

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c**
WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model in accordance with ES-401 or ES-401N.	N/A	N/A	TCS
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	N/A	N/A	TCS
	c. Assess whether the outline overemphasizes any systems, evolutions, or generic topics.	N/A	N/A	TCS
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	N/A	N/A	TCS
SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	2	A	TCS
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	2	A	TCS
	c. To the extent possible, assess whether the outline(s) conforms with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D and in Section D.5, "Specific Instructions for the 'Simulator Operating Test,'" of ES-301 (including overlap).	2	A	TCS
WALKTHROUGH	a. Verify that the systems walkthrough outline meets the criteria specified on Form ES-301-2: (1) The outline(s) contains the required number of control room and in-plant tasks distributed among the safety functions as specified on the form. (2) Task repetition from the last two NRC examinations is within the limits specified on the form. (3) No tasks are duplicated from the applicant's audit test(s). (4) The number of new or modified tasks meets or exceeds the minimums specified on the form. (5) The number of alternate-path, low-power, emergency, and radiologically controlled area tasks meets the criteria on the form.	2	A	TCS
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) The tasks are distributed among the topics as specified on the form. (2) At least one task is new or significantly modified. (3) No more than one task is repeated from the last two NRC licensing examinations.	2	A	TCS
	c. Determine whether there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	2	A	TCS
GENERAL	a. Assess whether plant-specific priorities (including probabilistic risk assessment and individual plant examination insights) are covered in the appropriate exam sections.	2	A	TCS
	b. Assess whether the 10 CFR 55.41, 55.43, and 55.45 sampling is appropriate.	2	A	TCS
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	2	A	TCS
	d. Check for duplication and overlap among exam sections and the last two NRC exams.	2	A	TCS
	e. Check the entire exam for balance of coverage.	2	A	TCS
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	2	A	TCS
a. Author <u>William M. Forrest</u> b. Facility Reviewer (*) <u>Angelo Leone</u> c. NRC's Chief Examiner (#) <u>Thomas C. Setzer</u> d. NRC Supervisor <u>Donald E. Jackson</u>		Printed Name/Signature Date 6/23/2021 6/23/2021 9/16/21 9/16/21		
* Not applicable for NRC-prepared examination outlines. # The independent NRC reviewer initials items in column "c"; the chief examiner's concurrence is required.				

Facility: <u>Millstone 3</u>		Date of Examination: <u>9/13/21 – 9/24/21</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>2021 NRC</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations RO A.1.1	M, R	Perform a Mode 4 Shutdown Margin Calculation with an inoperable Shutdown Margin Monitor. K/A: 2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management (RO rating: 4.3).
Conduct of Operations		
Equipment Control RO A.2	M, R	Perform a manual Quadrant Power Tilt Ratio (QPTR) Surveillance. K/A: Knowledge of surveillance procedures (RO rating: 3.7).
Radiation Control RO A.3	D, R, P	Perform Independent Verification Of DRMS Work Station Database K/A : 2.3.15 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.) (RO rating: 2.9).
Emergency Plan RO A.4	M, S	Perform Manual Status Trees and Prioritize Response. K/A: 2.4.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures (RO rating: 4.5).
NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).		
* Type Codes and Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 , randomly selected)		

Facility: <u>Millstone 3</u>		Date of Examination: <u>9/13/21 – 9/24/21</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>2021 NRC</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations A.1.1	P, D, R	Check Refueling Admin Requirements KA: GEN. 2.1.40 Knowledge of refueling administrative requirements (SRO rating: 3.9).
Conduct of Operations A.1.2	D, R	Identify a Loss of CTMT Closure and Determine Required Actions K/A: 2.1.36 Knowledge of procedures and limitations involved in core alterations (SRO rating: 4.1).
Equipment Control A.2	M, R	Review a QPTR Surveillance and Determine Required Tech Spec Actions K/A: 2.2.12 Knowledge of Surveillance Procedures (SRO rating: 4.1).
Radiation Control A.3	M, R	Review and Approve Discharge Permit K/A: 2.3.6 Ability to approve release permits (SRO rating: 3.8).
Emergency Plan A.4	N, R	Emergency Plan Classification K/A: 2.4.41 Knowledge of the emergency action level thresholds and classifications (SRO rating: 4.6).
NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).		
* Type Codes and Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 , randomly selected)		

Facility: <u>Millstone 3</u> Date of Examination: <u>9/13/21 – 9/24/21</u>		
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> Operating Test Number: <u>2021 NRC</u>		
REV. 0		
Control Room Systems: [*] 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System / JPM Title	Type Code*	Safety Function
a. S.1 / Respond to a Mode 4 LOCA (K/A: EPE-009-EA1.04)	N, L, A, EN, S	2-004
b. S.2 / Pressurizer Pressure Control Following a Reactor Trip (K/A: APE-027-AA1.01)	D, L, A, S	3-010
c. S.3 / Start 'B' RCP using GA-6 <i>Starting Reactor Coolant Pump</i> (K/A: 003 RCPS A4.06)	N, L, A, S	4.1-003
d. S.4 / Dump Steam Using Atmospheric Relief Valve (K/A: 041-A4.06)	D, P, L, S	4.2-039
e. S.5 / Stopping Containment Spray (K/A: 026-A2.08)	D, S	5-007
f. S.6 / Respond to an Open Phase Condition (OPC) (K/A: APE-077-AA2.05)	N, A, S	6-062
g. S.7 / Respond to 3HVQ49-1 High Radiation (K/A: GEN 2.3.11)	D, S	7-073
h. S.8 / Implement GA-30 <i>Aligning RPCCW for RCS and SG Sampling</i> (K/A: 008 CCWS A4.01)	N, EN, A, S,	8-008
In-Plant Systems: [*] 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. P.1 / Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve (K/A: EPE-E05-EA 1.1)	D, R, E	4.2-061
j. P.2 / Verify All Dilution Paths Isolated (K/A: 004 CVCS A2.25)	D, R, E	1-004
k. P.3 / Energize Inverter 1 (or 2) (K/A: APE: 057-AA1.01)	D, E	6-062
* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path	4–6/4–6 /2–3	
(C)ontrol room		
(D)irect from bank	≤ 9/≤ 8/≤ 4	
(E)mergency or abnormal in-plant	≥ 1/≥ 1/≥ 1	
(EN)gineered safety feature	≥ 1/≥ 1/≥ 1 (control room system)	
(L)ow-Power/Shutdown	≥ 1/≥ 1/≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2/≥ 2/≥ 1	
(P)revious 2 exams	≤ 3/≤ 3/≤ 2 (randomly selected)	
(R)CA	≥ 1/≥ 1/≥ 1	
(S)imulator		

Facility: <u>Millstone 3</u> Date of Examination: <u>9/13/21 – 9/24/21</u>		
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/> Operating Test Number: <u>2021 NRC</u>		
REV. 0		
Control Room Systems: 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a.		
b. S.2 / Pressurizer Pressure Control Following a Reactor Trip (K/A: APE-027-AA1.01)	D, L, A, S	3-010
c. S.3 / Start 'B' RCP using GA-6 <i>Starting Reactor Coolant Pump</i> (K/A: 003 RCPS A4.06)	N, L, A, S	4.1-003
d. S.4 / Dump Steam Using Atmospheric Relief Valve (K/A: 041-A4.06)	D, P, L, S	4.2-039
e. S.5 / Stopping Containment Spray (K/A: 026-A2.08)	D, S	5-007
f. S.6 / Respond to an Open Phase Condition (OPC) (K/A: APE-077-AA2.05)	N, A, S	6-062
g. S.7 / Respond to 3HVQ49-1 High Radiation (K/A: GEN 2.3.11)	D, S	7-073
h. S.8 / Implement GA-30 <i>Aligning RPCCW for RCS and SG Sampling</i> (K/A: 008 CCWS A4.01)	N, EN, A, S,	8-008
In-Plant Systems: 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. P.1 / Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve (K/A: EPE-E05-EA 1.1)	D, R, E	4.2-061
j. P.2 / Verify All Dilution Paths Isolated (K/A: 004 CVCS A2.25)	D, R, E	1-004
k. P.3 / Energize Inverter 1 (or 2) (K/A: APE: 057-AA1.01)	D, E	6-062
* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path	4–6/4–6 /2–3	
(C)ontrol room		
(D)irect from bank	≤ 9/≤ 8/≤ 4	
(E)mergency or abnormal in-plant	≥ 1/≥ 1/≥ 1	
(EN)gineered safety feature	≥ 1/≥ 1/≥ 1 (control room system)	
(L)ow-Power/Shutdown	≥ 1/≥ 1/≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2/≥ 2/≥ 1	
(P)revious 2 exams	≤ 3/≤ 3/≤ 2 (randomly selected)	
(R)CA	≥ 1/≥ 1/≥ 1	
(S)imulator		

Facility: <u>Millstone 3</u> Date of Examination: <u>9/13/21 – 9/24/21</u>		
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/> Operating Test Number: <u>2021 NRC</u> REV. 0		
Control Room Systems: * 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a.		
b. S.2 / Pressurizer Pressure Control Following a Reactor Trip (K/A: APE-027-AA1.01)	D, L, A, S	3-010
c.		
d.		
e.		
f. S.6 / Respond to an Open Phase Condition (OPC) (K/A: APE-077-AA2.05)	N, A, S	6-062
g.		
h. S.8 / Implement GA-30 <i>Aligning RPCCW for RCS and SG Sampling</i> (K/A: 008 CCWS A4.01)	N, EN, A, S,	8-008
In-Plant Systems: * 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. P.1 / Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve (K/A: EPE-E05-EA 1.1)	D, R, E	4.2-061
j. P.2 / Verify All Dilution Paths Isolated (K/A: 004 CVCS A2.25)	D, R, E	1-004
k.		
* 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 $\leq 9/\leq 8/\leq 4$ $\geq 1/\geq 1/\geq 1$ $\geq 1/\geq 1/\geq 1$ (control room system) $\geq 1/\geq 1/\geq 1$ $\geq 2/\geq 2/\geq 1$ $\leq 3/\leq 3/\leq 2$ (randomly selected) $\geq 1/\geq 1/\geq 1$	

Facility: Millstone 3 Scenario No.: 2K21 NRC-01 Op-Test No.: 2K21

Examiners: _____ Operators: _____

Initial Conditions: IC-91, 100% Power, Beginning of life, Equilibrium Xe

Turnover:

Control Rods are in manual. The 'B' Safety Injection Pump is out of service for emergent maintenance.

Critical Tasks: 1. Manually trip the Reactor from the Control Room 2. Isolate LOCA outside CTMT

Event No.	Malf. No	Event Type*	Event Description
1	FW17B	US C RO R BOP C	'B' Reheater Drain Pump (DSM Pump) Trips requiring an 8% downpower.
2	RX11G	US I,TS BOP I	'C' SG Pressure fails High requiring manual control of the feed station.
3	ED08C	US C,TS RO C BOP C	Vital 120V Instrument Bus 3 de-energizes (VIAC 3) requiring manual control of systems.
4	RP05B SI06B RP09A/B RP10A/B	ALL M	Tin Whisker causes spurious 'B' train Safety Injection. Intersystem LOCA develops. Transition to ECA-1.2, <i>LOCA Outside CTMT</i> . LOCA is isolable and a transition is made to E-1, <i>Loss of Reactor or Secondary Coolant</i> .
5	RP07B	RO C	The RO recognizes only one train of Safety Injection initiated and manually actuates 'A' train.
6	RP11H	RO C	RPCCW components fail to auto align on the Safety Injection. Manual re-alignment is necessary.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: <u>Millstone 3</u> Scenario No.: <u>2K21 NRC-02</u> Op-Test No.: <u>2K21</u>			
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-90, 100% Power, Middle of life. Equilibrium Xe			
The plant is at 100% power and at middle of life. The 'B' Quench Spray Pump is out of service for emergent maintenance.			
<u>Critical Tasks</u> : 1. Manually trip turbine (CT-13) 3. Establish feed to SG(s) before reach bleed and feed (CT-43)			
Event No.	Malf. No	Event Type*	Event Description
1	RX10A	US I,TS RO I	Controlling Pressurizer Level Channel fails to an intermediate, low value.
2	RX16A	US T/S, I RO I BOP I	Turbine Impulse pressure 3MSS-PT505 fails low. (AOP 3581, AOP 3571)
3		US R RO R BOP N	ISO – NE requested emergency load reduction of 160 MWe.
4	RC24D RC25D	US C RO C	'D' RCP Vibration Hi-Hi requires Reactor trip and stopping 'D' RCP.
5	FW18A FW19 RP08A / B	ALL M	No Aux Feed Water is present on Reactor Trip (loss of heat sink). While in FR-H.1, the crew successfully establishes Main Feed to the SG(s)
6	TC03	BOP C	On the Reactor Trip, the Main Turbine doesn't trip automatically or manually. The BOP manually runs back the Turbine.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: Millstone 3 Scenario No.: 2K21 NRC-03 (Rev 0) Op-Test No.: 2K21

Examiners: _____ Operators: _____

Initial Conditions: IC-94, 4% Power, Beginning of life

Turnover: The plant is at 4% power at the beginning of life. The SBO Diesel is out of service for electrical maintenance on the synch circuit. 3GMC-P1B, 'B' Stator Cooling Pump, is tagged out to repair a suction flange leak.

Critical Tasks: 1. Manually close an open PORV during Station Blackout (CT-22)
2. Manually start SW pump for EDG cooling (CT-25)

Event No.	Malf. No	Event Type*	Event Description
1	–	US N RO R BOP N	Power ascension from 4% to 8% power using OP 3203, <i>Plant Startup</i> .
2	–	US TS	3RSS*P1B "RECIRC SPRAY PUMP B" reported to have motor oil leak.
3	CH06B	US C BOP C	The 'B' CRDM fan trips. The crew responds using ARP actions.
4	CV05	US I RO I	Letdown pressure transmitter 3CHS-PT131 fails low. (Annunciator response).
5	RX12I	US I, TS BOP I	'C' steam generator level transmitter 3FWS-LT539 fails high (AOP 3571).
6	EG06A EG07B EDO1	ALL M	Loss of offsite power with failure of station diesels (ECA-0.0).
7	RC07A	US C RO C	'A' PORV fails open shortly after manual reactor trip.
8	ED11D ED11E	US C RO C	'A' Train Service Water Pumps do not auto start when 'A' EDG is restored – manual start necessary.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Millstone 3		Rev. 0										Date of Exam: 09/13/2021				
Tier	Group	RO K/A Category Points											SRO-Only Points			
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2	G*	Total
1. Emergency and Abnormal Plant Evolutions	1	2	0	3				4	6			3	18	3	3	6
	2	2	2	2				1	1			1	9	2	2	4
	Tier Totals	4	2	5				5	7			4	27	5	5	10
2. Plant Systems	1	4	2	4	3	2	0	2	2	3	3	3	28	3	2	5
	2	2	0	0	1	0	2	0	2	1	1	1	10	0	2	3
	Tier Totals	6	2	4	4	2	2	2	4	4	4	4	38	5	3	8
3. Generic Knowledge and Abilities Categories					1	2	3	4				10	1	2	3	4
					2	2	3	3					2	2	1	2
																7

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

G* Generic K/As

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

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

Item #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	Q#
1	000007 (EPE 7; BW E02 & E10; CE E02) Reactor Trip, Stabilization, Recovery / 1			X				(000007EK3.01) Knowledge of the reasons for the following responses as they apply to (EPE 7) REACTOR TRIP, STABILIZATION, RECOVERY / 1 (CFR: 41.5 / 41.10 / 45.6 / 45.13): Actions contained in EOP for reactor trip	4	4
2	000008 (APE 8) Pressurizer Vapor Space Accident / 3				X			(000008AA1.06) Ability to operate and / or monitor the following as they apply to the (APE 8) PRESSURIZER VAPOR SPACE ACCIDENT / 3 (CFR 41.7 / 45.5 / 45.6): Control of PZR level	3.6	12
3	000009 (EPE 9) Small Break LOCA / 3					X		(000009EA2.06) Ability to determine and interpret the following as they apply to (EPE 9) SMALL BREAK LOCA / 3 (CFR: 43.5 / 45.13): Whether PZR water inventory loss is imminent	3.8	69
4	000011 (EPE 11) Large Break LOCA / 3	X						(000011EK1.01) Knowledge of the operational implications of the following concepts as they apply to (EPE 11) LARGE BREAK LOCA / 3 (CFR: 41.8 / 41.10 / 45.3): Natural circulation and cooling, including reflux boiling.	4.1	14
5	000015 (APE 15) Reactor Coolant Pump Malfunctions / 4						X	(000015G2.1.23) (APE 15) Reactor Coolant Pump Malfunctions / 4: (G2.1.23) Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 41.10 / 43.5 / 45.2 / 45.6)	4.4	96
6	000022 (APE 22) Loss of Reactor Coolant Makeup / 2				X			(000022AA1.02) Ability to operate and / or monitor the following as they apply to the (APE 22) LOSS OF REACTOR COOLANT MAKEUP / 2 (CFR 41.7 / 45.5 / 45.6): CVCS charging low flow alarm, sensor, and indicator	3	25
7	000025 (APE 25) Loss of Residual Heat Removal System / 4						X	(000025G2.4.31) (APE 25) Loss of Residual Heat Removal System / 4: (G2.4.31) Knowledge of annunciator alarms, indications, or response procedures. (CFR: 41.10 / 45.3)	4.1	86
8	000026 (APE 26) Loss of Component Cooling Water / 8						X	(000026G2.2.25) (APE 26) Loss of Component Cooling Water / 8: (G2.2.25) Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. (CFR: 41.5 / 41.7 / 43.2)	4.2	83
9	000027 (APE 27) Pressurizer Pressure Control System Malfunction / 3			X				(000027AK3.01) Knowledge of the reasons for the following responses as they apply to the (APE 27) PRESSURIZER PRESSURE CONTROL SYSTEM MALFUNCTION / 3 (CFR 41.5,41.10 / 45.6 / 45.13): Isolation of PZR spray following loss of PZR heaters	3.5	24
10	000029 (EPE 29) Anticipated Transient Without Scram / 1				X			(000029EA1.09) Ability to operate and / or monitor the following as they apply to (EPE 29) ANTICIPATED TRANSIENT WITHOUT SCRAM / 1 (CFR: 41.7 / 45.5 / 45.6): Manual rod control	4.0	64
11	000038 (EPE 38) Steam Generator Tube Rupture / 3						X	(000038EA2.02) Ability to determine and interpret the following as they apply to (EPE 38) STEAM GENERATOR TUBE RUPTURE / 3 (CFR: 43.5 / 45.13): Existence of an S/G tube rupture and its potential consequences	4.8	97
12	000040 (APE 40; BW E05; CE E05; W E12) Steam Line Rupture—Excessive Heat Transfer / 4						X	(000040G2.4.20) (APE 40; BW E05; CE E05; W E12) Steam Line Rupture—Excessive Heat Transfer / 4: (G2.4.20) Knowledge of the operational implications of EOP warnings, cautions, and notes. (CFR: 41.10 / 43.5 / 45.13)	3.8	56
13	000054 (APE 54; CE E06) Loss of Main Feedwater / 4						X	(000054G2.4.4) (APE 54; CE E06) Loss of Main Feedwater / 4: (G2.4.4) Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures. (CFR: 41.10 / 43.2 / 45.6)	4.5	54
14	000055 (EPE 55) Station Blackout / 6				X			(000055EA1.06) Ability to operate and / or monitor the following as they apply to (EPE 55) STATION BLACKOUT / 6 (CFR: 41.7 / 45.5 / 45.6): Restoration of power with one ED/G	4.1	8
15	000055 (EPE 55) Station Blackout / 6						X	(000055EA2.06) Ability to determine and interpret the following as they apply to (EPE 55) STATION BLACKOUT / 6 (CFR: 43.5 / 45.13): Faults and lockouts that must be cleared prior to re-energizing buses	4.1	100
16	000056 (APE 56) Loss of Offsite Power / 6						X	(000056AA2.19) Ability to determine and interpret the following as they apply to the (APE 56) LOSS OF OFFSITE POWER / 6 (CFR: 43.5 / 45.13): T-cold and T-hot indicators (wide range)	4	22

Item #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	Q#
17	000057 (APE 57) Loss of Vital AC Instrument Bus / 6			X				(000057AK3.01) Knowledge of the reasons for the following responses as they apply to the (APE 57) LOSS OF VITAL AC INSTRUMENT BUS / 6 (CFR 41.5,41.10 / 45.6 / 45.13): Actions contained in EOP for loss of vital ac electrical instrument bus	4.1	38
18	000058 (APE 58) Loss of DC Power / 6					X		(000058AA2.01) Ability to determine and interpret the following as they apply to the (APE 58) LOSS OF DC POWER / 6 (CFR: 43.5 / 45.13): That a loss of dc power has occurred; verification that substitute power sources have come on line	3.7	51
19	000062 (APE 62) Loss of Nuclear Service Water / 4					X		(000062AA2.04) Ability to determine and interpret the following as they apply to the (APE 62) LOSS OF NUCLEAR SERVICE WATER / 4 (CFR: 43.5 / 45.13): The normal values and upper limits for the temperatures of the components cooled by SWS	2.9	76
20	000065 (APE 65) Loss of Instrument Air / 8					X		(000065AA2.01) Ability to determine and interpret the following as they apply to the (APE 65) LOSS OF INSTRUMENT AIR / 8 (CFR: 43.5 / 45.13): Cause and effect of low-pressure instrument air alarm	2.9	37
21	000077 (APE 77) Generator Voltage and Electric Grid Disturbances / 6						X	(000077G2.4.31) (APE 77) Generator Voltage and Electric Grid Disturbances / 6: (G2.4.31) Knowledge of annunciator alarms, indications, or response procedures. (CFR: 41.10 / 45.3)	4.2	28
22	(W E04) LOCA Outside Containment / 3					X		(WE04EA2.2) Ability to determine and interpret the following as they apply to (W E04) LOCA OUTSIDE CONTAINMENT / 3 (CFR: 43.5 / 45.13): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	3.6	57
23	(W E11) Loss of Emergency Coolant Recirculation / 4	X						(WE11EK1.1) Knowledge of the operational implications of the following concepts as they apply to (W E11) LOSS OF EMERGENCY COOLANT RECIRCULATION / 4 (CFR: 41.8 / 41.10 / 45.3): Components, capacity, and function of emergency systems.	3.7	67
24	(BW E04; W E05) Inadequate Heat Transfer—Loss of Secondary Heat Sink / 4					X		(WE05EA2.1) Ability to determine and interpret the following as they apply to (W E05) LOSS OF SECONDARY HEAT SINK / 4 (CFR: 43.5 / 45.13): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.4	17
K/A Category Totals:		2	0	3	4	9	6	Group Point Total:		24

Item #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	Q#
25	000003 (APE 3) Dropped Control Rod / 1						X	(000003G2.1.19) (APE 3) Dropped Control Rod / 1: (G2.1.19) Ability to use plant computers to evaluate system or component status. (CFR: 41.10 / 45.12)	3.8	90
26	000005 (APE 5) Inoperable/Stuck Control Rod / 1				X			(000005AA1.04) Ability to operate and / or monitor the following as they apply to the (APE 5) INOPERABLE/STUCK CONTROL ROD / 1 (CFR 41.7 / 45.5 / 45.6): Reactor and turbine power	3.9	18
27	000028 (APE 28) Pressurizer (PZR) Level Control Malfunction / 2			X				(000028AK3.03) Knowledge of the reasons for the following responses as they apply to the (APE 28) PRESSURIZER (PZR) LEVEL CONTROL MALFUNCTION / 2 (CFR 41.5,41.10 / 45.6 / 45.13): False indication of PZR level when PORV or spray valve is open and RCS saturated	3.5	2
28	000032 (APE 32) Loss of Source Range Nuclear Instrumentation / 7		X					(000032AK2.01) Knowledge of the interrelations between the (APE 32) LOSS OF SOURCE RANGE NUCLEAR INSTRUMENTATION / 7 and the following (CFR 41.7 / 45.7): Power supplies, including proper switch positions	2.7	27
29	000036 (APE 36; BW/A08) Fuel-Handling Incidents / 8	X						(000036AK1.03) Knowledge of the operational implications of the following concepts as they apply to (APE 36) FUEL HANDLING INCIDENTS / 8 (CFR 41.8 / 41.10 / 45.3): Indications of approaching criticality	4.3	66
30	000037 (APE 37) Steam Generator Tube Leak / 3	X						(000037AK1.02) Knowledge of the operational implications of the following concepts as they apply to (APE 37) STEAM GENERATOR TUBE LEAK / 3 (CFR 41.8 / 41.10 / 45.3): Leak rate vs. pressure drop	3.5	39
31	000059 (APE 59) Accidental Liquid Radwaste Release / 9						X	(000059AA2.02) Ability to determine and interpret the following as they apply to the (APE 59) ACCIDENTAL LIQUID RADWASTE RELEASE / 9 (CFR: 43.5 / 45.13): The permit for liquid radioactive-waste release	2.9	89
32	000067 (APE 67) Plant Fire On Site / 8						X	(000067AA2.10) Ability to determine and interpret the following as they apply to the (APE 67) PLANT FIRE ON SITE / 8 (CFR: 43.5 / 45.13): Time limit of long-term-breathing air system for control room	2.9	88
33	000069 (APE 69; W E14) Loss of Containment Integrity / 5						X	(000069G2.2.3) (APE 69; W E14) Loss of Containment Integrity / 5: (G2.2.3) (multi-unit license) Knowledge of the design, procedural, and operational differences between units. (CFR: 41.5 / 41.6 / 41.7 / 41.10 / 45.12)	3.8	36
34	000074 (EPE 74; W E06 & E07) Inadequate Core Cooling / 4			X				(WE06EK3.3) Knowledge of the reasons for the following responses as they apply to (W E06) DEGRADED CORE COOLING / 4 (CFR: 41.5 / 41.10 / 45.6 / 45.13): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.	4	13
35	000076 (APE 76) High Reactor Coolant Activity / 9					X		(000076AA2.04) Ability to determine and interpret the following as they apply to the (APE 76) HIGH REACTOR COOLANT ACTIVITY / 9 (CFR: 43.5 / 45.13): Process effluent radiation chart recorder	2.6	60
36	(W E01 & E02) Rediagnosis & SI Termination / 3						X	(W E01 & E02)G2.1.32) Rediagnosis & SI Termination / 3: (G2.1.32) Ability to explain and apply system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	4.0	93
37	(CE A11**; W E08) RCS Overcooling— Pressurized Thermal Shock / 4		X					(WE08EK2.1) Knowledge of the interrelations between (W E08) PRESSURIZED THERMAL SHOCK / 4 and the following (CFR: 41.7 / 45.7): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.4	32
	000001 (APE 1) Continuous Rod Withdrawal / 1									
	000024 (APE 24) Emergency Boration / 1									
	000033 (APE 33) Loss of Intermediate Range Nuclear Instrumentation / 7									
	000051 (APE 51) Loss of Condenser Vacuum / 4									

Emergency and Abnormal Plant Evolutions—Tier 1/Group 2 (RO/SRO)

Item #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	Q#
	000060 (APE 60) Accidental Gaseous Radwaste Release / 9									
	000061 (APE 61) Area Radiation Monitoring System Alarms / 7									
	000068 (APE 68; BW A06) Control Room Evacuation / 8									
	000078 (APE 78*) RCS Leak / 3									
	(W E13) Steam Generator Overpressure / 4									
	(W E15) Containment Flooding / 5									
	(W E16) High Containment Radiation / 9									
	(BW E08; W E03) LOCA Cooldown—Depressurization / 4									
	(BW E09; CE A13**; W E09 & E10) Natural Circulation/4									
K/A Category Totals:		2	2	2	1	3	3	Group Point Total:		13

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
38	003 (SF4P RCP) REACTOR COOLANT PUMP SYSTEM							X					(003A1.09) Ability to predict and/or monitor changes in parameters associated with operating the (SF4P RCP) REACTOR COOLANT PUMP SYSTEM controls including (CFR: 41.5 / 45.5): Seal flow and D/P	2.8	7
39	003 (SF4P RCP) REACTOR COOLANT PUMP SYSTEM	X											(003K1.12) Knowledge of the physical connections and/or cause-effect relationships between (SF4P RCP) REACTOR COOLANT PUMP SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): CCWS	3.3	73
40	004 (SF1; SF2 CVCS) CHEMICAL AND VOLUME CONTROL SYSTEM										X		(004A4.05) (SF1; SF2 CVCS) CHEMICAL AND VOLUME CONTROL SYSTEM Ability to manually operate and/or monitor in the control room (CFR: 41.7 / 45.5 to 45.8): Letdown pressure and temperature control valves.	3.6	21
41	005 (SF4P RHR) RESIDUAL HEAT REMOVAL SYSTEM											X	(005G2.4.8) (SF4P RHR) RESIDUAL HEAT REMOVAL SYSTEM: (G2.4.8) Knowledge of how abnormal operating procedures are used in conjunction with EOPs. (CFR: 41.10 / 43.5 / 45.13)	4.5	29
42	006 (SF2; SF3 ECCS) EMERGENCY CORE COOLING SYSTEM							X					(006A1.01) Ability to predict and/or monitor changes in parameters associated with operating the (SF2; SF3 ECCS) EMERGENCY CORE COOLING SYSTEM controls including (CFR: 41.5 / 45.5): Avoidance of thermal and pressure stresses due to pump startup	3.4	5
43	006 (SF2; SF3 ECCS) EMERGENCY CORE COOLING SYSTEM											X	(006G2.1.30) (SF2; SF3 ECCS) EMERGENCY CORE COOLING SYSTEM: (G2.1.30) Ability to locate and operate components, including local controls.(CFR: 41.7 / 45.7)	4.4	61
44	007 (SF5 PRTS) PRESSURIZER RELIEF/QUENCH TANK SYSTEM								X				(007A2.05) Ability to (a) predict the impacts of the following on the (SF5 PRTS) PRESSURIZER RELIEF/QUENCH TANK SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Exceeding PRT high-pressure limits	3.2	1
45	008 (SF8 CCW) COMPONENT COOLING WATER SYSTEM									X			(008A3.02) Ability to monitor automatic operations of the (SF8 CCW) COMPONENT COOLING WATER SYSTEM including (CFR: 41.7 / 45.5): Operation of the CCW pumps, including interlocks and the CCW booster pump	3.2	15

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
46	010 (SF3 PZR PCS) PRESSURIZER PRESSURE CONTROL SYSTEM		X										(010K2.02) (SF3 PZR PCS) PRESSURIZER PRESSURE CONTROL SYSTEM Knowledge of electrical power supplies to the following (CFR: 41.7): Controller for PZR spray valve	2.5	75
47	012 (SF7 RPS) REACTOR PROTECTION SYSTEM								X				(012A2.06) Ability to (a) predict the impacts of the following on the (SF7 RPS) REACTOR PROTECTION SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Failure of RPS signal to trip the reactor	4.7	85
48	012 (SF7 RPS) REACTOR PROTECTION SYSTEM		X										(012K2.01) (SF7 RPS) REACTOR PROTECTION SYSTEM Knowledge of electrical power supplies to the following (CFR: 41.7): RPS channels, components, and interconnections	3.3	74
49	013 (SF2 ESFAS) ENGINEERED SAFETY FEATURES ACTUATION SYSTEM								X				(013A2.01) Ability to (a) predict the impacts of the following on the (SF2 ESFAS) ENGINEERED SAFETY FEATURES ACTUATION SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): LOCA	4.8	79
50	013 (SF2 ESFAS) ENGINEERED SAFETY FEATURES ACTUATION SYSTEM	X											(013K1.11) Knowledge of the physical connections and/or cause-effect relationships between (SF2 ESFAS) ENGINEERED SAFETY FEATURES ACTUATION SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): CVCS	3.8	46
51	022 (SF5 CCS) CONTAINMENT COOLING SYSTEM											X	(022G2.4.6) (SF5 CCS) CONTAINMENT COOLING SYSTEM: (G2.4.6) Knowledge of EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)	4.7	91
52	022 (SF5 CCS) CONTAINMENT COOLING SYSTEM			X									(022K3.02) Knowledge of the effect that a loss or malfunction of the (SF5 CCS) CONTAINMENT COOLING SYSTEM will have on the following (CFR: 41.7 / 45.6): Containment instrumentation readings	3.3	59

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
53	061 (SF4S AFW) AUXILIARY / EMERGENCY FEEDWATER SYSTEM								X				(061A2.05) 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: (CFR: 41.5 / 43.5 / 45.3 / 45.13): Automatic control malfunction	3.1	6
54	073 (SF7 PRM) PROCESS RADIATION MONITORING SYSTEM					X							(073K5.03) Knowledge of the operational implications as they apply to concepts as they apply to the PRM system: (CFR: 41.5 / 45.7): Relationship between radiation intensity and exposure limits	2.9	34
55	026 (SF5 CSS) CONTAINMENT SPRAY SYSTEM			X									(026K3.01) Knowledge of the effect that a loss or malfunction of the (SF5 CSS) CONTAINMENT SPRAY SYSTEM will have on the following (CFR: 41.7 / 45.6): Containment Cooling System	3.9	10
56	078 (SF8 IAS) INSTRUMENT AIR SYSTEM											X	(039G2.2.25) (SF8 IAS) INSTRUMENT AIR SYSTEM: (G2.2.3) Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. (CFR: 41.5 / 41.7 / 43.2)	4.2	92
57	039 (SF4S MSS) MAIN AND REHEAT STEAM SYSTEM											X	(039G2.4.46) (SF4S MSS) MAIN AND REHEAT STEAM SYSTEM: (G2.4.46) Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12)	4.2	41
58	059 (SF4S MFW) MAIN FEEDWATER SYSTEM			X									(059K3.03) Knowledge of the effect that a loss or malfunction of the (SF4S MFW) MAIN FEEDWATER SYSTEM will have on the following (CFR: 41.7 / 45.6): S/Gs	3.5	47
59	061 (SF4S AFW) AUXILIARY / EMERGENCY FEEDWATER SYSTEM					X							(061K5.01) Knowledge of the operational implications of the following concepts as they apply to the (SF4S AFW) AUXILIARY / EMERGENCY FEEDWATER SYSTEM (CFR: 41.5 / 45.7): Relationship between AFW flow and RCS heat transfer	3.9	55
60	062 (SF6 ED AC) AC ELECTRICAL DISTRIBUTION SYSTEM			X									(062K3.02) Knowledge of the effect that a loss or malfunction of the (SF6 ED AC) AC ELECTRICAL DISTRIBUTION SYSTEM will have on the following (CFR: 41.7 / 45.6): ED/G	4.1	63
61	062 (SF6 ED AC) AC ELECTRICAL DISTRIBUTION SYSTEM				X								(062K4.07) Knowledge of (SF6 ED AC) AC ELECTRICAL DISTRIBUTION SYSTEM design feature(s) and or interlock(s) which provide for the following (CFR: 41.7): One-line diagram of 4kV to 480V distribution, including sources of normal and alternative power	2.7	40

Emergency and Abnormal Plant Evolutions—Tier 2/Group 1 (RO/SRO)

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
62	063 (SF6 ED DC) DC ELECTRICAL DISTRIBUTION SYSTEM				X								(063K4.04) Knowledge of (SF6 ED DC) DC ELECTRICAL DISTRIBUTION SYSTEM design feature(s) and or interlock(s) which provide for the following (CFR: 41.7): Trips	2.6	43
63	064 (SF6 EDG) EMERGENCY DIESEL GENERATOR SYSTEM									X			(064A3.12) Ability to monitor automatic operations of the (SF6 EDG) EMERGENCY DIESEL GENERATOR SYSTEM including (CFR: 41.7 / 45.5): Purpose of automatic load sequencer	3.3	68
64	064 (SF6 EDG) EMERGENCY DIESEL GENERATOR SYSTEM										X		(064A4.02) (SF6 EDG) EMERGENCY DIESEL GENERATOR SYSTEM Ability to manually operate and/or monitor in the control room (CFR: 41.7 / 45.5 to 45.8): Adjustment of exciter voltage (using voltage control switch)	3.4	72
65	073 (SF7 PRM) PROCESS RADIATION MONITORING SYSTEM										X		(073A4.01) (SF7 PRM) PROCESS RADIATION MONITORING SYSTEM Ability to manually operate and/or monitor in the control room (CFR: 41.7 / 45.5 to 45.8): Effluent release	3.9	35
66	076 (SF4S SW) SERVICE WATER SYSTEM								X				(076A2.01) Ability to (a) predict the impacts of the following on the (SF4S SW) SERVICE WATER SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Loss of SWS	3.7	94
67	076 (SF4S SW) SERVICE WATER SYSTEM	X											(076K1.05) Knowledge of the physical connections and/or cause-effect relationships between (SF4S SW) SERVICE WATER SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): D/G	3.8	30
68	078 (SF8 IAS) INSTRUMENT AIR SYSTEM									X			(078A3.01) Ability to monitor automatic operations of the (SF8 IAS) INSTRUMENT AIR SYSTEM including (CFR: 41.7 / 45.5): Air pressure	3.2	23
69	103 (SF5 CNT) CONTAINMENT SYSTEM	X											(103K1.01) Knowledge of the physical connections and/or cause-effect relationships between (SF5 CNT) CONTAINMENT SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): CCS	3.9	45
70	103 (SF5 CNT) CONTAINMENT SYSTEM				X								(103K4.01) Knowledge of (SF5 CNT) CONTAINMENT SYSTEM design feature(s) and or interlock(s) which provide for the following (CFR: 41.7): Vacuum breaker protection	3.7	11
K/A Category Totals:		4	2	4	3	2	0	2	5	3	3	5	Group Point Total:		33

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
71	001 (SF1 CRDS) CONTROL ROD DRIVE SYSTEM	X											(001K1.03) Knowledge of the physical connections and/or cause-effect relationships between (SF1 CRDS) CONTROL ROD DRIVE SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): CRDM	3.4	44
72	011 (SF2 PZR LCS) PRESSURIZER LEVEL CONTROL SYSTEM										X		(011A4.01) (SF2 PZR LCS) PRESSURIZER LEVEL CONTROL SYSTEM Ability to manually operate and/or monitor in the control room (CFR: 41.7 / 45.5 to 45.8): Charging pump and flow controls	3.2	33
73	015 (SF7 NI) NUCLEAR INSTRUMENTATION SYSTEM											X	(015G2.2.40) (SF7 NI) NUCLEAR INSTRUMENTATION SYSTEM: (G2.2.40) Ability to apply Technical Specifications for a system. (CFR: 41.10 / 43.2 / 43.5 / 45.3)	4.7	80
74	017 (SF7 ITM) IN CORE TEMPERATURE MONITOR SYSTEM						X						(017K6.01) Knowledge of the effect of a loss or malfunction on the following will have on the (SF7 ITM) IN CORE TEMPERATURE MONITOR SYSTEM (CFR: 41.7 / 45.7): Sensors and detectors	3	16
75	027 (SF5 CIRS) CONTAINMENT IODINE REMOVAL SYSTEM								X				(027A2.01) Ability to (a) predict the impacts of the following on the (SF5 CIRS) CONTAINMENT IODINE REMOVAL SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): High temperature in the filter system	3.3	81
76	028 (SF5 HRPS) HYDROGEN RECOMBINER AND PURGE CONTROL SYSTEM						X						(028K6.01) Knowledge of the effect of a loss or malfunction on the following will have on the (SF5 HRPS) HYDROGEN RECOMBINER AND PURGE CONTROL SYSTEM (CFR: 41.7 / 45.7): Hydrogen recombiners	3.1	20
77	033 (SF8 SFPCS) SPENT FUEL POOL COOLING SYSTEM								X				(033A2.02) Ability to (a) predict the impacts of the following on the (SF8 SFPCS) SPENT FUEL POOL COOLING SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Loss of SFPCS	3	49
78	041 (SF4S SDS) STEAM DUMP/TURBINE BYPASS CONTROL SYSTEM									X			(041A3.03) Ability to monitor automatic operations of the (SF4S SDS) STEAM DUMP/TURBINE BYPASS CONTROL SYSTEM including (CFR: 41.7 / 45.5): Steam flow	2.8	9

Emergency and Abnormal Plant Evolutions—Tier 2/Group 2 (RO/SRO)

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
79	045 (SF4S MTG) MAIN TURBINE GENERATOR SYSTEM								X				(045A2.17) Ability to (a) predict the impacts of the following on the (SF4S MTG) MAIN TURBINE GENERATOR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Malfunction of electrohydraulic control	2.7	50
80	055 (SF4S CARS) CONDENSER AIR REMOVAL SYSTEM											X	(055G2.1.20) (SF4S CARS) CONDENSER AIR REMOVAL SYSTEM: (G2.1.20) Ability to interpret and execute procedure steps (CFR: 41.10 / 43.5 / 45.12)	4.6	42
81	068 (SF9 LRS) LIQUID RADWASTE SYSTEM								X				(068A2.02) Ability to (a) predict the impacts of the following on the (SF9 LRS) LIQUID RADWASTE SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 /43.5/ 45.3/45.13): Lack of tank recirculation prior to release	2.8	82
82	075 (SF8 CW) CIRCULATING WATER SYSTEM	X											(075K1.02) Knowledge of the physical connections and/or cause-effect relationships between (SF8 CW) CIRCULATING WATER SYSTEM and the following (CFR: 41.2 to 41.9 / 45.7 to 45.8): Liquid radwaste discharge	2.9	3
83	079 (SF8 SAS**) STATION AIR SYSTEM				X								(079K4.01) Knowledge of (SF8 SAS**) STATION AIR SYSTEM design feature(s) and or interlock(s) which provide for the following (CFR: 41.7): Cross-connect with IAS	3.2	62
	002 (SF2; SF4P RCS) REACTOR COOLANT SYSTEM														
	014 (SF1 RPI) ROD POSITION INDICATION SYSTEM														
	016 (SF7 NNI) NONNUCLEAR INSTRUMENTATION SYSTEM														
	029 (SF8 CPS) CONTAINMENT PURGE SYSTEM														
	034 (SF8 FHS) FUEL HANDLING EQUIPMENT SYSTEM														
	035 (SF4P SG) STEAM GENERATOR SYSTEM														
	056 (SF4S CDS) CONDENSATE SYSTEM														

Emergency and Abnormal Plant Evolutions—Tier 2/Group 2 (RO/SRO)

Item #	System / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	Q#
	071 (SF9 WGS) WASTE GAS DISPOSAL SYSTEM														
	072 (SF7 ARM) AREA RADIATION MONITORING SYSTEM														
	086 (SF8 FPS) FIRE PROTECTION SYSTEM														
	086 (SF8 FPS) FIRE PROTECTION SYSTEM														
K/A Category Totals:		2	0	0	1	0	2	0	4	1	1	2	Group Point Total:		13

ES-401		PWR Examination Outline (Millstone 3) Generic Knowledge and Abilities Outline (Tier 3) (RO/SRO)				Form ES-401-3	
Facility: Millstone 3				Date of Exam: 09/13/2021			
Category	K/A #	Topic	Item #	RO		SRO-Only	
				IR	Q#	IR	Q#
1. Conduct of Operations	G2.1.13	(G2.1.13) Knowledge of facility requirements for controlling vital/controlled access. (CFR: 41.10 / 43.5 / 45.9 / 45.10)	84	2.5	65		
	G2.1.42	(G2.1.42) Knowledge of new and spent fuel movement procedures. (CFR: 41.10 / 43.7 / 45.13)	85	2.5	19		
	G2.1.36	(G2.1.36) Knowledge of procedures and limitations involved in core alterations. (CFR: 41.10 / 43.6 / 45.7)	86			4.1	78
	G2.1.43	(G2.1.43) Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc. (CFR: 41.10 / 43.6 / 45.6)	87			4.3	99
	Subtotal					2	
2. Equipment Control	G2.2.43	(G2.2.43) Knowledge of the process used to track inoperable alarms. (CFR: 41.10 / 43.5 / 45.13)	88	3	48		
	G2.2.7	(G2.2.7) Knowledge of the process for conducting special or infrequent tests. (CFR: 41.10 / 43.3 / 45.13)	89	2.9	26		
	G2.2.23	(G2.2.23) Ability to track Technical Specification limiting conditions for operations. (CFR: 41.10 / 43.2 / 45.13)	90			4.6	95
	G2.2.6	(G2.2.6) Knowledge of the process for making changes to procedures. (CFR: 41.10 / 43.3 / 45.13)	91			3.6	98
	Subtotal					2	
3. Radiation Control	G2.3.11	(G2.3.11) Ability to control radiation releases. (CFR: 41.11 / 43.4 / 45.10)	92	3.8	58		
	G2.3.6	(G2.3.6) Ability to approve release permits. (CFR: 41.13 / 43.4 / 45.10)	93			3.8	84
	G2.3.4	(G2.3.4) Knowledge of radiation exposure limits under normal or emergency conditions. (CFR: 41.12 / 43.4 / 45.10)	94	3.2	53		
	G2.3.5	(G2.3.5) Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. (CFR: 41.11 / 41.12 / 43.4 / 45.9)	95	2.9	31		
	Subtotal					3	
4. Emergency Procedures/Plan	G2.4.12	(G2.4.12) Knowledge of general operating crew responsibilities during emergency operations. (CFR: 41.10 / 45.12)	96			4.3	77
	G2.4.25	(G2.4.25) Knowledge of fire protection procedures. (CFR: 41.10 / 43.5 / 45.13)	97	3.3	70		
	G2.4.40	(G2.4.40) Knowledge of SRO responsibilities in emergency plan implementation. (CFR: 41.10 / 43.5 / 45.11)	98	2.7	52		
	G2.4.26	(G2.4.26) Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage. (CFR: 41.10 / 43.5 / 45.12)	99			3.6	87
	G2.4.27	(G2.4.27) Knowledge of fire in the plant procedures. (CFR: 41.10 / 43.5 / 45.13)	100	3.4	71		
Subtotal					3		2

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/2		Rejected Emergency and Abnormal Plant Evolutions associated with Babcock and Wilcox (BW) and Combustion Engineering (CE) reactors - Millstone Unit 3 is a Westinghouse design.
2/1		Rejected 025 (SF5 ICE) Ice Condenser - Millstone Unit 3 does not have an ice condenser installed.
2/1		Rejected 053 (SF1; SF4P ICS*) Integrated Control - Millstone Unit 3 does not have ICS. This topic has no operational significance but similar topics are covered in MSRs.
1/2		<p>The licensee requested to add 7 items to the Tier 1, Group 2 list of E/APEs to be available for random selection in accordance with ES-401 Attachment 1:</p> <ul style="list-style-type: none"> • AOP 3550, Turbine / Generator Trip • AOP 3555, RCS Leak • AOP 3569, Severe Weather Conditions • AOP 3571, Instrument Failure Response • AOP 3575, Rapid Downpower • AOP 3577, Loss of a 4kv bus • AOP 3579, Response to Turbine Runback
2/2		<p>The licensee requested to add 2 items to the Tier 2, Group 2 list of Plant Systems to be available for random selection in accordance with ES-401 Attachment 1:</p> <ul style="list-style-type: none"> • AMSAC • SBO (Station Blackout) Diesel
ALL		Rejected generics 2.2.3 and 2.2.4 as Millstone 3 is a single unit site
1/1	011K1.01 RO Question 14	Natural circulation will not develop in a large break LOCA at MS3 due to the energy that is relieved out the break. Randomly reselected 011K312
1/1	055A1.06 RO Question 8	This K/A will overlap with the Operating exam. Randomly reselected 055A1.07
1/1	065A2.01 RO Question 37	This K/A overlaps with other written questions. Randomly reselected 065A2.08

1/2	059A2.02 SRO Question 89	Liquid Radwaste is oversampled. Randomly reselected new E/APE. AOP 3555, RCS Leak, was selected, A2.02
1/2	067A2.10 SRO Question 88	There is no long term breathing system in the control room, only SCBAs. Randomly reselected 067A2.07
1/2	069G2.2.3 RO Question 36	MS3 is not a multi-unit site. Randomly reselected 069G2.4.21
1/2	076A2.04 RO Question 60	MS3 does not have a process effluent radiation chart recorder in the CR. E/APE is also of low importance. Randomly reselected 033A2.11
2/1	073K5.03 RO Question 34	K/A is too simplistic, GFES level. Randomly reselected 004K5.19
2/1	078G2.2.25 SRO Question 92	No TS bases for instrument air that would lead to a discriminating question. Randomly reselected G2.4.11
2/1	073A4.01 RO Question 35	Process radiation monitoring K/A is oversampled. Randomly reselected 073K4.01
2/1	078A3.01 RO Question 23	Instrument air system air pressure topic is oversampled. Randomly reselected 078K2.01
2/1	103K4.01 RO Question 11	MS3 does not have containment vacuum breakers. Randomly reselected 103K4.06
2/2	028K6.01 RO Question 20	No H2 recombiners at MS3. Randomly reselected 034K6.02
2/2	068A2.02 SRO Question 82	Cannot write a discriminating question at SRO level. Randomly reselected 002A2.03
2/2	075K1.02 RO Question 3	Liquid radwaste is oversampled. Randomly reselected 016K1.03
3	G2.2.23 SRO Question 95	Can't write a discriminating question at SRO level. Randomly reselected G2.2.18
1/1	026G2.2.25 SRO Question 83	Can't write a discriminating question for bases of TSs in Component Cooling water. Randomly reselected 026G2.2.22
3	G2.4.40 RO Question 52	This generic K/A tests SRO level knowledge. Randomly reselected G2.4.14

1/1	APE 8 A1.06 RO Question 12	APE 8 Pressurizer Vapor Space Accident topic is already being tested in Question 2 (overlap). Randomly selected WE11 Loss of Emergency Coolant Recirculation, A1.03
1/1	062AA2.04 SRO Question 76	Double jeopardy with question #94. Randomly selected G2.4.41
3	G2.1.42 RO Question 19	K/A deals with fuel handling, which is mostly SRO. Cannot write a discriminating question. Randomly selected G2.1.37
2/2	034K6.02 RO Question 20	K/A deals with fuel handling/refueling, which is mostly SRO. Cannot write a discriminating question. Randomly selected AMSAC K6.01 (licensee's site priority list of systems added into the random draw per ES 401 Attachment 1))
3	G2.4.27 RO Question 71	Fire is oversampled on other exam questions (#70, #87). Randomly selected G2.4.47
2/1	010K2.02 RO Question 75	This K/A topic is minutia, cannot write a discriminating question. Randomly selected 010K2.01
2/2	027A2.01 SRO Question 81	This K/A topic is minutia, cannot write a discriminating question. Randomly selected 014A2.04