam.
Need to have a trend for total AFW flow in the given conditions, just as there is one for SG NR levels, to balance the question as it applies to the use of "FIRST" in the question stem. 1/31/18- The licensee edited the question as requested. The edited question is Satisfactory.															
18	F	2		X		X							B	E	K/A WE11EK3.4  This was question #17 on the 2011 NRC RO exam.
	Based on the title of FR-Z.1 and the stem stating that ECA-1.1 takes precedence, Choice C is not plausible. Choices A and B are not plausible because with FR-Z.1 having all spray pumps running and ECA-1.1 securing spray pumps based on containment pressure and number of fans running, how can maintaining heat or iodine removal be a reason for ECA-1.1 taking precedence. The stem question provides a cue that Choice C is not correct. Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note. 2/8/18- Licensee submitted a two part question. Choice D(2) is not plausible when compared to C(2). There is also potentially a procedural problem with step 3.d of FR-Z.1. Could ask about running one or two spray pumps (and reasons) in choices C and D. 2/17/18- Licensee submitted a new question. Choice B should say "minimize RWST depletion" vice "reduce RWST depletion," because the containment spray pumps were all stopped. 2/21/18- Licensee edited the question. The question is Satisfactory.														
19	H	2	X			X			?				N	U	K/A 001AK1.22
	Choice C is not plausible because AFD could not return to its original value while a continuous withdrawal in progress. It seems that the intended basis for the applicant determining whether a continuous rod withdrawal or dilution is in progress is the knowledge that control rods are in manual for an NI Gain adjustment. This seems to make Choices A(1) and B(1) not plausible. Average temperature would not be rising if rods were automatic and driving in due to a high temperature caused by a dilution. Is it possibly minutia to have to know that rods are in manual for an NI adjustment? 1/31/18-The licensee submitted a new question. The new question is Satisfactory.														
20	F	1				X						X	N	U	K/A 036 AK3.02

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
																	Question was submitted for preliminary review.  Not counted as Unsatisfactory for exam report purposes.
	<p>1. Choices A(2) and C(2) are not plausible. The weight of a component that you are not lifting cannot be the cause of the overload. It is clearly stated in the initial conditions that a fuel assembly is being lifted.</p> <p>2. I do not believe that choice C(1) and D(1) are plausible. 850 pounds is a pretty high number. RO applicants probably do not know the weight of the mast by itself. Is this an objective for them in a lesson plan? It seems that 250# or 430# would be more plausible because they are listed as numbers for other interlocks in the reference provided.</p> <p>3. LOD = 1 due to the combination of 1 and 2 above.</p> <p>Question is Unsatisfactory due to more than one implausible distractor and LOD = 1.</p> <p>The question was modified from the previous question and resubmitted with the draft submittal. Choices B(2) and C(2) are not plausible. The Choice B plausibility and answer analysis statement is not correct. Does this really test the reason portion of the K/A?</p> <p>1/31/18-The licensee edited the question. The new question is Satisfactory.</p>																
	H	2				X								N(p/l) B(T-75)		U	K/A 037 AA2.01  Question was submitted for preliminary review.  Not counted as Unsatisfactory for exam report purposes.
21	<p>1. Choices A(1) and B(1) are not plausible. There is no RCS piping in the turbine building.</p> <p>2. Choice B is not plausible by itself when considering that B(1) and B(2) are not compatible with each other.</p> <p>3. Choice A(2) is not compatible with A(1).</p> <p>Question is Unsatisfactory due to more than one implausible distractor.</p> <p>A different Bank question was submitted with the draft submittal. Choices A, B, and C on question submitted with the draft submittal are not plausible as methods to determine an actual leak rate.</p> <p>2/8/2018- A different question was submitted. The second part question stem focus doesn't ask exactly what is intended for the answer. Distractors A(2) and D(2) are not plausible with intended correct answer choice.</p> <p>Could ask about condenser vacuum pump radiation monitor indication if the monitor cooler is not in service. Could also ask about OSI PI plot. Both are notes in AOP-16.</p> <p>2/17/18- Licensee submitted a new question. All of the plausibility and answer analysis do not match the answer choices.</p>																

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
	2/21/18- Licensee edited the plausibility and answer analysis. Need a copy of HPP-780 to review. Is this a procedure that the applicants should be familiar with (Is it operationally valid to ask). Also, is surveying the affected area plausible. Should it be to survey the affected main steam lines? 2/23/18- Licensee submitted a new second part question. The question is Satisfactory.														
22	H	2	X										B	S	K/A 051AA2.02  This was question #17 on the 2011 NRC RO exam.
	Question is Satisfactory.														
23	H	3	X										N	E	K/A 068AA1.28  Please place an IAW AOP-004 statement somewhere in the question statement. 1/31/18-Licensee edited question as requested. Question is Satisfactory.
24	F	2											B	S	K/A 076AK2.01  This was question #24 on the 2012 NRC RO exam.
	Question is Satisfactory.														
25	F	2	X				X						N	E	Although I understand that the question is asking what the EOP-ES-1.1 caution says, however, the oscillating discharge pressure that the caution statement discusses concerning runout is actually caused by cavitation. The Choice D plausibility analysis is partially correct, but not complete. I believe that an applicant could argue two correct answers. A quick google search of centrifugal pump runout will produce numerous engineering articles that state runout can produce cavitation. I can think of several questions that could be asked for this K/A in a manner that would alleviate this concern. You could ask if the reason for the 150 gpm charging flow limit was to prevent CSIP runout or to prevent damage to the RHX. For the second part you could ask if fluctuating discharge pressure (or maybe pump amps) is or is not an indication of CSIP runout. 2/17/18- Licensee submitted a new question. The new question is Satisfactory.
26	H	2											B	S	K/A WE03EK2.2  This was question #26

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
																	on the 2009A NRC RO exam.
	Question is Satisfactory.																
27	F	2												B	S	K/A WE08EK3.3 This was question #26 on the 2012 NRC RO exam.	
	Question is Satisfactory.																
28	H	1				X								B	U	K/A 003K6.02 Reference Provided.	
	<p>Choices B and D are not plausible due to the direct lookup aspect of this question. Choice A is also not plausible. The plausibility analysis states that it is plausible because #1 seal leakoff is &lt;1 gpm. This point is contradicted by #2 seal leakoff being high. LOD = 1 based on direct lookup of reference provided. Question is Unsatisfactory due to more than one non-plausible distractor and LOD = 1.</p> <p>2/8/18- Licensee submitted new question. Choice B and D distractor analysis do not make sense. The first part question is not worded correctly regarding the maximum. Exactly what temperatures are you talking about in B(2) and D(2).</p> <p>2/17/18- Licensee edited the question. The problem with MINIMUM vice MAXIMUM is corrected. Choices B(2) and D(2) sound like they are a reason for restoring flow vice a reason for <b>NOT</b> restoring flow, which makes them seem not plausible.</p> <p>2/21/18- Licensee edited the question. Need to change degradation to damage.</p> <p>2/23/18- Licensee edited the question. The question is Satisfactory.</p>																
29	H	3												N	S	K/A 004 K2.06 Question was submitted for preliminary review.	
	Question is Satisfactory.																
30	H	2	X											B	E	K/A 004K6.31	
	<p>It would be clearer to state that seal injection flow to each RCP is 3.4 gpm vice all RCPs is 3.4 gpm.</p> <p>2/8/18- The question has been edited as requested and is Satisfactory.</p>																
31	F	2												B	S	K/A 005A1.05 This was question #31	

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
															on the 2013 NRC RO exam.
	Question is Satisfactory.														
32	H	2	X			X							N	E	K/A 006 K3.02 Question was submitted for preliminary review.
	1.The information given in the initial conditions does not provide the focus needed to answer the first part of the question. 2. Choices A(1) and B(1) are not plausible given the information presented in the stem. Question was modified and resubmitted with the draft submittal. The modified question is satisfactory (1/3/18).														
33	H	2											M	S	K/A 007A1.03
	Question is Satisfactory. Please explain why this is classified as a high cognitive level (LOK).														
34	F	2	X										N	E	K/A 007A4.01
	Need to change A(1) and B(1) answer choices to "will automatically open". 2/8/18- The question has been edited as requested and is Satisfactory.														
35	F	2				X							B	S	K/A 008K4.07
	Question is Satisfactory.														
36	H	2									X		N	U	K/A 010K5.02
	Question does not test the K/A (operational Implications of constant enthalpy expansion). This is normally tested with a leak to the PRT. Question is Unsatisfactory due to not meeting the K/A. 2/17/18- Licensee submitted a different question. How can the plausibility and answer analysis statements be different for choices A(1) and B(1) when they are the same answer? 2/21/18- Licensee corrected plausibility and answer analysis. The question is Satisfactory.														
37	H	2	X			X							B	U	K/A 012G2.4.1
	Choices A, B, and D are not plausible distractors based on the minimal information that is given. Question is Unsatisfactory due to more than on non-plausible distractor.														

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
			2/17/18- Licensee submitted a different question. The new question is Satisfactory.											
38	H	2				X						B	U	K/A 012K3.01
	<p>Choices A and D are not plausible because they are essentially the exact same thing. Choice C is not plausible due to being totally non-conservative for a protective system. Question is Unsatisfactory due to more than one non-plausible distractor. There is a typographical/spelling error in choice D.</p> <p>2/17/18- Licensee submitted a different question. Choices A(1) and B(1) are not plausible.</p> <p>2/23/18- Licensee provided a new question. Choices A(1) and B(1) are not plausible. You could ask about the effect a loss of 48v DC would have on the bypass breaker and if a shunt trip would occur for the bypass breaker.</p> <p>2/26/18- Licensee edited the question. The question is Satisfactory.</p>													
39	F	2										B	S	K/A 013K2.01
	Question is Satisfactory.													
40	H	3										B	S	K/A 013 K5.02
	Question is Satisfactory.													
41	H	2				X						B	E	K/A 022A3.01  This was question #41 on the 2009A NRC RO exam.
	<p>Choices C and D are not plausible. We always keep both trains operating if possible to allow for a single failure. Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note.</p> <p>2/17/18- Licensee submitted a different question. The new question is Satisfactory.</p>													
42	F	1				X						B	U	K/A 026A4.05
	<p>Choices B and D are not plausible. LOD =1. Question is Unsatisfactory due to more than one non-plausible distractor and LOD = 1.</p> <p>2/17/18- Licensee provided new distractors for the question. The concept is good, but choices A and B are subsets of choices C and D. This needs to be set up as a two part question. Also, choice B is not grammatically correct.</p> <p>2/23/18- Licensee edited the question. The question is Satisfactory.</p>													
43	F	2										B	S	K/A 039A3.02

Q	1. LOK (5/4)	2. LOD (1.5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation	
																	This was question #44 on the 2016 NRC RO exam.
	Question is Satisfactory.																
44	H	2	X					X						N	E		K/A 039K4.06
	<p>Selecting the priority/order of AOP entry is an SRO job function. It is also not closely related to the K/A.</p> <p>2/8/18- Licensee edited first part question to just ask what AOP to enter. This also did not address the concern that it was not closely related to the K/A. You could ask about shutting the isolation valves on the A versus C TDAFW pump steam supply lines to attempt to isolate (since there are only two) and whether or not check valves are installed or where they are installed (upstream, downstream, or both upstream and downstream of isolation valves). There may also be information to test about Attachment 10 of AOP-10.</p> <p>2/17/18- Licensee submitted a different question. The second part question does not work without a very specific location of the leak location. We need to discuss. I have a very simple fix for this.</p> <p>2/23/18- Licensee edited the question. The word "line" in the second part question needs to be "lines".</p> <p>2/26/18- Licensee edited the question. The question is Satisfactory.</p>																
45	F	2					X							N	E		K/A 059A2.12
	<p>Simply placing the FRV in manual will not control level.</p> <p>2/8/18- The licensee provided an edited question. The second part question is a tack on and is not related to the K/A. I also do not believe that this question meets the K/A.</p> <p>2/17/18- Licensee edited the question. The second part question needs an "a" inserted after the comma.</p> <p>2/21/18- Licensee edited the question. The question is Satisfactory.</p>																
46	H	2												B	S		K/A 061K3.02
	<p>We need to discuss whether or not this overlaps with question #45 (the 25%).</p> <p>Question is Satisfactory.</p>																
47	H	2	X											N	E		K/A 062A1.01 Reference provided.



Q	1. LOK (F/H)	2. LOD (1.5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
53	F	2	X									N	E	K/A 078A4.01
Please add an IAW (procedure) statement to the applicable portion of the question stem. For the second part question, place the "at _____psig" portion of the question at the end of the sentence to make it read better. 2/8/18- Licensee edited the question. The question is Satisfactory.														
54	H	2	X	X								N	E	K/A 103A2.03
The grammar associated with the second part question only works with the B(2) and D(2) answer choices which is the correct answer for the second part question. This provides a cue. The second part question needs to be more clearly stated that it is based on the given conditions. 2/8/18- Licensee edited the question. The question is Satisfactory.														
55	H	2										N	S	K/A 103A2.05
Question is Satisfactory.														
56	H	1			X							N	U	K/A 002K6.07
LOD = 1. This is a simple math problem that does not require plant specific knowledge to answer. Choice A and B are not plausible based purely on logic. Question is Unsatisfactory due to LOD = 1 and more than one non-plausible distractor. 2/8/18- Licensee edited the question. Each needs to be added to the end of the first question sentence. 2/21/18- Licensee edited the question. The question is Satisfactory.														
57	F	2										N	S	K/A 015K2.01
Question is Satisfactory.														
58	F	2			X							B	E	K/A 016K5.01
Choice D is not plausible. 2/8/18- Licensee provided a different distractor for choice D. The new distractor is also not plausible. Also, can you really separate choice A and C? Could ask about separate instrument channels versus isolation amplifiers for a first part question and if AMSAC uses the same or diverse sensors for a second part question. 2/22/18- Licensee provided a new question. The questions have a cue to the answer. Choices A(2) and B(2) are not plausible. 2/23/18-The choice A and B plausibility and answer analysis is contradicted by the RPS lesson plan. See pages 11 and 12. See page 80 for ideas on writing a good question. 2/26/18- Licensee edited the question. The question is Satisfactory.														
59	H	2	X									B	E	K/A 033A1.02

Q	1. LOK (F/H)	2. LOD (1/5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
														This was question #62 on the 2012 NRC RO exam.
	The A(2) and C(2) answer choices do not really read correctly when inserted into the second part question blank. 2/8/18- Licensee submitted an edited question with the same problem. It should read "ONLY the 'A'". 2/21/18- Licensee edited the question. The question is Satisfactory.													
60	F	2	X									B	E	K/A 034A4.01
	Need to discuss removing the bullet about radiation levels rising steadily. This could cause an applicant to believe that the pre-entry purge radiation monitor would eventually alarm and isolate pre-entry purge. 2/17/18- Licensee edited the question. The question is Satisfactory.													
61	H	2			X							B	E	K/A 035A3.02
	Choices A and B are too close together to demonstrate plausibility for testing purposes on this subject. 2/17/18- Licensee edited the question. The question is Satisfactory.													
62	H	2	X									N	S	K/A 071G2.1.30
	Question is Satisfactory.													
63	H	2			X							B	E	K/A 072K4.01
	Choice B is logically not plausible because each train has one of two in alarm with the other not in alarm. Choice C is probably not plausible for the same reason, depending on what effect the clearance has on the B train. 2/17/18- Licensee edited the question. The question is Satisfactory.													
64	F	2										B	S	K/A 079K1.01 This was question #64 on the 2009A NRC RO exam.
	Question is Satisfactory.													
65	F	2			X			X				B	E	K/A 086A2.04
	Answer choices A(2) and B(2) are not plausible. How would anyone think that you could determine tank level from pump discharge pressure? The second sentence in the first paragraph in the plausibility and answer analysis makes no sense to me. 2/17/18- Licensee edited the question. The question is Satisfactory.													

Q	1. LOK (F/U)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
66	F	1				X							B	U	K/A G2.1.2
	<p>Question is Unsatisfactory due to LOD = 1. Choice B is definitely not a plausible distractor. Depending on how you read it, Choice D is either not plausible or could also be correct if look at the responsibilities of all operations personnel and include the OATC.</p> <p>2/17/18- Licensee edited the question. Choices B and C just read like Supervisory (CRS) functions and provide for a very low level of difficulty.</p> <p>2/22/18- Licensee provided a new question. It is not plausible for an RO to have to communicate the results of a board walkdown to the Shift Manager every 2 hours.</p> <p>2/23/18- Licensee edited the question. The question is Satisfactory.</p>														
67	F	2	X			X							B	E	K/A G2.1.36
	<p>The question needs to reference the applicable procedure (IAW statement). The wording of Choice A makes it not plausible. All answer choices need to be in the same tense.</p> <p>2/17/18- Licensee edited the question. The question is Satisfactory.</p>														
68	H	2		X				?					N	U	K/A G2.1.45 Reference provided.
	<p>Choices A and C are not plausible due to labels on the provided graphs as a minimum. Possibly two correct answers. Per GP-005, wouldn't the call between Choices B and D be made by the Shift Manager? Question is Unsatisfactory due to more than one non-plausible distractors.</p> <p>2/17/18- Licensee edited the question. I do not believe that the correct answer is one of the answer choices. Aren't you supposed to convert the loop delta temperature to reactor power If so, it is less than 20%.</p> <p>2/23/18- Licensee edited the question. Values for loop delta T and NIs are too close using the sheet versus the computer.</p> <p>2/26/18- Licensee edited the question. The question is Satisfactory.</p>														
69	F	2				X							B	E	K/A G2.2.18 This was question #68 on the 2012 NRC RO exam.
	<p>Choices B and C are not plausible. DHR and RHR on the same choice? Inventory and cavity level on the same choice. AFW? Your plausibility and answer analysis description does not seem to match up with WCM-001. Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note.</p> <p>2/17/18- Licensee edited the question. The question is Satisfactory.</p>														
70	H	2	X										N	E	K/A G2.2.35
	<p>The first sentence of the plausibility and answer analysis is not fully correct (Mode 5 also applies to &lt; 200 F). The second part question is not closely related to the K/A and is a tack on. You could consider asking about keff for the second part question.</p> <p>2/17/18- Licensee edited the question. I do not believe that the first part selected answer choice is actually correct.</p> <p>2/8/18- Licensee edited the question. The question is Satisfactory.</p>														

Q	1. LOK (F/U)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
71	F	2				X					X		B	U	K/A G2.2.38
	<p>Choices A and D are not plausible. Is FSAR basis knowledge RO knowledge. Question does not meet the K/A. The K/A is knowledge of conditions and limitations in the facility license not knowledge of the reason for following all of the conditions and limitations in the license. Question is Unsatisfactory due to K/A mismatch and more than one non-plausible distractor.</p> <p>2/8/18- There were no changes made to this question. A different question needs to be submitted.</p> <p>2/17/18- Licensee provided a new question. I do not believe the correct answer is selected. The plausibility and answer analysis and the selected answer do not match.</p> <p>2/21/18- The licensee changed the answer, but the plausibility and answer analysis is not correct.</p> <p>2/23/18- Licensee edited the plausibility and answer analysis. The question is Satisfactory.</p>														
72	F	2											B	S	K/A G2.3.4
	Question is Satisfactory.														
73	F	2	X										B	E	K/A G2.4.11
	<p>Please explain the Choice A plausibility and answer analysis. I could not find your explanation in GP-006.</p> <p>2/17/18- Licensee edited the question. The question is Satisfactory.</p>														
74	F	2				X							B	E	K/A G2.4.25
	<p>Either Choice A or Choice D is not plausible. If Choice A was correct, then Choice D would also be correct. I am assuming that the containment fire alarms are received in the control room.</p> <p>2/17/18- Licensee edited the question. The question is Satisfactory.</p>														
75	F	2	X			X							B	E	K/A G2.4.31
	<p>Would tripping the turbine require tripping the reactor first? What do your procedures require regarding this? I just need to verify the operational validity of the question. See AOP-006 and AOP-012.</p> <p>2/17/18- Licensee submitted a new question. The question is Satisfactory.</p>														
76 (1)	H	2	X										N	E	K/A 008AG2.4.18
	<p>Need to add all of the parameters to the initial conditions that are used to evaluate for SI termination criteria.</p> <p>2/17/18- The licensee edited the question. The question is Satisfactory.</p>														
77 (2)	F	2	X				X						N	E	K/A 054G2.4.35

Q	1. LOK (F/H)	2. LOD (L/E)	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation									
	<p>Choice D is also correct. See step 31 of FR-H.1 and step 12 of Attachment 2. The two attachments are used in conjunction with each other. SDD-FR-H.1 states:  <b>If feeding with main FW or condensate, flow is restricted to the "lowest controllable flow". This is consistent with the intent of the minimizing thermal stresses while acknowledging inability to control and measure flow rates in the 50 KPPH range for these systems.</b>                      I believe that this may also make the second part of choices A and C correct.                      2/17/18- Licensee provided a new question. Based on the conditions given, it appears to me that the crew could be at step 31 of FR-H.1. If so, there is a caution prior to step 31 that states feed flow rates should be controlled to prevent excessive RCS cooldown. Also, what is given in the stem that would cause an applicant to choose restoring MFW vise AFW. Don't really know what the problem is with either, just know that you are in FR-H.1 because neither of them is working properly.                      2/21/18- Licensee edited the question. The first part of the question is procedure selection and is ok. Distractors A(2) and B(2) may be partially correct due to the caution prior to step 31.                      2/23/18- Licensee edited the question. The question is Satisfactory.</p>																
78 (3)	H	2	X												B	E	K/A 055EA2.04  This was question #5 on the 2013 NRC SRO exam.
	<p>IAW ECA-0.0, steam should be dumped using all intact SG PORVs. The stem question needs to be enhanced to be more clear. Choices A(2) and C(2) are not plausible. Why would you cool down to a pressure and not a temperature? Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note.                      2/17/18- Licensee edited the question. The second part is not related to the K/A and is not really needed. This places the applicants at more risk because they are being require to answer questions that were not randomly selected. The first part that meets the K/A is really at the RO level. The second part does not really ask procedure selection. Both of these issues could be very easily fixed.                      2/22/18- Licensee edited the question. The question is Satisfactory.</p>																
79 (4)	H	2	X												N	E	K/A 065AA2.04
	<p>AOP states:                      2.0 ENTRY CONDITIONS                      ANY of the following:                      • Complete or abnormal partial loss of Instrument Air header pressure                      • Instrument Air pressure continues to fall with all available air compressors operating</p>																



Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
	<p>1. Choices A(1) and B(1) are not plausible when compared to C(1) and C(2). A high failure of the selected first stage pressure channel would cause a continuous spurious control bank withdraw, therefore there would be two correct answers if A(1) or B(1) were correct. This allows choices A and B to be eliminated by logic.                      The original question was modified and resubmitted.                      The first part can be answered by RO systems knowledge, which is OK for a two-part question. The second part question is not SRO-only because it only requires RO level knowledge of the overall sequence of events for the procedure. See ES-401 Attachment 2 Figure 2-2 and paragraph II.E. There is no procedure selection. The modified question is Unsatisfactory due to not being SRO-only. It will not be counted unsatisfactory for exam report purposes due to its preliminary submittal and our previous discussions.                      2/17/18- Licensee submitted a new second part for this question. The LOD = 1 because the first part is RO knowledge and the second part can be easily answered based on the procedure titles that are listed. The procedures being selected also do not relate directly to the specific failure or the K/A. It would really be more of a generic type question.                      2/26/18- Licensee edited the question. The question is Satisfactory.</p>																
	H	1	X									X	X	N	U	K/A 033 AG2.4.46 Question was submitted for preliminary review. Reference provided.	
83 (8)	<p>1. Did you mean that control banks vice control rods are still fully inserted?                      2. The first part of the question is RO and GFE knowledge, which is OK for a two part question.                      3. Without being critical (low gamma flux) and the IRNIs probably not reading exactly the same to begin with, how can you be sure that NI-35 is reading higher than NI-36. Was this validated on the simulator?                      4. With no IR level given and all control banks inserted, this is essentially a direct lookup at the SRO level.                      5. This matches the K/A at the RO level, but not at the SRO level.                      Question is Unsatisfactory due to LOD = 1 and not meeting the K/A at the SRO level.                      The original question was modified and resubmitted. The first part question is RO systems knowledge. Knowing whether or not you are above or below P-6 is also RO knowledge. With knowledge of P-6, the second part question is a direct lookup. The modified question is Unsatisfactory due to not being SRO only. The question is also required to meet the K/A at the SRO level. It will not be counted unsatisfactory for exam report purposes due to its preliminary submittal and our previous discussions.                      2/17/18- Licensee submitted a new second part of the question that is based on procedure selection and the TS Bases. There is no reference provided. Still need to replace either the "before" or the "prior to" from the second part answer choices in the stem of the question.                      2/21/18- Licensee submitted an edited question. The question is Satisfactory.</p>																
84 (9)	H	2												N	S	K/A 060AA2.05	

Q	1. LOK (5/4)	2. LOD (1.5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
															Question is Satisfactory.
85 (10)	H	2									X	X	N	U	K/A 074EA2.07
	Question does not meet the K/A at the SRO only level. Entry conditions for Red and Orange path safety functions is RO knowledge. The second part question is not related to the K/A and is a tack on. Question is Unsatisfactory due to not meeting the K/A at the SRO level. 2/17/18- The licensee submitted a new question. The question is Satisfactory.														
86 (11)	F	2											N	S	K/A 004G2.4.35
	Question is Satisfactory.														
87 (12)	H	2	X			X							N	E	K/A 006G2.2.36 Reference provided
	Choices A and B are not plausible with the reference provided. Choice C(2) is not completely correct (What about Mode 3?). Make question IAW applicable Technical Specification. 2/17/18- The licensee submitted a new question. The new question is now requiring knowledge of greater than one hour action statements, which are not LCO 3.0.1-3.0.5, without a reference. We have had a misunderstanding/miscommunication concerning this question. We need to discuss. 2/22/18- Licensee provided a new question with references provided. Choice A requires a minor edit. 2/23/18- Licensee edited the question. The question is Satisfactory.														
88 (13)	H	2				X							N	E	K/A 013A2.04
	Choices A and C are not plausible with the reference provided. 2/17/18- The licensee submitted a new question. The question refers to Instrument Bus SIV in the conditions and Instrument Bus SI in the question stem. 2/23/18- Licensee edited the question. The question is Satisfactory.														
89 (14)	F	2	X	X									N	E	K/A 059A2.01
	Need to provide steam generator levels in the given conditions to make choices A(1) and B(1) plausible. Without giving these levels to evaluate, it is a potential cue to the correct answer. 2/17/18- The licensee submitted an edited question. The S/G levels provided in the initial conditions and the distractor analysis for choices A(1) and B(1) do not match. Is S/G Low-Low Level 25%. None of the levels given is below 25%, therefore the distractor analysis of a misconception that 1 of 3 is below 25%, would not work. This is a weak K/A match to use procedures, but will allow in this case. 2/21/18- Licensee submitted an edited question. The question is Satisfactory.														

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
90 (15)	H	2	X			X								N	E	K/A 064 A2.16 Question was submitted for preliminary review.
	<p>1. The first part is RO systems knowledge, which is OK for a two part question.                      2. Are you asking the SRO to answer a question on a greater than one hour action statement without a reference? Can you demonstrate that this is bases knowledge? See the table in ES-401 page 21 of 52.                      The second part question was modified and resubmitted.                      The modified question is Satisfactory.</p>															
91 (16)	H	1	X			X						X	B	U	K/A 002A2.04	
	<p>With the information given, Choice C is not a credible distractor. It is also very basic knowledge of the overall sequence of events that you lower pressure in the RCS before the steam generators. RCS feed and bleed criteria is RO knowledge of foldout page criteria. The combination of these factors makes LOD = 1. Question is Unsatisfactory due to LOD = 1 and not being SRO only. See ES-401 Attachment 2 Figure 2-2 and paragraph II.E. I believe I have a fairly simple suggestion for this question.                      2/17/18- The licensee submitted a new question. The choice A and B first part answer choices do not work with the way the question is worded. Probably just need to remove "using" from the choice C and D first part answer choices and place it in the question. Also, would prefer using SG 'C' as the distractor in the second part answer choices since it is the lowest and not in the middle.                      2/21/18- Licensee submitted an edited question. The question is Satisfactory.</p>															
92 (17)	H	2													U	K/A 011 G2.4.50 Question was submitted for preliminary review. Reference provided.
	<p>1. Question can be answered solely with RO level systems knowledge.                      Question is Unsatisfactory due to license level mismatch.                      Question was modified and resubmitted. New question is still Unsatisfactory due to LOD = 1 with reference provided and answer choices.                      2/17/18- Licensee removed the reference and edited the question. Question is now asking greater than one hour technical specification actions without a reference. Need to discuss.                      2/22/18- Licensee stated that this is expected knowledge for an SRO without a reference. Question is Satisfactory.</p>															

Q	1. LOK (F/U)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
93 (18)	F	2									X	N	U	K/A 041A2.02	
	<p>Question is able to be answered with RO knowledge alone. Question is Unsatisfactory due to not being SRO only.</p> <p>2/17/18- Licensee edited the second part question. The question can still be answered by RO systems knowledge and purpose of the procedure. This makes SRO level of difficulty very low. Could ask a question about Attachment 1 and a manual power reduction. Your plausibility and answer analysis discusses that AOP-042 directs the use of GP-006 to remove the unit from service if the size of the steam leak is less than 10% of rated steam flow. Where is that stated?</p> <p>2/23/18- Licensee edited the question. The question is Satisfactory.</p>														
94 (19)	F	2	X									B	E	K/A G2.1.35 This was question #19 on the 2011 NRC SRO exam.	
	<p>Need to discuss wording of question and answer choices. The procedure step that is quoted as the technical reference states, "Obtain SRO Fuel Handling and Shift Manager concurrence for the operation to be performed." It doesn't actually state that the SRO Fuel Handling approves and the SM concurs.</p> <p>2/17/18- Licensee submitted a new two part question. Choices A and D are not plausible. It is not plausible for the SRO-Fuel Handling not to be one of the people in any choice.</p> <p>2/21/18- Licensee submitted an edited question. The question is Satisfactory.</p>														
95 (20)	H	2	X									B	E	K/A G2.1.43	
	<p>Question contains teaching in the stem. Why not test the 500 pcm requirement vice give it to them? The tense of the first part question and answer choices are different.</p> <p>2/17/18- Licensee submitted a new question. The question is Satisfactory.</p>														
96 (21)	F	2				X						B	U	K/A G2.2.19	
	<p>Choices C(1) and D(1) are not plausible in the context that they are given. Is 3 days plausible for an "immediate" functionality assessment? Question is Unsatisfactory due to more than one non-plausible distractor.</p> <p>2/17/18- Licensee submitted an edited question. The question is Satisfactory.</p>														
97 (22)	H	2				X						B	E	K/A G2.2.22 Reference provided.	
	<p>Choice C is not plausible.</p> <p>2/17/18- Licensee submitted a new question. The question is Satisfactory.</p>														

Q	1. LOK (F/U)	2. LOD (1.5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other	6. Source (B/M/N)	7. Status (U/E/S)	8. Explanation
98 (23)	H	1	X									X		N	U	K/A G2.3.15 Reference provided.
	<p>LOD = 1 due to direct lookup and comparing the choices to the table. Why GFFD and not the actual nomenclature like the rest of the other radiation monitors. The answer could also be different with EC judgement. This really does not test the K/A. Question is Unsatisfactory due to LOD = 1 and not meeting the K/A.</p> <p>2/17/18- Licensee submitted a new question. The first sentence in the initial conditions is not necessary and should be removed.</p> <p>2/21/18- The licensee removed the unnecessary information. The question is satisfactory.</p>															
99 (24)	F	1		X										N	E	K/A G2.4.11 Question was submitted for preliminary review.
	<p>Question is Unsatisfactory due to LOD = 1. It will not be counted unsatisfactory for exam report purposes due to its preliminary submittal and our previous discussions.</p> <p>A new question was submitted. The new question requires enhancement because the second part question provides a cue to answer the first part.</p> <p>2/17/18- Licensee edited the question. The second part question still provides the correct answer for the first part question.</p> <p>2/21/18- Licensee submitted a new question. Choices A(1) and B(1) are not plausible. This question is not discriminating at all.</p> <p>2/23/18- Licensee edited the question. It is not plausible that the CRS could authorize supplementing the core crew but the SM could not.</p> <p>2/26/18- Licensee edited the question. The question is Satisfactory.</p>															
100 (25)	H	1				X								B	E	K/A 2.4.23 This was question #10 on the 2011 NRC SRO exam.
	<p>First part question can be answered by RO knowledge of foldout page and general systems knowledge. Choices C(1) and D(1) are not plausible due to being in a Loss of Emergency Coolant Recirculation in the initial conditions. For a combination of these reasons LOD = 1. Not counted as unsatisfactory because of NUREG-1021 ES-501 E.3.a note.</p> <p>2/17/18- Licensee edited the question. There new distractors that were added prevent testing the K/A, because the reasons given are not true and can be eliminated for that reason. There is a cooldown rate limit in ECA-1.1. The correct second part answer choices provide teaching.</p> <p>2/22/18- Licensee provided a new question. Choice C is not plausible. Choice D is not plausible when RO knowledge is applied. LOD = 1.</p> <p>2/23/18- Licensee provided a new question. The question concept is good. The C and D second part answer choices do not read well.</p> <p>2/26/18- Licensee edited the question. The question is Satisfactory.</p>															