Facility: **Perry Nuclear Power Plant** Date of Exam: **September 2019**

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	4	3	4	N/A			3	3	N/A		3	20			
	2	1	1	1				1	2			1	7			
	Tier Totals	5	4	5				4	5			4	27			
2. Plant Systems	1	2	2	2	3	2	3	2	2	2	3	3	26			
	2	1	1	1	2	1	1	1	1	1	1	1	12			
	Tier Totals	3	3	3	5	3	4	3	3	3	4	4	38			
3. Generic Knowledge and Abilities Categories					1		2		3		4					
					3		3		2		2		10			

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. 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.

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions—Tier 1/Group 1 (RO)							Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
295001 (APE 1) Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4		03					AK2.03 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION and the following: Reactor water level. (CFR: 41.7 / 45.8)	3.6	1 (11)
295003 (APE 3) Partial or Complete Loss of AC Power / 6			03				AK3.03 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Load shedding. (CFR: 41.5 / 45.6)	3.5	2 (12)
295004 (APE 4) Partial or Total Loss of DC Power / 6					01		AA2.01 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Cause of partial or complete loss of D.C. power. (CFR: 41.10 / 43.5 / 45.13)	3.2	3 (13)
295005 (APE 5) Main Turbine Generator Trip / 3	01						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR TRIP: Pressure effects on reactor power. (CFR: 41.8 to 41.10)	4.0	4 (14)
295006. (APE 6) Scram / 1	02						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to SCRAM: Shutdown margin. (CFR: 41.8 to 41.10)	3.4	5 (15)
295016 (APE 16) Control Room Abandonment / 7			03				AK3.03 - Knowledge of the reasons for the following responses as they apply to CONTROL ROOM ABANDONMENT: Disabling control room controls. (CFR: 41.5 / 45.6)	3.5	6 (16)
295018 (APE 18) Partial or Complete Loss of CCW / 8						2.2.37	Generic K/A 2.2.37 – Ability to determine operability and/or availability of safety related equipment. (CFR: 41.7 / 43.5 / 45.12)	3.6	7 (17)
295019 (APE 19) Partial or Complete Loss of Instrument Air / 8			02				AK3.02 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: Standby air compressor operation. (CFR: 41.5 / 45.6)	3.5	8 (18)
295021 (APE 21) Loss of Shutdown Cooling / 4					04		AA2.04 - Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING: Reactor water temperature. (CFR: 41.10 / 43.5 / 45.13)	3.6	9 (19)
295023 (APE 23) Refueling Accidents / 8						2.4.6	Generic K/A 2.4.6 – Knowledge of EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)	3.7	10 (20)
295024 High Drywell Pressure / 5			08				EK3.08 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Containment spray: Plant-Specific. (CFR: 41.5 / 45.6)	3.7	11 (21)
295025 (EPE 2) High Reactor Pressure / 3				03			EA1.03 - Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: Safety/relief valves: Plant-Specific. (CFR: 41.7 / 45.6)	4.4	12 (22)
295026 (EPE 3) Suppression Pool High Water Temperature / 5		01					EK2.01 - Knowledge of the interrelations between SUPPRESSION POOL HIGH WATER TEMPERATURE and the following: Suppression pool cooling. (CFR: 41.7 / 45.8)	3.9	13 (23)

295027 (EPE 4) High Containment Temperature (Mark III Containment Only) / 5		02					EK2.02 - Knowledge of the interrelations between HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY) and the following: Components internal to the containment: Mark-III. (CFR: 41.7 / 45.8)	3.2	14 (24)
295028 (EPE 5) High Drywell Temperature (Mark I and Mark II only) / 5									
295030 (EPE 7) Low Suppression Pool Water Level / 5				04			EA1.04 - Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Suppression pool make-up system: Mark-III. (CFR: 41.7 / 45.6)	4.0	15 (25)
295031 (EPE 8) Reactor Low Water Level / 2	02						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL: Natural circulation: Plant-Specific. (CFR: 41.8 to 41.10)	3.8	16 (26)
295037 (EPE 14) Scram Condition Present and Reactor Power Above APRM Downscale or Unknown / 1					06		EA2.06 - Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor pressure. (CFR: 41.10 / 43.5 / 45.13)	4.0	17 (27)
295038 (EPE 15) High Offsite Radioactivity Release Rate / 9						2.1.20	Generic K/A 2.1.20 – Ability to interpret and execute procedure steps. (CFR: 41.10 / 43.5 / 45.12))	4.6	18 (28)
600000 (APE 24) Plant Fire On Site / 8				05			AA1.05 - Ability to operate and/or monitor the following as they apply to PLANT FIRE ON SITE: Plant and control room ventilation systems.	3.0	19 (29)
700000 (APE 25) Generator Voltage and Electric Grid Disturbances / 6	03						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to GENERATOR VOLTAGE AND GRID DISTURBANCES: Under-excitation. (CFR: 41.4, 41.5, 41.7, 41.10 / 45.8)	3.3	20 (30)
K/A Category Totals:	4	3	4	3	3	3	Group Point Total:		20

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions—Tier 1/Group 2 (RO)							Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G*	K/A Topic(s)	IR	#
295002 (APE 2) Loss of Main Condenser Vacuum / 3			09				AK3.09 - Knowledge of the reasons for the following responses as they apply to LOSS OF MAIN CONDENSER VACUUM: Reactor power reduction. (CFR: 41.5 / 45.6)	3.2	21 (31)
295007 (APE 7) High Reactor Pressure / 3									
295008 (APE 8) High Reactor Water Level / 2					04		AA2.04 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL: Heatup rate: Plant-Specific. (CFR: 41.10 / 43.5 / 45.13)	3.1	22 (32)
295009 (APE 9) Low Reactor Water Level / 2									
295010 (APE 10) High Drywell Pressure / 5									
295011 (APE 11) High Containment Temperature (Mark III Containment only) / 5									
295012 (APE 12) High Drywell Temperature / 5									
295013 (APE 13) High Suppression Pool Temperature. / 5									
295014 (APE 14) Inadvertent Reactivity Addition / 1	06						AK1.06 - Knowledge of the operational implications of the following concepts as they apply to INADVERTENT REACTIVITY ADDITION: Abnormal reactivity additions. (CFR: 41.8 to 41.10)	3.8	23 (33)
295015 (APE 15) Incomplete Scram / 1									
295017 (APE 17) Abnormal Offsite Release Rate / 9									
295020 (APE 20) Inadvertent Containment Isolation / 5 & 7				01			AA1.01 - Ability to operate and/or monitor the following as they apply to INADVERTENT CONTAINMENT ISOLATION: PCIS/NSSSS. (CFR: 41.7 / 45.6)	3.6	24 (34)
295022 (APE 22) Loss of Control Rod Drive Pumps / 1									
295029 (EPE 6) High Suppression Pool Water Level / 5		03					EK2.03 - Knowledge of the interrelations between HIGH SUPPRESSION POOL WATER LEVEL and the following: HPCS: Plant-Specific. (CFR: 41.7 / 45.8)	3.3	25 (35)
295032 (EPE 9) High Secondary Containment Area Temperature / 5									
295033 (EPE 10) High Secondary Containment Area Radiation Levels / 9					03		EA2.03 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Cause of high area radiation. (CFR: 41.10 / 43.5 / 45.13)	3.7	26 (36)
295034 (EPE 11) Secondary Containment Ventilation High Radiation / 9									
295035 (EPE 12) Secondary Containment High Differential Pressure / 5									

295036 (EPE 13) Secondary Containment High Sump/Area Water Level / 5									
500000 (EPE 16) High Containment Hydrogen Concentration / 5						2.1.32	Generic K/A 2.1.32 - Ability to explain and apply system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	3.8	27 (37)
K/A Category Point Totals:	1	1	1	1	2	1	Group Point Total:		7

ES-401	BWR Examination Outline Plant Systems—Tier 2/Group 1 (RO)												Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
203000 (SF2, SF4 RHR/LPCI) RHR/LPCI: Injection Mode							04					A1.04 - Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) controls including: System pressure. (CFR: 41.5 / 45.5)	3.6	28 (38)
205000 (SF4 SCS) Shutdown Cooling					03							K5.03 - Knowledge of the operational implications of the following concepts as they apply to SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): Heat removal mechanisms. (CFR: 41.5 / 45.3)	2.8	29 (39)
										05		A4.05 - Ability to manually operate and/or monitor in the control room: Minimum flow valves. (CFR: 41.7 / 45.5 to 45.8)	3.2	30 (40)
206000 (SF2, SF4 HPCIS) High-Pressure Coolant Injection														
207000 (SF4 IC) Isolation (Emergency) Condenser														
209001 (SF2, SF4 LPCS) Low-Pressure Core Spray										03		A4.03 - Ability to manually operate and/or monitor in the control room: Injection valves. (CFR: 41.7 / 45.5 to 45.8)	3.7	31 (41)
209002 (SF2, SF4 HPCS) High-Pressure Core Spray	04											K1.04 - Knowledge of the physical connections and/or cause effect relationships between HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) and the following: HPCS diesel generator. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.8	32 (42)
		03										K2.03 - Knowledge of electrical power supplies to the following: Initiation logic. (CFR: 41.7)	2.8	33 (43)
211000 (SF1 SLCS) Standby Liquid Control		02										K2.02 - Knowledge of electrical power supplies to the following: Explosive valves. (CFR: 41.7)	3.1	34 (44)
212000 (SF7 RPS) Reactor Protection								15				A2.15 - Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Load rejection. (CFR: 41.5 / 45.6)	3.7	35 (45)
215003 (SF7 IRM) Intermediate-Range Monitor				04								K4.04 - Knowledge of INTERMEDIATE RANGE MONITOR (IRM) SYSTEM design feature(s) and/or interlocks which provide for the following: Varying system sensitivity levels using range switches. (CFR: 41.7)	2.9	36 (46)
215004 (SF7 SRMS) Source-Range Monitor							04					A1.04 - Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITOR (SRM) SYSTEM controls including: Control rod block status. (CFR: 41.5 / 45.5)	3.5	37 (47)

215005 (SF7 PRMS) Average Power Range Monitor/Local Power Range Monitor								07				A2.07 - Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Recirculation flow channels flow mismatch. (CFR: 41.5 / 45.6)	3.2	38 (48)
217000 (SF2, SF4 RCIC) Reactor Core Isolation Cooling											2.2.12	Generic K/A 2.2.12 – Knowledge of surveillance procedures. (CFR: 41.10 / 45.13)	3.7	39 (49)
218000 (SF3 ADS) Automatic Depressurization					01					05		A4.05 - Ability to manually operate and/or monitor in the control room: ADS timer reset. (CFR: 41.7 / 45.5 to 45.8) K5.01 Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM: ADS logic operation	4.2 3.8	40 (50) 48 (58)
223002 (SF5 PCIS) Primary Containment Isolation/Nuclear Steam Supply Shutoff				08		04						K4.08 - Knowledge of PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF design feature(s) and/or interlocks which provide for the Following: Manual defeating of selected isolations during specified emergency conditions. (CFR: 41.7) K6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF: Nuclear boiler instrumentation. (CFR: 41.7 / 45.7)	3.3 3.3	41 (51) 42 (52)
239002 (SF3 SRV) Safety Relief Valves									03			A3.03 - Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: Tail pipe temperatures. (CFR: 41.7 / 45.7)	3.6	43 (53)
259002 (SF2 RWLCS) Reactor Water Level Control			02									K3.02 - Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: Reactor feedwater system. (CFR: 41.7 / 45.4)	3.7	44 (54)
261000 (SF9 SGTS) Standby Gas Treatment						01						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY GAS TREATMENT SYSTEM: A.C. electrical distribution. (CFR: 41.7 / 45.7)	2.9	45 (55)
262001 (SF6 AC) AC Electrical Distribution	03											K1.03 - Knowledge of the physical connections and/or cause-effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following: Off-site power sources. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.4	46 (56)

262002 (SF6 UPS) Uninterruptable Power Supply (AC/DC)			14								K3.14 - Knowledge of the effect that a loss or malfunction of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) will have on following: Rx power: Plant-Specific. (CFR: 41.7 / 45.4)	2.8	47 (57)
263000 (SF6 DC) DC Electrical Distribution										2.4.31	Generic K/A 2.4.31 – Knowledge of annunciator alarms, indications, or response procedures. (CFR: 41.10 / 45.3)	4.2	49 (59)
264000 (SF6 EGE) Emergency Generators (Diesel/Jet) EDG						01					K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the EMERGENCY GENERATORS (DIESEL/JET): Starting air. (CFR: 41.7 / 45.7)	3.8	50 (60)
										2.4.50	Generic K/A 2.4.50 – Ability to verify alarm setpoints and operate controls identified in the alarm response manual. (CFR: 41.10 / 43.5 / 45.3)	4.2	51 (61)
300000 (SF8 IA) Instrument Air				02							K4.02 - Knowledge of (INSTRUMENT AIR SYSTEM) design feature(s) and or interlocks which provide for the following: Cross-over to other air systems. (CFR: 41.7)	3.0	52 (62)
400000 (SF8 CCS) Component Cooling Water								01			A3.01 - Ability to monitor automatic operations of the CCWS including: Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS. (CFR: 41.7 / 45.7)	3.0	53 (63)
510000 (SF4 SWS*) Service Water (Normal and Emergency)													
K/A Category Point Totals:	2	2	2	3	2	3	2	2	2	3	3	Group Point Total:	26

ES-401	BWR Examination Outline Plant Systems—Tier 2/Group 2 (RO)												Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	K/A Topic(s)	IR	#
201001 (SF1 CRDH) CRD Hydraulic														
201002 (SF1 RMCS) Reactor Manual Control														
201003 (SF1 CRDM) Control Rod and Drive Mechanism				02								K4.02 Knowledge of CONTROL ROD AND DRIVE MECHANISM design feature(s) and/or interlocks which provide for the following: Detection of an uncoupled rod	3.8	55 (65)
201004 (SF7 RSCS) Rod Sequence Control														
201005 (SF1, SF7 RCIS) Rod Control and Information														
201006 (SF7 RWMS) Rod Worth Minimizer														
202001 (SF1, SF4 RS) Recirculation								08				A2.08 - Ability to (a) predict the impacts of the following on the RECIRCULATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Recirculation flow mismatch: Plant-Specific. (CFR: 41.5 / 45.6)	3.1	54 (64)
202002 (SF1 RSCTL) Recirculation Flow Control														
204000 (SF2 RWCU) Reactor Water Cleanup														
214000 (SF7 RPIS) Rod Position Information														
215001 (SF7 TIP) Traversing In-Core Probe														
215002 (SF7 RBMS) Rod Block Monitor														
216000 (SF7 NBI) Nuclear Boiler Instrumentation						01						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the NUCLEAR BOILER INSTRUMENTATION: A.C. electrical distribution. (CFR: 41.7 / 45.7)	3.1	56 (66)
219000 (SF5 RHR SPC) RHR/LPCI: Torus/Suppression Pool Cooling Mode														
223001 (SF5 PCS) Primary Containment and Auxiliaries										01		A4.01 - Ability to manually operate and/or monitor in the control room: Containment relief valves: Mark-III. (CFR: 41.7 / 45.5 to 45.8)	3.5	57 (67)
226001 (SF5 RHR CSS) RHR/LPCI: Containment Spray Mode				02								K4.02 - Knowledge of RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE design feature(s) and/or interlocks which provide for the following: Redundancy. (CFR: 41.7)	2.8	58 (68)
230000 (SF5 RHR SPS) RHR/LPCI: Torus/Suppression Pool Spray Mode														
233000 (SF9 FPCCU) Fuel Pool Cooling/Cleanup														

234000 (SF8 FH) Fuel-Handling Equipment	07											K1.07 - Knowledge of the physical connections and/or cause-effect relationships between FUEL HANDLING EQUIPMENT and the following: Fuel transfer tube system: Mark-III. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.0	59 (69)
239001 (SF3, SF4 MRSS) Main and Reheat Steam		01										K2.01 - Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids. (CFR: 41.7)	3.2	60 (70)
239003 (SF9 MSVLCS) Main Steam Isolation Valve Leakage Control														
241000 (SF3 RTPRS) Reactor/Turbine Pressure Regulating							15					A1.15 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR/TURBINE PRESSURE REGULATING SYSTEM controls including: Maximum combined flow limit. (CFR: 41.5 / 45.5)	3.1	61 (71)
245000 (SF4 MTGEN) Main Turbine Generator/Auxiliary														
256000 (SF2 CDS) Condensate									06			A3.06 - Ability to monitor automatic operations of the REACTOR CONDENSATE SYSTEM including: Hotwell level. (CFR: 41.7 / 45.7)	3.0	62 (72)
259001 (SF2 FWS) Feedwater														
268000 (SF9 RW) Radwaste														
271000 (SF9 OG) Offgas											2.1.28	Generic K/A 2.1.28 – Knowledge of the purpose and function of major system components and controls. (CFR: 41.7)	4.1	63 (73)
272000 (SF7, SF9 RMS) Radiation Monitoring														
286000 (SF8 FPS) Fire Protection														
288000 (SF9 PVS) Plant Ventilation														
290001 (SF5 SC) Secondary Containment														
290003 (SF9 CRV) Control Room Ventilation			01									K3.01 - Knowledge of the effect that a loss or malfunction of the CONTROL ROOM HVAC will have on following: Control room habitability. (CFR: 41.7 / 45.6)	3.5	64 (74)
290002 (SF4 RVI) Reactor Vessel Internals					05							K5.05 - Knowledge of the operational implications of the following concepts as they apply to REACTOR VESSEL INTERNALS: Brittle fracture. (CFR: 41.5 / 45.3)	3.1	65 (75)
51001 (SF8 CWS*) Circulating Water														
K/A Category Point Totals:	1	1	1	2	1	1	1	1	1	1	1	Group Point Total:		12