

Fort Calhoun Station

2002 NRC Hot License Exam Outline

Submitted to Mr. Tom McKernon, Chief Examiner

Scheduled Exam Dates : 9/06/02 - 9/13/02

Contents of Outline

Proposed Schedule

Outline Introduction

Written Exam Outline

- \$ RO Written Exam Sample Plan (substitute forms for ES-401-4)
- \$ SRO Written Exam Sample Plan (substitute forms for ES-401-3)

Administrative Topics Outline

- \$ Form ES-301-1 (RO)
- \$ Form ES-301-1 (SRO)

Walk-Through Test Outline

- \$ RO Form ES-301-2
- \$ SRO(I) Form ES-301-2
- \$ SRO(U) Form ES-301-2

Simulator Scenario Outline

- \$ ES-D-1 forms for all scenarios
- \$ ES-301-5 forms
- \$ ES-301-6 forms

Copy of Form ES 201 -3 security agreement as it exists to date

Form ES-201-2 Examination Outline Quality Checklist

Proposed Schedule for FCS Exam

Friday - 09/06/02

0800- 1300 All take written exam

Monday - 09/09/02

1200 - 1400 Simulator Scenario One (ISRO1, RO1, RO2)

1400 - 1600 Simulator Scenario One (ISRO2, RO3, RO4)

Tuesday - 09/10/02

0700 – 0900 Simulator Scenario Two (USRO1, RO2, RO1)

0900 – 1100 Simulator Scenario Two (USRO2, RO4, RO3)

1100 - 1200 Lunch

1200 – 1400 Simulator Scenario Three (USRO1, ISRO1, RO1)

1400 – 1600 Simulator Scenario Three (USRO2, ISRO2, RO3)

Wednesday - 09/11/02

0700 – 0900 Simulator JPMs (ISRO1, ISRO2)

0900 – 1100 Simulator JPMs (RO1, RO2)

1100 – 1200 Lunch

1200 – 1400 Simulator JPMs (RO3, RO4)

1400 – 1500 Simulator JPMs (USRO1, USRO2)

Thursday - 09/12/02

0700 – 0900 In-Plant and Admin JPMs (ISRO1, ISRO2)

0900 - 1100 In-Plant and Admin JPMs (RO1, RO2)

1100 – 1200 Lunch

1200 - 1400 In-Plant and Admin JPMs (RO3, RO4)

1400 – 1530 In-Plant and Admin JPMs (USRO1, USRO2)

1600 - Pre-exit meeting

Friday - 09/13/02

0800 EXIT

Outline Development for 9/2002 Fort Calhoun NRC Exam

This exam outline was developed in accordance with NUREG-1021, Rev 8, supplement 1. In addition, the NRC Region IV A Good Practices document was used as a reference.

Written Exam Outline

Fort Calhoun has developed a methodology to ensure that the selection of K/A items for the written exam is random and unbiased. The written exam outline was developed using a Microsoft Access database. All K/A items from NUREG-1122, Rev 2 are contained in a table within the database. Items which clearly are not applicable to Fort Calhoun are assigned a flag to prevent them from being sampled. Flagged items are selected using guidance provided in the NRC's "Additional Guidance on K/A Suppression". Flagged items include the Ice Condenser System K/A's, Non-Combustion Engineering vender specific EPE/APE K/A's, and K/A's only associated with multi-unit plants. The sample plan is developed as follows:

- \$ A module is run that assigns a random number to each item in the K/A catalog. This module uses a Randomize routine to ensure that the pattern of random numbers is unique.
- \$ A query is run that presents K/A items belonging to the RO tier and group being sampled, with importance factors of 2.5 or greater, ordered by their associated random number. Minimum and maximum numbers are assigned to system/events and categories to prevent over and under sampling. Items are entered in the sample plan as ordered, subject to the pre-established minimums and maximums. If a sampled K/A item is not applicable to Fort Calhoun or not appropriate for the written exam, it will be tagged and included in the Record of Rejected K/A's along with the reason for rejection. This sampling process is repeated until the tier/group has the required number of items.
- \$ This procedure is repeated for each tier/group combination.
- \$ A maximum of 75 K/A items, also having SRO importance factor of 2.5 or greater are selected to also be used in the SRO exam.
- \$ Additional items are selected for the SRO written exam to fill out the SRO tier/group requirements. These items are also presented in order of associate random number. An additional requirement, for this step, is that the selected K/A items must be applicable to SRO level questions.

Operating Exam Outline

The Fort Calhoun APRA Summary Notebook® was used as a resource to ensure that risk-significant items identified in the Fort Calhoun IPE are reflected in the exam. This resulted in the following events being included in the operating exam:

- \$ LOCA due to RCP seal failure
- \$ Loss of offsite power
- \$ Total loss of feedwater requiring operators to initiate once-through-cooling

It also resulted in the following risk-significant operator actions being evaluated:

- \$ Manually opening a Reactor Coolant Pump breaker to allow D/G to power vital bus.
- \$ Initiating emergency boration

All four simulator scenarios are new.

The development of the audit exam that will be given was completed prior to beginning work on this exam outline.

PWR RO Written Examination Outline Summary

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System/Mode	System Title	K1	K2	K3	A1	A2	G	Points
EPE/APE Tier 1 / Group 1								
000005	Inoperable/Stuck Control Rod						1	1
000015	Reactor Coolant Pump Malfunctions				1		1	2
000024	Emergency Boration	1	1					2
000062	Loss of Nuclear Service Water				1		1	2
000067	Plant Fire on Site					1	1	2
000068	Control Room Evacuation			1	1			2
000074	Inadequate Core Cooling					1		1
000076	High Reactor Coolant Activity					1		1
CE-A11	RCS Overcooling				1			1
CE-E05	Excess Steam Demand			1			1	2
		1	1	2	4	3	5	16

EPE/APE Tier 1 / Group 2								
000001	Continuous Rod Withdrawal						1	1
000003	Dropped Control Rod	1	1					2
000007	Reactor Trip			1	1			2
000008	Pressurizer Vapor Space Accident				1	1		2
000009	Small Break LOCA					1		1
000011	Large Break LOCA			1		1		2
000029	Anticipated Transient Without Scram (ATWS)						1	1
000033	Loss of Intermediate Range Nuclear Instrumentation						1	1
000037	Steam Generator Tube Leak						1	1
000038	Steam Generator Tube Rupture					1		1
000059	Accidental Liquid Radwaste Release			1				1
000061	Area Radiation Monitoring (ARM) System Alarms						1	1
CE-E06	Loss of Feedwater	1						1
		2	1	3	2	4	5	17

EPE/APE Tier 1 / Group 3								
000028	Pressurizer Level Control Malfunction					1		1
000036	Fuel Handling Incidents						1	1
000056	Loss of Off-Site Power					1		1
						2	1	3

Grand Total of EPE/APE K&A Selection	3	2	5	6	9	11	36
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Plant System Tier 2 / Group 2													
002000	Reactor Coolant System						1					1	2
006000	Emergency Core Cooling System				1			1					2
010000	Pressurizer Pressure Control System								1				1
011000	Pressurizer Level Control System		1						1				2
012000	Reactor Protection System	1											1
014000	Rod Position Indication System										1		1
016000	Non-Nuclear Instrumentation System					1							1
026000	Containment Spray System							1				1	2
035000	Steam Generator System										1		1
039000	Main and Reheat Steam System								1				1
062000	A.C. Electrical Distribution								1			1	2
064000	Emergency Diesel Generators			1						1			2
075000	Circulating Water System										1		1
079000	Station Air System											1	1
		1	1	1	1	1	1	2	4	1	3	4	20

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PWR RO Written Examination Outline Summary

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System/Mode	System Title	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Points
		2		2		1				1		2	8
Grand Total of Plant System K&A Selecti		7	2	5	3	3	3	3	5	4	6	10	51

PWR RO Written Examination Outline Summary

System/Mode	System Title	Cat 1	Cat 2	Cat 3	Cat 4	Points
Generic Knowledge and Abilities Tier 3						
000000	Generic Knowledges and Abilities	4	3	2	4	13
		4	3	2	4	13
Grand Total of Generic K&A Selectic		4	3	2	4	13

PWR RO Written Examination Outline

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	1	Group	1		
000005	Inoperable/Stuck Control Rod	2.1.32	: Ability to explain and apply all system limits and precautions.	3.4	41.10 / 43.2 / 45.12
000015	Reactor Coolant Pump Malfunctions	2.4.49	: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	41.10 / 43.2 / 45.6
000015	Reactor Coolant Pump Malfunctions	AA1.05	Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):: RCS flow	3.8	41.7 / 45.5 / 45.6
000024	Emergency Boration	AK1.04	Knowledge of the operational implications of the following concepts as they apply to Emergency Boration:: Low temperature limits for boron concentration	2.8	41.8 / 41.10 / 45.3
000024	Emergency Boration	AK2.03	Knowledge of the interrelations between the Emergency Boration and the following:: Controllers and positioners	2.6	41.7 / 45.7
000062	Loss of Nuclear Service Water	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits	2.5	43.2
000062	Loss of Nuclear Service Water	AA1.06	Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water Control of flow rates to components cooled by the SWS	2.9	41.7 / 45.5 / 45.6
000067	Plant Fire on Site	2.1.02	: Knowledge of operator responsibilities during all modes of plant operation.	3.0	41.10 / 45.13
000067	Plant Fire on Site	AA2.17	Ability to determine and interpret the following as they apply to the Plant Fire on Site:: Systems that may be affected by the fire	3.5	43.5 / 45.13
000068	Control Room Evacuation	AA1.23	Ability to operate and / or monitor the following as they apply to the Control Room Evacuation:: Manual trip of reactor and turbine	4.3	41.7 / 45.5 / 45.6
000068	Control Room Evacuation	AK3.14	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:: Safety injection setpoint of main steam line pressure	3.2*	41.5 / 41.10 / 45.6 / 45.13

PWR RO Written Examination Outline (Continued)

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
000074	Inadequate Core Cooling	EA2.04	Ability to determine or interpret the following as they apply to a Inadequate Core Cooling:: Relation between RCS temperature and main steam pressure	3.7	43.5 / 45.13
000076	High Reactor Coolant Activity	AA2.02	Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity:: Corrective actions required for high fission product activity in RCS	2.8	43.5 / 45.13
CE-A11	RCS Overcooling	AA1.02	Ability to operate and / or monitor the following as they apply to the (RCS Overcooling): Operating behavior characteristics of the facility.	3.2	41.7 / 45.5 / 45.6
CE-E05	Excess Steam Demand	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response mar	3.3	45.3
CE-E05	Excess Steam Demand	EK3.04	Knowledge of the reasons for the following responses as they apply to the (Excess Steam Dema RO or SRO function within the control room team as appropriate to the assigned position, in such way that procedures are adhered to and the limitations in the facilities license and amendments a not violated.	3.2	41.5 / 41.10 / 45.6 / 45.13

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	1	Group	2		
000001	Continuous Rod Withdrawal	2.4.06	: Knowledge symptom based EOP mitigation strategies.	3.1	41.10 / 43.5 / 45.13
000003	Dropped Control Rod	AK1.15	Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:: Definition and application of power defect	2.8	41.8 / 41.10 / 45.3
000003	Dropped Control Rod	AK2.03	Knowledge of the interrelations between the Dropped Control Rod and the following:: Metroscope	3.1*	41.7 / 45.7
000007	Reactor Trip	EA1.07	Ability to operate and monitor the following as they apply to a reactor trip:: MT/G trip; verification that the MT/G has been tripped	4.3	41.7 / 45.5 / 45.6
000007	Reactor Trip	EK3.01	Knowledge of the reasons for the following as they apply to a reactor trip:: Actions contained in EOP for reactor trip	4.0	41.5 / 41.10 / 45.6 / 45.13
000008	Pressurizer Vapor Space Accident	AA1.05	Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident:: LPI System	3.4	41.7 / 45.5 / 45.6
000008	Pressurizer Vapor Space Accident	AA2.12	Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:: PZR level indicators	3.4	43.5 / 45.13
000009	Small Break LOCA	EA2.13	Ability to determine or interpret the following as they apply to a small break LOCA:: Charging pump flow indication	3.4	43.5 / 45.13
000011	Large Break LOCA	EA2.03	Ability to determine or interpret the following as they apply to a Large Break LOCA:: Consequence managing LOCA with loss of CCW	3.7	43.5 / 45.13
000011	Large Break LOCA	EK3.10	Knowledge of the reasons for the following responses as they apply to the Large Break LOCA:: P limits on RCS pressure and temperature	3.7	41.5 / 41.10 / 45.6 / 45.13
000029	Anticipated Transient Without Scram (ATWS)	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.3	45.3

PWR RO Written Examination Outline (Continued)

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
000033	Loss of Intermediate Range Nuclear Instrumentation	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety I	2.5	43.2
000037	Steam Generator Tube Leak	2.1.14	: Knowledge of system status criteria which require the notification of plant personnel.	2.5	43.5 / 45.12
000038	Steam Generator Tube Rupture	EA2.07	Ability to determine or interpret the following as they apply to a SGTR:: Plant conditions, from surv of control room indications	4.4	43.5 / 45.13
000059	Accidental Liquid Radwaste Release	AK3.03	Knowledge of the reasons for the following responses as they apply to the Accidental Liquid Ra Release:: Declaration that a radioactive-liquid monitor is inoperable	3.0	41.5 / 41.10 / 45.6 / 45.13
000061	Area Radiation Monitoring (ARM) System Alarms	2.4.04	: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.0	41.10 / 43.2 / 45.6
CE-E06	Loss of Feedwater	EK1.03	Knowledge of the operational implications of the following concepts as they apply to the (Loss of Feedwater): Annunciators and conditions indicating signals, and remedial actions associated with (Loss of Feedwater).	3.2	41.8 / 41.10 / 45.3

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	1	Group	3		
000028	Pressurizer Level Control Malfunction	AA2.09	Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions:: Charging and letdown flow capacities	2.9	43.5 / 45.13
000036	Fuel Handling Incidents	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response mar	3.3	43.7/45.3
000056	Loss of Off-Site Power	AA2.24	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:: CCW p ammeter, flowmeter and run indicator	3.0	43.5 / 45.13

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	2	Group	1		
001000	Control Rod Drive System	K4.17	Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following:: Overr (bypass) for rod bank motion when one rod is bottomed	2.9*	41.7/43.6
001000	Control Rod Drive System	K6.11	Knowledge of the effect of a loss or malfunction on the following CRDS components:: Location an operation of CRDS fault detection (trouble alarms) and reset system, including rod control annunc	2.9	41.7 / 45.7
003000	Reactor Coolant Pump System	A4.03	Ability to manually operate and/or monitor in the control room:: RCP lube oil and lift pump motor controls	2.8	41.7 / 45.5 to 45.8
003000	Reactor Coolant Pump System	K1.12	Knowledge of the physical connections and/or cause-effect relationships between the RCPS and following systems:: CCWS	3.0	41.2 to 41.9 / 45.7 to 45.8
004000	Chemical and Volume Control System	A3.16	Ability to monitor automatic operation of the CVCS, including:: Interpretation of emergency borate valve position indicating lights	3.8	41.7 / 45.5
004000	Chemical and Volume Control System	K3.02	Knowledge of the effect that a loss or malfunction of the CVCS will have on the following:: PZR L	3.7	41.7 / 45.6
013000	Engineered Safety Features Actuation System	2.1.02	: Knowledge of operator responsibilities during all modes of plant operation.	3.0	41.10 / 45.13
013000	Engineered Safety Features Actuation System	K1.13	Knowledge of the physical connections and/or cause effect relationships between the ESFAS and following systems:: HVAC	2.8	41.2 to 41.9 / 45.7 to 45.8
015000	Nuclear Instrumentation System	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response mar	3.3	45.3
015000	Nuclear Instrumentation System	A1.01	Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associ with operating the NIS controls including:: NIS calibration by heat balance	3.5	41.5 / 45.5
017000	In-Core Temperature Monitor System	2.1.32	: Ability to explain and apply all system limits and precautions.	3.4	41.10 / 43.2 / 45.12

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
017000	In-Core Temperature Monitor System	K3.01	Knowledge of the effect that a loss or malfunction of the ITM system will have on the following:: Natural circulation indications	3.5*	41.7 / 45.6
022000	Containment Cooling System	A3.01	Ability to monitor automatic operation of the CCS, including:: Initiation of safeguards mode of operation	4.1	41.7 / 45.5
022000	Containment Cooling System	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems:: SWS/cooling system	3.5	41.2 to 41.9 / 45.7 to 45.8
059000	Main Feedwater System	2.2.22	: Knowledge of limiting conditions for operations and safety limits.	3.4	43.2 / 45.2
059000	Main Feedwater System	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems:: RCS	3.1*	41.2 to 41.9 / 45.7 to 45.8
061000	Auxiliary / Emergency Feedwater System	A2.02	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 the following malfunctions or operations:: Loss of air to steam supply valve	3.2*	41.5 / 43.5 / 45.3 / 45.13
061000	Auxiliary / Emergency Feedwater System	K2.03	Knowledge of bus power supplies to the following:: AFW diesel driven pump	4.0*	41.7
068000	Liquid Radwaste System	A4.02	Ability to manually operate and/or monitor in the control room:: Remote radwaste release	3.2*	41.7 / 45.5 to 45.8
068000	Liquid Radwaste System	K6.10	Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System :: Radiation monitors	2.5	41.7 / 45.7
071000	Waste Gas Disposal System	A4.27	Ability to manually operate and/or monitor in the control room:: Opening and closing of the decay tank discharge control valve	3.0*	41.7 / 45.5 to 45.8
071000	Waste Gas Disposal System	K5.04	Knowledge of the operational implication of the following concepts as they apply to the Waste Gas Disposal System:: Relationship of hydrogen/oxygen concentrations to flammability	2.5	41.5 / 45.7

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
072000	Area Radiation Monitoring System	K4.03	Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following:: ventilation systems	3.2*	41.7

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	2	Group	2		
002000	Reactor Coolant System	2.1.32	: Ability to explain and apply all system limits and precautions.	3.4	41.10 / 43.2 / 45.12
002000	Reactor Coolant System	K6.06	Knowledge of the effect or a loss or malfunction on the following RCS components:: Sensors and detectors	2.5	41.7 / 45.7
006000	Emergency Core Cooling System	A1.16	Ability to predict and/or monitor changes in parameters: RCS temperature, including superheat, saturation, and subcooled	4.1	41.5 / 45.5
006000	Emergency Core Cooling System	K4.05	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following:: Autos HPI/LPI/SIP	4.3	41.7
010000	Pressurizer Pressure Control System	A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and based on those predictions, use procedures to correct, control, or mitigate the consequences of malfunctions or operations:: Spray valve failures	3.9	41.5 / 43.5 / 45.3 / 45.13
011000	Pressurizer Level Control System	A2.10	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS; and based on those predictions, use procedures to correct, control, or mitigate the consequences of malfunctions or operations:: Failure of PZR level instrument - high	3.4	41.5 / 43.5 / 45.3 / 45.13
011000	Pressurizer Level Control System	K2.01	Knowledge of bus power supplies to the following:: Charging pumps	3.1	41.7
012000	Reactor Protection System	K1.04	Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems:: RPIS	3.2*	41.2 to 41.9 / 45.7 to 45.8
014000	Rod Position Indication System	A4.01	Ability to manually operate and/or monitor in the control room:: Rod selection control	3.3	41.7 / 45.5 to 45.8
016000	Non-Nuclear Instrumentation System	K5.01	Knowledge of the operational implication of the following concepts as they apply to the NNIS:: Separation of control and protection circuits	2.7*	41.5 / 45.7
026000	Containment Spray System	2.1.23	: Ability to perform specific system and integrated plant procedures during all modes of plant operation	3.9	45.2 / 45.6

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
026000	Containment Spray System	A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including:: Containment temperature	3.6*	41.5 / 45.5
035000	Steam Generator System	A4.02	Ability to manually operate and/or monitor in the control room:: Fill of dry S/G	2.7	41.7 / 45.5 to 45.8
039000	Main and Reheat Steam System	A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Indications and alarms for main steam and area radiation monitors (during SGTR)	3.4	41.5 / 43.5 / 45.3 / 45.13
062000	A.C. Electrical Distribution	2.1.02	: Knowledge of operator responsibilities during all modes of plant operation.	3.0	41.10 / 45.13
062000	A.C. Electrical Distribution	A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Keeping the safeguards buses electrically separate	3.4*	41.5 / 43.5 / 45.3 / 45.13
064000	Emergency Diesel Generators	A3.13	Ability to monitor automatic operation of the ED/G system, including:: Rpm controller/megawatt load control (breaker-open/breaker-closed effects)	3.0*	41.7 / 45.5
064000	Emergency Diesel Generators	K3.03	Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following: ED/G (manual loads)	3.6	41.7 / 45.6
075000	Circulating Water System	A4.01	Ability to manually operate and/or monitor in the control room:: Emergency/essential SWS pumps	3.2*	41.7 / 45.5 to 45.8
079000	Station Air System	2.4.31	: Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	41.10 / 45.3

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	2	Group	3		
005000	Residual Heat Removal System	K1.11	Knowledge of the physical connections and/or cause-effect relationships between the RHRS and following systems:: RWST	3.5	41.2 to 41.9 / 45.7 to 45.8
005000	Residual Heat Removal System	K5.01	Knowledge of the operational implications of the following concepts as they apply the RHRS:: Nil ductility transition temperature (brittle fracture)	2.6	41.5 / 45.7
008000	Component Cooling Water System	K3.01	Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:: Load cooled by CCWS	3.4	41.7 / 45.6
041000	Steam Dump System and Turbine Bypass Control	A3.05	Ability to monitor automatic operation of the SDS, including:: Main steam pressure	2.9*	41.7 / 45.5
076000	Service Water System	2.1.27	: Knowledge of system purpose and or function.	2.8	41.7
076000	Service Water System	K3.05	Knowledge of the effect that a loss or malfunction of the SWS will have on the following:: RHR components, controls, sensors, indicators, and alarms, including rad monitors	3.0*	41.7 / 45.6
103000	Containment System	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety I	2.5	43.2
103000	Containment System	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the containme system and the following systems:: Personnel access hatch and emergency access hatch	2.8*	41.2 to 41.9 / 45.7 to 45.8

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
Tier	3	Group	4		
000000	Generic Knowledges and Abilities	2.1.11	: Knowledge of less than one hour technical specification action statements for systems.	3.0	43.2 / 45.13
000000	Generic Knowledges and Abilities	2.1.23	: Ability to perform specific system and integrated plant procedures during all modes of plant operation.	3.9	45.2 / 45.6
000000	Generic Knowledges and Abilities	2.1.24	: Ability to obtain and interpret station electrical and mechanical drawings.	2.8	45.12 / 45.13
000000	Generic Knowledges and Abilities	2.1.33	: Ability to recognize indications for system operating parameters which are entry-level conditions and technical specifications.	3.4	43.2 / 43.3 / 45.3
000000	Generic Knowledges and Abilities	2.2.13	: Knowledge of tagging and clearance procedures.	3.6	41.10 / 45.13
000000	Generic Knowledges and Abilities	2.2.23	: Ability to track limiting conditions for operations.	2.6	43.2 / 45.13
000000	Generic Knowledges and Abilities	2.2.33	: Knowledge of control rod programming.	2.5	43.6
000000	Generic Knowledges and Abilities	2.3.01	: Knowledge of 10CFR20 and related facility radiation control requirements.	2.6	41.12 / 43.4 / 45.9 / 45.10
000000	Generic Knowledges and Abilities	2.3.09	: Knowledge of the process for performing a containment purge.	2.5	43.4 / 45.10
000000	Generic Knowledges and Abilities	2.4.26	: Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.	2.9	43.5 / 45.12
000000	Generic Knowledges and Abilities	2.4.37	: Knowledge of the lines of authority during an emergency.	2.0	45.13

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System/Mode	System Title	KA Number	Title	RO Value	10 CFR 55
000000	Generic Knowledges and Abilities	2.4.46	: Ability to verify that the alarms are consistent with the plant conditions.	3.5	43.5 / 45.3 / 45.12
000000	Generic Knowledges and Abilities	2.4.48	: Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.5	43.5 / 45.12

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System/Mode	System Title	K1	K2	K3	A1	A2	G	Points
EPE/APE Tier 1 / Group 1								
000001	Continuous Rod Withdrawal		1				1	2
000003	Dropped Control Rod		1				1	2
000005	Inoperable/Stuck Control Rod						1	1
000011	Large Break LOCA			1		1		2
000017	Reactor Coolant Pump Malfunctions (Loss of RC Flow)			1				1
000024	Emergency Boration	1						1
000029	Anticipated Transient Without Scram (ATWS)						1	1
000057	Loss of Vital AC Electrical Instrument Bus					1		1
000059	Accidental Liquid Radwaste Release	1						1
000062	Loss of Nuclear Service Water				1		1	2
000067	Plant Fire on Site			1	1			2
000068	Control Room Evacuation			1	1			2
000074	Inadequate Core Cooling					1		1
000076	High Reactor Coolant Activity	1				1		2
CE-A11	RCS Overcooling				1			1
CE-E05	Excess Steam Demand			1			1	2
		3	2	5	4	4	6	24

EPE/APE Tier 1 / Group 2								
000007	Reactor Trip				1		1	2
000008	Pressurizer Vapor Space Accident				1	1		2
000009	Small Break LOCA			1		1		2
000022	Loss of Reactor Coolant Makeup						1	1
000033	Loss of Intermediate Range Nuclear Instrumentation						1	1
000037	Steam Generator Tube Leak						1	1
000038	Steam Generator Tube Rupture					1		1
000058	Loss of DC Power					1		1
000060	Accidental Gaseous Radwaste Release			1				1
000061	Area Radiation Monitoring (ARM) System Alarms						1	1
CE-E06	Loss of Feedwater	1			1			2
CE-E09	Functional Recovery		1					1
		1	1	2	3	4	5	16

EPE/APE Tier 1 / Group 3								
000028	Pressurizer Level Control Malfunction					1		1
000036	Fuel Handling Incidents						1	1
000056	Loss of Off-Site Power					1		1

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System/Mode	System Title	K1	K2	K3	A1	A2	G	Points
						2	1	3
Grand Total of EPE/APE K&A Selection		4	3	7	7	10	12	43

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System/Mode	System Title	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Points
Plant System Tier 2 / Group 1													
001000	Control Rod Drive System				1							1	2
003000	Reactor Coolant Pump System	1									1		2
004000	Chemical and Volume Control System			1						1			2
013000	Engineered Safety Features Actuation System	1										1	2
014000	Rod Position Indication System										1		1
015000	Nuclear Instrumentation System						1					1	2
017000	In-Core Temperature Monitor System			1									1
022000	Containment Cooling System	1											1
026000	Containment Spray System							1				1	2
061000	Auxiliary / Emergency Feedwater System		1						1				2
071000	Waste Gas Disposal System					1					1		2
		3	1	2	1	1	1	1	1	1	3	4	19

Plant System Tier 2 / Group 2													
002000	Reactor Coolant System											1	1
006000	Emergency Core Cooling System						1	1					2
010000	Pressurizer Pressure Control System								1				1
011000	Pressurizer Level Control System		1						1				2
012000	Reactor Protection System	1											1
016000	Non-Nuclear Instrumentation System					1							1
033000	Spent Fuel Pool Cooling System				1								1
035000	Steam Generator System										1		1
039000	Main and Reheat Steam System								1				1
062000	A.C. Electrical Distribution											1	1
064000	Emergency Diesel Generators			1						1			2
075000	Circulating Water System										1		1
079000	Station Air System											1	1
103000	Containment System											1	1
		1	1	1	1	1	1	1	3	1	2	4	17

Plant System Tier 2 / Group 3													
005000	Residual Heat Removal System					1							1
008000	Component Cooling Water System			1									1
041000	Steam Dump System and Turbine Bypass Control									1			1
076000	Service Water System				1								1
				1	1	1				1			4

Grand Total of Plant System K&A Selecti

4	2	4	3	3	2	2	4	3	5	8	40
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System/Mode	System Title	Cat 1	Cat 2	Cat 3	Cat 4	Points
Generic Knowledge and Abilities Tier 3						
000000	Generic Knowledges and Abilities	5	4	3	5	17
		5	4	3	5	17
Grand Total of Generic K&A Selectic		5	4	3	5	17

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	1	Group	1		
000001	Continuous Rod Withdrawal	2.4.06	: Knowledge symptom based EOP mitigation strategies.	4.0	41.10 / 43.5 / 45.13
000001	Continuous Rod Withdrawal	AK2.03	Knowledge of the interrelations between the Continuous Rod Withdrawal and the following:: Se and detectors	2.6	41.7 / 45.7
000003	Dropped Control Rod	2.1.14	: Knowledge of system status criteria which require the notification of plant personnel.	3.3	43.5 / 45.12
000003	Dropped Control Rod	AK2.03	Knowledge of the interrelations between the Dropped Control Rod and the following:: Metroscop	3.2*	41.7 / 45.7
000005	Inoperable/Stuck Control Rod	2.1.32	: Ability to explain and apply all system limits and precautions.	3.8	41.10 / 43.2 / 45.12
000011	Large Break LOCA	EA2.03	Ability to determine or interpret the following as they apply to a Large Break LOCA:: Consequer managing LOCA with loss of CCW	4.2	43.5 / 45.13
000011	Large Break LOCA	EK3.10	Knowledge of the reasons for the following responses as the apply to the Large Break LOCA:: limits on RCS pressure and temperature	3.9	41.5 / 41.10 / 45.6 / 45.13
000017	Reactor Coolant Pump Malfunctions (Loss of RC Flow)	AK3.06	Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pu Malfunctions (Loss of RC Flow) :: Performance of a core power map, calculations of quadrant tilt, monitoring of core imbalance	3.1*	41.5 / 41.10 / 45.6 / 45.13
000024	Emergency Boration	AK1.04	Knowledge of the operational implications of the following concepts as they apply to Emergenc Boration:: Low temperature limits for boron concentration	3.6	41.8 / 41.10 / 45.3
000029	Anticipated Transient Without Scram (ATWS)	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response m	3.3	45.3
000057	Loss of Vital AC Electrical Instrument Bu	AA2.10	Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Turbine load limiter control	2.5	43.5 / 45.13

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
000059	Accidental Liquid Radwaste Release	AK1.03	Knowledge of the operational implications of the following concepts as they apply to Accidental Radwaste Release:: Effects of placing a radioactive source near a radiation monitor; in particular a radioactive-liquid radiation monitor	2.9*	41.8 / 41.10 / 45.3
000062	Loss of Nuclear Service Water	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety	3.7	43.2
000062	Loss of Nuclear Service Water	AA1.06	Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water: Control of flow rates to components cooled by the SWS	2.9	41.7 / 45.5 / 45.6
000067	Plant Fire on Site	AA1.02	Ability to operate and / or monitor the following as they apply to the Plant Fire on Site:: Re-installation of a fire detector	2.5*	41.7 / 45.5 / 45.6
000067	Plant Fire on Site	AK3.03	Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site:: Fire detector surveillance test	2.5*	41.5 / 41.10 / 45.6 / 45.13
000068	Control Room Evacuation	AA1.23	Ability to operate and / or monitor the following as they apply to the Control Room Evacuation:: Monitoring of reactor and turbine	4.4	41.7 / 45.5 / 45.6
000068	Control Room Evacuation	AK3.14	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Safety injection setpoint of main steam line pressure	3.4*	41.5 / 41.10 / 45.6 / 45.13
000074	Inadequate Core Cooling	EA2.04	Ability to determine or interpret the following as they apply to a Inadequate Core Cooling:: Relationship between RCS temperature and main steam pressure	4.2	43.5 / 45.13
000076	High Reactor Coolant Activity	AA2.02	Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Corrective actions required for high fission product activity in RCS	3.4	43.5 / 45.13
000076	High Reactor Coolant Activity	AK1.02	Knowledge of the operational implications of the following concepts as they apply to High Reactor Coolant Activity:: Radiation source term and transport pathway	2.5	41.8 / 41.10 / 45.3
CE-A11	RCS Overcooling	AA1.02	Ability to operate and / or monitor the following as they apply to the (RCS Overcooling): Operating behavior characteristics of the facility.	3.4	41.7 / 45.5 / 45.6

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
CE-E05	Excess Steam Demand	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response m	3.3	45.3
CE-E05	Excess Steam Demand	EK3.04	Knowledge of the reasons for the following responses as they apply to the (Excess Steam Der RO or SRO function within the control room team as appropriate to the assigned position, in suc way that procedures are adhered to and the limitations in the facilities license and amendments not violated.	3.6	41.5 / 41.10 / 45.6 / 45.13

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	1	Group	2		
000007	Reactor Trip	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response m	3.3	45.3
000007	Reactor Trip	EA1.07	Ability to operate and monitor the following as they apply to a reactor trip:: MT/G trip; verification the MT/G has been tripped	4.3	41.7 / 45.5 / 45.6
000008	Pressurizer Vapor Space Accident	AA1.05	Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident:: LPI System	3.3	41.7 / 45.5 / 45.6
000008	Pressurizer Vapor Space Accident	AA2.06	Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:: PORV logic control under low-pressure conditions	3.6	43.5 / 45.13
000009	Small Break LOCA	EA2.13	Ability to determine or interpret the following as they apply to a small break LOCA:: Charging pump flow indication	3.6	43.5 / 45.13
000009	Small Break LOCA	EK3.10	Knowledge of the reasons for the following responses as they apply to the small break LOCA:: Observation of PZR level	3.6	41.5 / 41.10 / 45.6 / 45.13
000022	Loss of Reactor Coolant Makeup	2.4.30	: Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	43.5 / 45.11
000033	Loss of Intermediate Range Nuclear Instrumentation	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety	3.7	43.2
000037	Steam Generator Tube Leak	2.1.14	: Knowledge of system status criteria which require the notification of plant personnel.	3.3	43.5 / 45.12
000038	Steam Generator Tube Rupture	EA2.07	Ability to determine or interpret the following as they apply to a SGTR:: Plant conditions, from status of control room indications	4.8	43.5 / 45.13
000058	Loss of DC Power	AA2.01	Ability to determine and interpret the following as they apply to the Loss of DC Power:: That a loss of dc power has occurred; verification that substitute power sources have come on line	4.1	43.5 / 45.13

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
000060	Accidental Gaseous Radwaste Release	AK3.01	Knowledge of the reasons for the following responses as they apply to the Accidental Gaseous Radwaste:: Implementation of E-plan	4.2	41.5 / 41.10 / 45.6 / 45.13
000061	Area Radiation Monitoring (ARM) System Alarms	2.4.04	: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	41.10 / 43.2 / 45.6
CE-E06	Loss of Feedwater	EA1.03	Ability to operate and / or monitor the following as they apply to the (Loss of Feedwater): Desired operating results during abnormal and emergency situations.	4.0	41.7 / 45.5 / 45.6
CE-E06	Loss of Feedwater	EK1.03	Knowledge of the operational implications of the following concepts as they apply to the (Loss of Feedwater): Annunciators and conditions indicating signals, and remedial actions associated with (Loss of Feedwater).	3.7	41.8 / 41.10 / 45.3
CE-E09	Functional Recovery	EK2.02	Knowledge of the interrelations between the (Functional Recovery) and the following:: Facility's removal systems, including primary coolant, emergency coolant, the decay heat removal system and the relations between the proper operation of these systems to the operation of the facility.	4.2	41.7 / 45.7

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	<input type="text" value="1"/>	Group	<input type="text" value="3"/>		
000028	Pressurizer Level Control Malfunction	AA2.09	Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions:: Charging and letdown flow capacities	3.2	43.5 / 45.13
000036	Fuel Handling Incidents	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response m	3.3	43.7/45.3
000056	Loss of Off-Site Power	AA2.24	Ability to determine and interpret the following as they apply to the Loss of Offsite Power:: CCW ammeter, flowmeter and run indicator	3.1	43.5 / 45.13

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	2	Group	1		
001000	Control Rod Drive System	2.1.33	: Ability to recognize indications for system operating parameters which are entry-level conditions and technical specifications.	4.0	43.2 / 43.3 / 45.3
001000	Control Rod Drive System	K4.17	Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following:: Overcurrent (bypass) for rod bank motion when one rod is bottomed	3.1*	41.7/43.6
003000	Reactor Coolant Pump System	A4.03	Ability to manually operate and/or monitor in the control room:: RCP lube oil and lift pump motor controls	2.5	41.7 / 45.5 to 45.8
003000	Reactor Coolant Pump System	K1.12	Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems:: CCWS	3.3	41.2 to 41.9 / 45.7 to 45.8
004000	Chemical and Volume Control System	A3.16	Ability to monitor automatic operation of the CVCS, including:: Interpretation of emergency borate valve position indicating lights	4.2	41.7 / 45.5
004000	Chemical and Volume Control System	K3.02	Knowledge of the effect that a loss or malfunction of the CVCS will have on the following:: PZR	4.1	41.7 / 45.6
013000	Engineered Safety Features Actuation System	2.1.02	: Knowledge of operator responsibilities during all modes of plant operation.	4.0	41.10 / 45.13
013000	Engineered Safety Features Actuation System	K1.13	Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems:: HVAC	3.1	41.2 to 41.9 / 45.7 to 45.8
014000	Rod Position Indication System	A4.01	Ability to manually operate and/or monitor in the control room:: Rod selection control	3.1	41.7 / 45.5 to 45.8
015000	Nuclear Instrumentation System	2.4.50	: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.3	45.3
015000	Nuclear Instrumentation System	K6.05	Knowledge of the effect of a loss or malfunction on the following will have on the NIS:: Audio indication, including deaf spots in control room and containment	2.6	41.7 / 45.7

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
017000	In-Core Temperature Monitor System	K3.01	Knowledge of the effect that a loss or malfunction of the ITM system will have on the following: Natural circulation indications	3.7*	41.7 / 45.6
022000	Containment Cooling System	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems:: SWS/cooling system	3.7	41.2 to 41.9 / 45.7 to 45.8
026000	Containment Spray System	2.1.23	: Ability to perform specific system and integrated plant procedures during all modes of plant operation	4.0	45.2 / 45.6
026000	Containment Spray System	A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including:: Containment temperature	3.9	41.5 / 45.5
061000	Auxiliary / Emergency Feedwater System	A2.02	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 the following malfunctions or operations:: Loss of air to steam supply valve	3.6*	41.5 / 43.5 / 45.3 / 45.13
061000	Auxiliary / Emergency Feedwater System	K2.03	Knowledge of bus power supplies to the following:: AFW diesel driven pump	3.8*	41.7
071000	Waste Gas Disposal System	A4.27	Ability to manually operate and/or monitor in the control room:: Opening and closing of the decay tank discharge control valve	2.7*	41.7 / 45.5 to 45.8
071000	Waste Gas Disposal System	K5.04	Knowledge of the operational implication of the following concepts as they apply to the Waste Gas Disposal System:: Relationship of hydrogen/oxygen concentrations to flammability	3.1	41.5 / 45.7

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	2	Group	2		
002000	Reactor Coolant System	2.1.32	: Ability to explain and apply all system limits and precautions.	3.8	41.10 / 43.2 / 45.12
006000	Emergency Core Cooling System	A1.16	Ability to predict and/or monitor changes in parameters: RCS temperature, including superheat, saturation, and subcooled	4.2	41.5 / 45.5
006000	Emergency Core Cooling System	K6.04	Knowledge of the effect of a loss or malfunction on the following will have on the ECCS:: Break relays and disconnects	2.5	41.7 / 45.7
010000	Pressurizer Pressure Control System	A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and based on those predictions, use procedures to correct, control, or mitigate the consequences of malfunctions or operations:: Spray valve failures	3.9	41.5 / 43.5 / 45.3 / 45.13
011000	Pressurizer Level Control System	A2.10	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS; and based on those predictions, use procedures to correct, control, or mitigate the consequences of malfunctions or operations:: Failure of PZR level instrument - high	3.6	41.5 / 43.5 / 45.3 / 45.13
011000	Pressurizer Level Control System	K2.01	Knowledge of bus power supplies to the following:: Charging pumps	3.2	41.7
012000	Reactor Protection System	K1.04	Knowledge of the physical connections and/or cause effect relationships between the RPS and following systems:: RPIS	3.3*	41.2 to 41.9 / 45.7 to 45.8
016000	Non-Nuclear Instrumentation System	K5.01	Knowledge of the operational implication of the following concepts as they apply to the NNIS:: Separation of control and protection circuits	2.8*	41.5 / 45.7
033000	Spent Fuel Pool Cooling System	K4.02	Knowledge of design feature(s) and/or interlock(s) which provide for the following:: Maintenance of spent fuel cleanliness	2.7	41.7
035000	Steam Generator System	A4.02	Ability to manually operate and/or monitor in the control room:: Fill of dry S/G	2.8	41.7 / 45.5 to 45.8
039000	Main and Reheat Steam System	A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Indications and alarms for main steam and area radiation monitors (during SGTR)	3.7	41.5 / 43.5 / 45.3 / 45.13

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
062000	A.C. Electrical Distribution	2.1.02	: Knowledge of operator responsibilities during all modes of plant operation.	4.0	41.10 / 45.13
064000	Emergency Diesel Generators	A3.13	Ability to monitor automatic operation of the ED/G system, including:: Rpm controller/megawatt load control (breaker-open/breaker-closed effects)	2.9	41.7 / 45.5
064000	Emergency Diesel Generators	K3.03	Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following ED/G (manual loads)	3.9*	41.7 / 45.6
075000	Circulating Water System	A4.01	Ability to manually operate and/or monitor in the control room:: Emergency/essential SWS pumps	3.2*	41.7 / 45.5 to 45.8
079000	Station Air System	2.4.31	: Knowledge of annunciators alarms and indications, and use of the response instructions.	3.4	41.10 / 45.3
103000	Containment System	2.2.25	: Knowledge of bases in technical specifications for limiting conditions for operations and safety	3.7	43.2

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	<input type="text" value="2"/>	Group	<input type="text" value="3"/>		
005000	Residual Heat Removal System	K5.01	Knowledge of the operational implications of the following concepts as they apply the RHRS:: N ductility transition temperature (brittle fracture)	2.9	41.5 / 45.7
008000	Component Cooling Water System	K3.01	Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:: Lo cooled by CCWS	3.5	41.7 / 45.6
041000	Steam Dump System and Turbine Bypass Control	A3.05	Ability to monitor automatic operation of the SDS, including:: Main steam pressure	2.9	41.7 / 45.5
076000	Service Water System	K4.05	Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following:: Serv water train flow and discharge pressure when service water flow to heat exchanger for close water is throttled	2.6*	41.7

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
Tier	3	Group	4		
000000	Generic Knowledges and Abilities	2.1.10	: Knowledge of conditions and limitations in the facility license.	3.9	43.1 / 45.13
000000	Generic Knowledges and Abilities	2.1.15	: Ability to manage short-term information such as night and standing orders.	3.0	45.12
000000	Generic Knowledges and Abilities	2.1.23	: Ability to perform specific system and integrated plant procedures during all modes of plant op	4.0	45.2 / 45.6
000000	Generic Knowledges and Abilities	2.1.24	: Ability to obtain and interpret station electrical and mechanical drawings.	3.1	45.12 / 45.13
000000	Generic Knowledges and Abilities	2.1.33	: Ability to recognize indications for system operating parameters which are entry-level conditio technical specifications.	4.0	43.2 / 43.3 / 45.3
000000	Generic Knowledges and Abilities	2.2.07	: Knowledge of the process for conducting tests or experiments not described in the safety an report.	3.2	43.3 / 45.13
000000	Generic Knowledges and Abilities	2.2.11	: Knowledge of the process for controlling temporary changes.	3.4*	41.10 / 43.3 / 45.13
000000	Generic Knowledges and Abilities	2.2.23	: Ability to track limiting conditions for operations.	3.8	43.2 / 45.13
000000	Generic Knowledges and Abilities	2.2.24	: Ability to analyze the affect of maintenance activities on LCO status.	3.8	43.2 / 45.13
000000	Generic Knowledges and Abilities	2.3.01	: Knowledge of 10CFR20 and related facility radiation control requirements.	3.0	41.12 / 43.4 / 45.9 / 45.10
000000	Generic Knowledges and Abilities	2.3.08	: Knowledge of the process for performing a planned gaseous radioactive release.	3.2	43.4 / 45.10

PWR SRO Written Examination Outline (Last Page)

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System/Mode	System Title	KA Number	Title	SRO Value	10 CFR 55
000000	Generic Knowledges and Abilities	2.3.09	: Knowledge of the process for performing a containment purge.	3.4	43.4 / 45.10
000000	Generic Knowledges and Abilities	2.4.26	: Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.	3.3	43.5 / 45.12
000000	Generic Knowledges and Abilities	2.4.37	: Knowledge of the lines of authority during an emergency.	3.5	45.13
000000	Generic Knowledges and Abilities	2.4.42	: Knowledge of emergency response facilities.	3.7	45.11
000000	Generic Knowledges and Abilities	2.4.46	: Ability to verify that the alarms are consistent with the plant conditions.	3.6	43.5 / 45.3 / 45.12
000000	Generic Knowledges and Abilities	2.4.48	: Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.8	43.5 / 45.12

ES-401

Record of Rejected K/As

<i>Tier</i>	<i>ROGroup</i>	<i>System/Mode</i>	<i>KA Number</i>	<i>Comment</i>
3	4	000000	2.2.07	Not an RO task. Used on SRO exam.
3	4	000000	2.2.11	Not an RO task, used for SRO
1	2	000003	2.1.14	Not an RO task for this event. Used for SRO only.
1	1	000005	AA2.04	Not an operator function
1	1	000015	AA1.14	No Power range remote flux meter
1	2	000029	EA1.05	No BIT at FCS
1	2	000037	AA1.12	No relationship
1	2	000059	AK3.02	Not an RO task at FCS, not sampled for SRO
1	2	000060	AK3.01	Not an RO task, used for SRO.
1	1	000074	EK1.06	GFE level K/A
2	2	006000	K5.08	GFE level K/A
2	1	022000	K4.01	No special design feature
2	3	041000	A4.06	No controllers
2	2	055000	A3.03	No auto diversion
2	1	056000	2.4.30	None for this system
2	1	059000	A2.06	No turbine driven MFW pump
2	1	059000	A2.07	No turbine driven MFW pump
2	1	059000	K5.04	GFE level K/A
2	1	059000	K6.09	No turbine drive FW pump at FCS

<i>Tier</i>	<i>ROGroup</i>	<i>System/Mode</i>	<i>KA Number</i>	<i>Comment</i>
2	1	061000	K4.09	Single unit station
2	1	061000	K4.10	Not a FCS design feature
2	2	064000	A4.04	No remote operation of D/G air compressors
2	1	068000	2.1.14	Not an RO task
2	1	068000	A3.01	No evaporator in use
2	1	068000	A4.01	No boron recovery
2	1	071000	A3.01	No connection
2	1	072000	K1.03	No fuel building
2	3	076000	K1.07	No connection
2	3	076000	K2.08	No ESF actuated MOVs
2	3	103000	A4.07	local leak test only

Facility: Fort Calhoun		Date of Examination:
Examination Level: RO		Operating Test Number: _____
Administrative Topic/ Subject Description		Describe method of evaluation: 1. ONE Administrative JPM OR 2. TWO Administrative Questions
A.1	Plant parameter verification	Administrative JPM – Calculate critical boron concentration for startup
	Mode changes	Administrative JPM – Verify conditions are met for changing modes
A.2	Maintenance – shutdown condition	Administrative JPM – Time to boil determination
A.3	Radiation Control	Administrative JPM – RCA Entry and exit with personnel contamination
A.4	Emergency Plan	Question: Control room operator response to accountability determination
		Question: Escort response to declaration of an emergency event

Facility: Fort Calhoun		Date of Examination:
Examination Level: SRO		Operating Test Number: _____
Administrative Topic/ Subject Description		Describe method of evaluation: 1. ONE Administrative JPM OR 2. TWO Administrative Questions
A.1	Plant parameter verification	Administrative JPM – Review Estimated Critical Condition calculation
	Security (awareness and familiarity)	Administrative JPM – Control room response to armed attack
A.2	Tagging and clearances	Administrative JPM – Equipment Clearance
A.3	Control of radiation releases	Administrative JPM – Authorize containment pressure reduction
A.4	Emergency Plan	Administrative JPM - Emergency Plan classification and Protective Action Recommendations (Security Event)

Facility: Fort Calhoun

Date of Examination:

Exam Level: RO

Operating Test No. _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Emergency Boration from the control room (004000 A2.14 - RO 3.8/SRO 3.9)	E, D, A, S	I
b. Perform monthly Recirculation Actuation Signal Surveillance Test. (013000 K4.06 - RO 4.0/SRO 4.3)	D, S	II
c. Transfer pressurizer pressure control from manual to automatic (010000 A1.07 - RO 3.7/SRO 3.7)	D, A, S	III
d. Initiate Shutdown cooling (005000 K1.09 – RO 3.6/SRO 3.9)	D, L, A, S	IV-P
e. Shift 4160V busses between unit auxiliary transformer and house service transformer (062000 K1.04 - RO 3.7 /SRO 4.2)	D, S	VI
f. Diverse Scram System Surveillance test (012000 A4.04 RO 3.3/SRO 3.3)	N, S	VII
g. Operate AFW System from AI-179 (aux shutdown panel) (000068 AA1.03 – RO 4.1/SRO 4.3)	D, E	IV-S

B.2 Facility Walk-Through

a. Align condenser evacuation to AB stack (000037 AA2.07 – RO 3.1/SRO 3.6)	N, E	IV-S
b. Startup hydrogen purge system (028000 A2.02 – RO 3.5/SRO 3.9)	D, R, L, E	V
c. Switch Inverter supply from bypass to normal (000057 AA1.01 – RO 3.7/SRO 3.7)	D, A	VI

* Type Codes: (D)irect from bank, (M)odified from Bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA, (E)mergency or abnormal condition

Facility: Fort Calhoun

Date of Examination:

Exam Level: SRO(I) /

Operating Test No. _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Emergency Boration from the control room (004000 A2.14 - RO 3.8/SRO 3.9)	E, D, A, S	I
b. Perform monthly Recirculation Actuation Signal Surveillance Test. (013000 K4.06 - RO 4.0/SRO 4.3)	D, S	II
c. Fuel handling Incident (000036 AA2.02 – RO 3.4/SRO 4.1)	D, E	VIII
d. Initiate Shutdown cooling (005000 K1.09 – RO 3.6/SRO 3.9)	D, L,A, S	IV-P
e.Shift 4160V busses between unit auxiliary transformer and house service transformer (062000 K1.04 - RO 3.7 /SRO 4.2)	D, S	VI
f. Diverse Scram System Surveillance test (012000 A4.04 RO 3.3/SRO 3.3)	N, S	VII
g. Operate AFW System from AI-179 (aux shutdown panel) (000068 AA1.03 – RO 4.1/SRO 4.3)	D, E	IV-S

B.2 Facility Walk-Through

a. Align condenser evacuation to AB stack (000037 AA2.07 – RO 3.1/SRO 3.6)	N, E	IV-S
b. Transfer waste gas from vent header to in service decay tank (071000 A4.05 – RO 2.6/SRO 2.6)	D, A, R	IX
c. Switch Inverter supply from bypass to normal (000057 AA1.01 – RO 3.7/SRO 3.7)	D, A	VI

* Type Codes: (D)irect from bank, (M)odified from Bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA, (E)mergency or abnormal condition

Facility: Fort Calhoun

Date of Examination:

Exam Level: SRO(U)

Operating Test No. _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a.		
b. Perform monthly Recirculation Actuation Signal Surveillance Test. (013000 K4.06 - RO 4.0/SRO 4.3)	D, S	II
c.		
d. Initiate Shutdown cooling (005000 K1.09 – RO 3.6/SRO 3.9)	D, L,A, S	IV-P
e.		
f. Diverse Scram System Surveillance test (012000 A4.04 RO 3.3/SRO 3.3)	N, S	VII
g.		

B.2 Facility Walk-Through

a.		
b. Transfer waste gas from vent header to in service decay tank (071000 A4.05 – RO 2.6/SRO 2.6)	D, A, R	IX
c. Switch Inverter supply from bypass to normal (000057 AA1.01 – RO 3.7/SRO 3.7)	D, A	VI

* Type Codes: (D)irect from bank, (M)odified from Bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA, (E)mergency or abnormal condition

Facility: Fort Calhoun		Scenario No: 2002-1		Op-Test No. _____
Examiners: _____ _____ _____			Operators: _____ _____ _____	
Initial Conditions: 50% Reactor Power. D/G-1 is tagged out of service for generator brush replacement.				
Turnover: Align RM-052 so that it is monitoring containment atmosphere				
Event No.	Malf No.	Event Type*	Event Description	
1		N	Align RM-052 to monitor containment	
2		I	Transmitter on controlling pressurizer level channel fails low	
3		C	Running Bearing water pump trips (must start backup)	
4		C	Lower and middle seals on RCP, RC-3B fails	
5		R, N	Plant shutdown due to two failed RCS seals	
6		I	Steam Generator level channel fails low	
7		C, I	Loss of instrument bus affecting remaining pressurizer level channel	
8		M	300 gpm LOCA caused by third seal failure on RC-3B	

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

Facility: Fort Calhoun		Scenario No: 2002-2		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: 100% Reactor Power. D/G-1 is tagged out of service for generator brush replacement.				
Turnover: Place CCW Pump, AC-3C in service and remove AC-3A from service.				
Event No.	Malf No.	Event Type*	Event Description	
1		N	Rotate CCW pumps	
2		I	PIC-910 fails high causing turbine bypass valve to open	
3		I	Letdown HX CCW outlet temperature transmitter, T-2987, fails low. (results in high letdown temperature)	
4		C	Dropped Control rod	
5		R, N	Reduce power to 70% due to dropped rod	
6		M	Main steam line break in turbine building	
7		C	SGIS fails to actuate	
8		C	S/G "B" MSIV will not close	

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

Facility: Fort Calhoun		Scenario No: 2002-3		Op-Test No. _____	
Examiners: _____ _____			Operators: _____ _____		
Initial Conditions: 100% Power. FW-54 tagged out to replace fuel pump. Power Range NI channel "A" is out of service due to failed power supply. "A" Trip units 1,9 and 12 have been bypassed.					
Turnover: Swap controlling letdown valves for air line replacement.					
Event No.	Malf No.	Event Type*	Event Description		
1		N	Swap controlling letdown valves for air line replacement		
2		I	VCT level fails low causing charging pump suction to realign to SIRWT.		
3		I	Power Range NI Channel "D" Fails		
4		R, N	Power reduction to 70% power.		
5		M	Loss of offsite power (both 161KV and 345 KV)		
6		C, M	Auto Reactor trip fails (ATWS)		
7		C	Turbine driven AFW pump, FW-10 fails to start.		
8		C	RC-3C breaker does not open. (D/G-1 output breaker does not close)		

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

Facility: Fort Calhoun		Scenario No: 2002-4 (spare)		Op-Test No. _____	
Examiners: _____ _____ _____			Operators: _____ _____ _____		
Initial Conditions: 100% Power. FW-54 tagged out to replace fuel pump. Power Range NI channel "A" is out of service due to failed power supply. "A" Trip units 1,9 and 12 have been bypassed. Safety Injection Tank SI-6B has a low level alarm.					
Turnover: Raise level in Safety Injection Tank SI-6B					
Event No.	Malf No.	Event Type*	Event Description		
1		N	Raise level in Safety Injection tank SI-6B		
2		I	WR NI channel "C" power supply failure		
3		C	CCW pump trips		
4		C	Tube leak on steam generator RC-2B		
5		R, N	AOP-5 plant shutdown		
6		I	Steam generator pressure transmitter on RC-2A fails low		
7		M	Loss of condenser vacuum – Reactor Trip		

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

ISRO 1, ISRO 2

ES-301

Transient and Event Checklist

Form ES-301-5

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument / Component	4				
	Major	1				
As RO	Reactivity	1			4	
	Normal	0			1	
	Instrument / Component	2			2, 3	
	Major	1			5, 6	
SRO-I	Reactivity	0	5			
	Normal	1	1, 5			
	Instrument / Component	2	2, 6, 7			
	Major	1	8			
SRO-U	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				

- Instructions:
- (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
 - (2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.
 - (3) Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirement.

Author:

Jan Kish

NRC Reviewer:

ISRO1, ISRO2

ES-301

Competencies Checklist

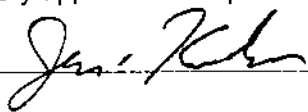
Form ES-301-6

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms	2,3 4,7		2,3 5,6									
Diagnose Events and Conditions	2,3 4,7		2,3 7,8									
Understand Plant and System Response	2,8		4,5 6									
Comply With and Use Procedures (1)	1,4 5,7		3,4 6									
Operate Control Boards (2)			1,4 6,2									
Communicate and Interact With the Crew	2,4 5,8		2,4 6									
Demonstrate Supervisory Ability (3)	2,4 5,8											
Comply With and Use Tech. Specs. (3)	6,7											
<p>Notes:</p> <p>(1) Includes Technical Specification compliance for an RO.</p> <p>(2) Optional for an SRO-U.</p> <p>(3) Only applicable to SROs.</p>												

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author:



NRC Reviewer:

USRO1, USRO2

ES-301

Transient and Event Checklist

Form ES-301-5

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument / Component	4				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument / Component	2				
	Major	1				
SRO-I	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
As SRO	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
SRO-U	Reactivity	0		5	4	
	Normal	1		1,5	1,4	
	Instrument / Component	2		2,3 4,7	2,3 6,7	
	Major	1		6	5,6	

- Instructions:
- (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
 - (2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.
 - (3) Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirement.

Author:

Jer Roche

NRC Reviewer:

USRO1, USRO2

ES-301

Competencies Checklist

Form ES-301-6

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms		3,4 6	2,3 5,6									
Diagnose Events and Conditions		3,4 6,7	2,3 6,7									
Understand Plant and System Response		3,4 6,8	2,4 5,6									
Comply With and Use Procedures (1)		1,4 5,6	3,5 6									
Operate Control Boards (2)												
Communicate and Interact With the Crew		2,4 5,6	2,3 5,6									
Demonstrate Supervisory Ability (3)		4,5 6,7	3,4 5,8									
Comply With and Use Tech. Specs. (3)		4	3									
<p>Notes:</p> <p>(1) Includes Technical Specification compliance for an RO.</p> <p>(2) Optional for an SRO-U.</p> <p>(3) Only applicable to SROs.</p>												

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author: _____

Jay Kocher

NRC Reviewer: _____

R01, R03

ES-301

Transient and Event Checklist

Form ES-301-5

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1	5			
	Normal	1	1	5	4	
	Instrument / Component	4	2, 7	4, 7 8, 2	7	
	Major	1	8	6	5, 6	
As RO	Reactivity	1				
	Normal	0				
	Instrument / Component	2				
	Major	1				
SRO-I	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
As SRO	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				

- Instructions:
- (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
 - (2) Reactivity manipulations may be conducted under normal or *controlled abnormal* conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.
 - (3) Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirement.

Author:

NRC Reviewer:

Jim Roche

RO1, RO3

ES-301

Competencies Checklist

Form ES-301-6

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U				
	SCENARIO				SCENARIO				SCENARIO				
	1	2	3	4	1	2	3	4	1	2	3	4	
Understand and Interpret Annunciators and Alarms	2,4 7,8	2,6 7	5,7										
Diagnose Events and Conditions	2,4 7,8	2,6 7,8	5,7										
Understand Plant and System Response	2,4 5,8	2,6 7,8	4,5 7										
Comply With and Use Procedures (1)	1,5 8	4,5 6	4,5 6,7										
Operate Control Boards (2)	1,2 5,8	2,4 5,8	4,5 6,7										
Communicate and Interact With the Crew	2,4 5,8	2,5 7,8	4,5 6,7										
Demonstrate Supervisory Ability (3)													
Comply With and Use Tech. Specs. (3)													

Notes:

(1) Includes Technical Specification compliance for an RO.

(2) Optional for an SRO-U.

(3) Only applicable to SROs.

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author:

Jay Kerk

NRC Reviewer:

R02, R04

ES-301

Transient and Event Checklist

Form ES-301-5

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1		5		
	Normal	1	5	1,5		
	Instrument / Component	4	3,6	3,4		
	Major	1	8	6		
As RO	Reactivity	1				
	Normal	0				
	Instrument / Component	2				
	Major	1				
SRO-I	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
As SRO	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				

- Instructions:
- (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
 - (2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.
 - (3) Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirement.

Author:

NRC Reviewer:

R02, R04

ES-301

Competencies Checklist

Form ES-301-6

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms	3,6 7	3,4 6										
Diagnose Events and Conditions	3,6	3,4 6,2										
Understand Plant and System Response	3,5 6,8	2,3 4,6										
Comply With and Use Procedures (1)	5,7 8	1,4 5,6										
Operate Control Boards (2)	5,6 8	1,4 5,6										
Communicate and Interact With the Crew	3,5 6,8	1,4 5,6										
Demonstrate Supervisory Ability (3)												
Comply With and Use Tech. Specs. (3)												

Notes:

(1) Includes Technical Specification compliance for an RO.
 (2) Optional for an SRO-U.
 (3) Only applicable to SROs.

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author:

Jer Kock

NRC Reviewer:

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	Ex	new	
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	Ex	new	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	Ex	new	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	Ex	new	
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	Ex	new	
	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; ensure 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 scenarios will not be repeated over successive days.	Ex	new	
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	Ex	new	
3. W / T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	Ex	new	
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	Ex	new	
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	Ex	new	
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	Ex	new	
	e. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	Ex	new	
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	Ex	new	
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	Ex	new	
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	Ex	new	
	d. Check for duplication and overlap among exam sections.	Ex	new	
	e. Check the entire exam for balance of coverage.	Ex	new	
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	Ex	new	
a. Author		Printed Name / Signature		Date
b. Facility Reviewer (*)		DAVID E. WEAVER / <i>[Signature]</i>		5/5/02
c. NRC Chief Examiner (#)				5/9/02
d. NRC Supervisor				
Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.				

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 9/16, 9/17, 9/18, 9/19, 9/20, 9/21, 9/22, 9/23, 9/24, 9/25, 9/26, 9/27, 9/28, 9/29, 9/30, 10/1, 10/2, 10/3, 10/4, 10/5, 10/6, 10/7, 10/8, 10/9, 10/10, 10/11, 10/12, 10/13, 10/14, 10/15, 10/16, 10/17, 10/18, 10/19, 10/20, 10/21, 10/22, 10/23, 10/24, 10/25, 10/26, 10/27, 10/28, 10/29, 10/30, 10/31, 11/1, 11/2, 11/3, 11/4, 11/5, 11/6, 11/7, 11/8, 11/9, 11/10, 11/11, 11/12, 11/13, 11/14, 11/15, 11/16, 11/17, 11/18, 11/19, 11/20, 11/21, 11/22, 11/23, 11/24, 11/25, 11/26, 11/27, 11/28, 11/29, 11/30, 12/1, 12/2, 12/3, 12/4, 12/5, 12/6, 12/7, 12/8, 12/9, 12/10, 12/11, 12/12, 12/13, 12/14, 12/15, 12/16, 12/17, 12/18, 12/19, 12/20, 12/21, 12/22, 12/23, 12/24, 12/25, 12/26, 12/27, 12/28, 12/29, 12/30, 12/31, 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/11, 1/12, 1/13, 1/14, 1/15, 1/16, 1/17, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23, 1/24, 1/25, 1/26, 1/27, 1/28, 1/29, 1/30, 1/31, 2/1, 2/2, 2/3, 2/4, 2/5, 2/6, 2/7, 2/8, 2/9, 2/10, 2/11, 2/12, 2/13, 2/14, 2/15, 2/16, 2/17, 2/18, 2/19, 2/20, 2/21, 2/22, 2/23, 2/24, 2/25, 2/26, 2/27, 2/28, 2/29, 2/30, 3/1, 3/2, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9, 3/10, 3/11, 3/12, 3/13, 3/14, 3/15, 3/16, 3/17, 3/18, 3/19, 3/20, 3/21, 3/22, 3/23, 3/24, 3/25, 3/26, 3/27, 3/28, 3/29, 3/30, 3/31, 4/1, 4/2, 4/3, 4/4, 4/5, 4/6, 4/7, 4/8, 4/9, 4/10, 4/11, 4/12, 4/13, 4/14, 4/15, 4/16, 4/17, 4/18, 4/19, 4/20, 4/21, 4/22, 4/23, 4/24, 4/25, 4/26, 4/27, 4/28, 4/29, 4/30, 5/1, 5/2, 5/3, 5/4, 5/5, 5/6, 5/7, 5/8, 5/9, 5/10, 5/11, 5/12, 5/13, 5/14, 5/15, 5/16, 5/17, 5/18, 5/19, 5/20, 5/21, 5/22, 5/23, 5/24, 5/25, 5/26, 5/27, 5/28, 5/29, 5/30, 5/31, 6/1, 6/2, 6/3, 6/4, 6/5, 6/6, 6/7, 6/8, 6/9, 6/10, 6/11, 6/12, 6/13, 6/14, 6/15, 6/16, 6/17, 6/18, 6/19, 6/20, 6/21, 6/22, 6/23, 6/24, 6/25, 6/26, 6/27, 6/28, 6/29, 6/30, 7/1, 7/2, 7/3, 7/4, 7/5, 7/6, 7/7, 7/8, 7/9, 7/10, 7/11, 7/12, 7/13, 7/14, 7/15, 7/16, 7/17, 7/18, 7/19, 7/20, 7/21, 7/22, 7/23, 7/24, 7/25, 7/26, 7/27, 7/28, 7/29, 7/30, 7/31, 8/1, 8/2, 8/3, 8/4, 8/5, 8/6, 8/7, 8/8, 8/9, 8/10, 8/11, 8/12, 8/13, 8/14, 8/15, 8/16, 8/17, 8/18, 8/19, 8/20, 8/21, 8/22, 8/23, 8/24, 8/25, 8/26, 8/27, 8/28, 8/29, 8/30, 8/31, 9/1, 9/2, 9/3, 9/4, 9/5, 9/6, 9/7, 9/8, 9/9, 9/10, 9/11, 9/12, 9/13, 9/14, 9/15, 9/16, 9/17, 9/18, 9/19, 9/20, 9/21, 9/22, 9/23, 9/24, 9/25, 9/26, 9/27, 9/28, 9/29, 9/30, 10/1, 10/2, 10/3, 10/4, 10/5, 10/6, 10/7, 10/8, 10/9, 10/10, 10/11, 10/12, 10/13, 10/14, 10/15, 10/16, 10/17, 10/18, 10/19, 10/20, 10/21, 10/22, 10/23, 10/24, 10/25, 10/26, 10/27, 10/28, 10/29, 10/30, 10/31, 11/1, 11/2, 11/3, 11/4, 11/5, 11/6, 11/7, 11/8, 11/9, 11/10, 11/11, 11/12, 11/13, 11/14, 11/15, 11/16, 11/17, 11/18, 11/19, 11/20, 11/21, 11/22, 11/23, 11/24, 11/25, 11/26, 11/27, 11/28, 11/29, 11/30, 12/1, 12/2, 12/3, 12/4, 12/5, 12/6, 12/7, 12/8, 12/9, 12/10, 12/11, 12/12, 12/13, 12/14, 12/15, 12/16, 12/17, 12/18, 12/19, 12/20, 12/21, 12/22, 12/23, 12/24, 12/25, 12/26, 12/27, 12/28, 12/29, 12/30, 12/31, 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/11, 1/12, 1/13, 1/14, 1/15, 1/16, 1/17, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23, 1/24, 1/25, 1/26, 1/27, 1/28, 1/29, 1/30, 1/31, 2/1, 2/2, 2/3, 2/4, 2/5, 2/6, 2/7, 2/8, 2/9, 2/10, 2/11, 2/12, 2/13, 2/14, 2/15, 2/16, 2/17, 2/18, 2/19, 2/20, 2/21, 2/22, 2/23, 2/24, 2/25, 2/26, 2/27, 2/28, 2/29, 2/30, 3/1, 3/2, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9, 3/10, 3/11, 3/12, 3/13, 3/14, 3/15, 3/16, 3/17, 3/18, 3/19, 3/20, 3/21, 3/22, 3/23, 3/24, 3/25, 3/26, 3/27, 3/28, 3/29, 3/30, 3/31, 4/1, 4/2, 4/3, 4/4, 4/5, 4/6, 4/7, 4/8, 4/9, 4/10, 4/11, 4/12, 4/13, 4/14, 4/15, 4/16, 4/17, 4/18, 4/19, 4/20, 4/21, 4/22, 4/23, 4/24, 4/25, 4/26, 4/27, 4/28, 4/29, 4/30, 5/1, 5/2, 5/3, 5/4, 5/5, 5/6, 5/7, 5/8, 5/9, 5/10, 5/11, 5/12, 5/13, 5/14, 5/15, 5/16, 5/17, 5/18, 5/19, 5/20, 5/21, 5/22, 5/23, 5/24, 5/25, 5/26, 5/27, 5/28, 5/29, 5/30, 5/31, 6/1, 6/2, 6/3, 6/4, 6/5, 6/6, 6/7, 6/8, 6/9, 6/10, 6/11, 6/12, 6/13, 6/14, 6/15, 6/16, 6/17, 6/18, 6/19, 6/20, 6/21, 6/22, 6/23, 6/24, 6/25, 6/26, 6/27, 6/28, 6/29, 6/30, 7/1, 7/2, 7/3, 7/4, 7/5, 7/6, 7/7, 7/8, 7/9, 7/10, 7/11, 7/12, 7/13, 7/14, 7/15, 7/16, 7/17, 7/18, 7/19, 7/20, 7/21, 7/22, 7/23, 7/24,

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATENOTE
1. JENNY E. HOEHL	Training Consultant	Jenny E. Hoehl	5/19/12		
2. DAVID E. WEAVER	Supervisor - Ops; Tech Train	David E. Weaver			
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