Facility: VC SUMMER Date of Examination: **9/12/2011**

Examination Level (circle one): **RO** / SRO Operating Test Number:

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (A1-a)	D	**RO/SRO Common** JPA-081A Manual leak rate G2.1.7 (4.4/4.7)Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.
Conduct of Operations (A1-b)	M	Modify JPA-006 Reactivity management sheet JPA-006B G2.1.43 (4.1/4.3) Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.
Equipment Control (A2)	D	JPA-025 Create tagout G2.2.13 (4.1/4.3) Knowledge of tagging and clearance procedures
Radiation Control (A3)	M	**RO/SRO Common** Modify JPA-083 Apply facility ALARA principles to an emergency situation in an area with a high dose rate and airborne radiation JPA-083A(R 1) G2.3.12 (3.2/3.7) Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirement, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
Emergency Plan (A4)		Not chosen for RO

NOTE: All items (5 total) are required for SROs.

*Type Codes & Criteria:
(C)ontrol room
(D)irect from bank (≤ 3 for ROs; ≤ for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)
(S)imulator

FINAL

JPM SUMMARY STATEMENTS

CONDUCT OF OPERATIONS (A1-a): Calculates leak rate using system data provided since IPCS is out of service. Detects that unidentified leakage exceeds the TS limit.

CONDUCT OF OPERATIONS (A1-b): Completes OAP-100.6, Attachment IA, Reactivity Control Parameters, consistent with the attachment included with this JPM. Tolerance will generally only be given for rounding; however, each case must be evaluated on an individual basis.

EQUIPMENT CONTROL (A2): 'B' MDEFP is tagged out IAW SAP-201. The suction and discharge valves are tagged closed, pump casing drains and vents are tagged open, the motor is tagged out, and the correct sequence is identified for tagging.

RADIATION CONTROL (A3): Compare two options to conduct work in a high radiation area with airborne activity due to a LOCA outside of containment.

EMERGENCY PLAN (A4): Not selected for RO exam

FINAL

Facility: VC SUMMER	Date of Examination: **9/12/2011**
Examination Level (circle one): RO / **SRO**	Operating Test Number:

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (A1-a)	D	**RO/SRO Common** JPA-081A Manual leak rate G2.1.7 (4.4/4.7) Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.
Conduct of Operations (A1-b)	D	JPA-009 Shift manning. G2.1.5 (2.9*/3.9) Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
Equipment Control (A2)	M	JPA-025A REVIEW TAGOUT FOR "B" MDEFP G2.2.13 (4.1/4.3) Knowledge of tagging and clearance procedures
Radiation Control (A3)	M	**RO/SRO Common** Modify JPA-083 Apply facility ALARA principles to an emergency situation in an area with a high dose rate and airborne radiation JPA-083A(R 1) G2.3.12 (3.2/3.7) Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirement, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
Emergency Plan (A4)	D	JPA-020 Given a set of conditions determines the EAL. G2.4.41 (2.9/4.6): Knowledge of the emergency action level thresholds and classifications.

NOTE: All items (5 total) are required for SROs.

*Type Codes & Criteria:
(C)ontrol room
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)
(S)imulator

FINAL

JPM SUMMARY STATEMENTS

CONDUCT OF OPERATIONS (A1-a): Calculates leak rate using system data provided since IPCS is out of service. Detects that unidentified leakage exceeds the TS limit.

CONDUCT OF OPERATIONS (A1-b): Determines actions necessary to maintain shift staffing. Update JPM for new fatigue rule and EmpCenter

EQUIPMENT CONTROL (A2): Reviews a manual danger tag for errors. 'B' MDEFP is tagged out IAW SAP-201. The suction and discharge valves are tagged closed, pump casing drains and vents are tagged open, the motor is tagged out, and the correct sequence is identified for tagging.

RADIATION CONTROL (A3): Compare two options to conduct work in a high radiation area with airborne activity due to a LOCA outside of containment.

EMERGENCY PLAN (A4): Event properly classified as a SITE AREA EMERGENCY due to a Loss or Potential Loss of 2 (two) fission product barriers (RCS by D.2 or D.3 and Containment by D.3 or D.4). This is a time critical JPM and the ENF form must be completed within 15 minutes after the emergency condition is determined.

FINAL

Facility: **VC Summer**		Date of Examination:	**9/12/2011**
Exam Level (circle one): (RO) / SRO(I) / SRO(U)		Operating Test No.:	
Control Room Systems (8 for RO; 7 for SRO-I 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
a	APE 069 (JPSF-045B) Modify JPSF-045A Ensure Containment Isolation (EOP-1.0)	A,M,S,EN	5
b.	System 015 (JPS-161) Block Source Range Hi Flux Trip (GOP-3)	N,L,S	7
c.	APE 003 (JPSF-012A) Dropped Rod Recovery (AOP-403.6)	A,D,S	1
d.	EPE 011 (JPS-002A) Transfer to Hot Leg Recirculation (EOP-2.3)	D,S	2
e.	EPE 038 (JPSF-007) Depressurize RCS to < Ruptured Steam Generator Pressure (EOP-4.0)	A,D,S	3
f.	System 008 (JPS-042) Identify and Isolate an RCS Leak to the CCW System (ARP)	D,S	8
g.	E05 (JPS-149A) Modify JPS149 Respond to steam generator overpressure (EOP-15.3)	M,S	4S
h.	System 062 (JPSF-160) Respond to electrical grid issues (AOP-301.1)	A,N,S	6
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	APE 068 (JPPF-049 for RO) Evacuation of control room (AOP-600.1)	A,D,E	4
j.	APE 067 (JPP-205) Cross train connection of swing battery charger (FEP-2.0)	D,E,R	6
k.	APE 025 (JPP-408) Align Spent Fuel Cooling Loop B to return Refueling Cavity water to the RWST (AOP-115.4)	N,L,E,R	8

FINAL

@	All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.	
* Type Codes	Criteria for:	RO / SRO-I / SRO-U
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6 / 4-6 / 2-3 ≤ 9 / ≤ 8 / ≤ 4 ≥ 1 / ≥ 1 / ≥ 1 NA / NA / ≥ 1 (control room system) ≥ 1 / ≥ 1 / ≥ 1 ≥ 2 / ≥ 2 / ≥ 1 ≤ 3 / ≤ 3 / ≤ 2 (randomly selected) ≥ 1 / ≥ 1 / ≥ 1	5/NA/NA 6/NA/NA 3/NA/NA NA/NA/NA 2/NA/NA 5/NA/NA 0/NA/NA 2/NA/NA

VC SUMMER 2011 NRC JPM SUMMARY

a. Take actions to ensure containment isolation in accordance with EOP-1.0, *REACTOR TRIP/SAFETY INJECTION ACTUATION*, Attachment 3. The applicant will identify that containment integrity is not intact. This leads to the alternate path for this JPM. The applicant attempts to initiate a phase A or close valves from the MCB. One penetration is isolated from the MCB. Another penetration will not close from the MCB and the applicant sends a local operator to close a backup valve. This JPM will be modified from one in the bank to change the valves involved and increase the number of valves.

b. Block Source Range Hi Flux Trip in accordance with GOP-3, *REACTOR STARTUP FROM HOT STANDBY TO STARTUP (MODE 3 TO MODE 2).* The applicant will raise power using rods from the source range up to 10^{-3} % power. On the power increase the source range will be blocked before an automatic reactor trip occurs. This JPM is new.

c. Take actions to recover a dropped control rod in accordance with AOP-403.5, *DROPPED CONTROL ROD*. The applicant will assume the shift with a dropped rod. On recovery the rod will become stuck. When the candidate detects the stuck rod that rod and a second rod will drop requiring a manual reactor trip. Both the stuck rod and the second rod dropping makes this JPM alternate path.

d. Take actions to transfer from cold leg recirculation to hot leg recirculation in accordance with EOP-2.3, *TRANSFER TO HOT LEG RECIRCULATION*. The applicant will assume the shift with cold leg recirculation in service for ~8 hours. The applicant will transfer from cold to hot leg recirculation without causing the charging pumps to be deadheaded or run out. This JPM is not considered alternate path even though the right hand column is used in the EOP because the right hand side will always be used to properly align the C pump to the correct train.

e. Take actions to depressurize the RCS to less than the pressure of the ruptured steam generator in accordance with EOP-4.0, *STEAM GENERATOR TUBE RUPTURE*. The applicant will open the pressurizer spray valve to depressurize. On reaching a termination setpoint the applicant will attempt to close the spray valve, but it will stick

FINAL

open. This leads to the alternate path for this JPM. In order to stop the depressurization, the applicant will have to secure the 'A' RCP.

f. Identify and isolate an RCS Leak to the CCW System in accordance with a radiation monitor alarm. The applicant will verify that the CCW surge tank vent valve closes. Then the source of the leak will be determined to be the letdown heat exchanger. The applicant will align excess letdown and secure normal letdown to secure the leak.

g. Take actions to respond to an overpressure condition in a steam generator in accordance with EOP-15.3, *RESPONSE TO LOSS OF NORMAL STEAM RELEASE CAPABILITIES*. An inadvertent main steam line isolation occurred. In addition, the PORV for one of the steam generators fails to open. The applicant is directed to reduce steam generator pressure. The applicant will detect which steam generator is affected. The applicant will lower pressure using the condenser steam dumps by opening the main steam isolation bypass valves. Modified from a JPM in the bank to place applicant in EOP-15.3 instead of EOP-15.1.

h. Take actions to respond to electrical grid issues in accordance with AOP-301.1, *RESPONSE TO ELECTRICAL GRID ISSUES*. The applicant will monitor check to see that a runback is not required. Then monitor turbine bearing vibrations and reactive load. Finally will investigate the condition of 1DA and 1DB. This sets up the alternate path for this JPM. 1DB voltage will be too low and the applicant will start the emergency diesel and have it tie on by opening the normal incoming breaker to 1DB. This JPM is new.

i. Take actions necessary after evacuation of the control room in accordance with AOP-600.1, *CONTROL ROOM EVACUATION*. Due to bomb threat the control room is evacuated without any equipment tripped from the MCB. RO candidates will perform the actions of the BOP. The alternate path for the RO is that the A RCP is tripped and so either B or C RCP will have to be left running. The C RCP is also tripped so the applicant must leave the B RCP running.

j. Take actions to cross-train the battery charger in accordance with FEP-2.0, *TRAIN A PLANT SHUTDOWN TO HOT STANDBY DUE TO FIRE*, Enclosure K. The swing battery charger will be aligned to cross-train AC power from "A" Train to DC power of "B" Train to support equipment operation.

k. Take actions to align Spent Fuel Cooling Loop B to return Refueling Cavity water to the RWST in accordance with AOP-115.4, *LOSS OF RHR WHILE REFUELING*, Attachment I, *REFUELING CAVITY LEVEL CONTROL WITH SPENT FUEL GATE IN*. Applicant will establish a return of water to the RWST so that spent fuel can be cooled and level can be controlled in the refueling cavity as RHR is returned to service. This is a new JPM.

Facility:	VC Summer	Date of Examination:	9/12/2011
Exam Level (circle one):	RO / SRO(I) / SRO(U)	Operating Test No.:	

Control Room Systems (8 for RO; 7 for SRO-I 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
a	APE 069 (JPSF-045B) Modify Ensure containment isolation (EOP-1.0)	A,M,S,EN	5
b.	System 015 (JPS-161) Block Source Range Hi Flux Trip (GOP-3)	N,L,S	7
c.			
d.			
e.			
f.			
g.			
h.			
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	APE 068 (JPPF-044 for SRO) Evacuation of control room (AOP-600.1)	A,D,E	4
j.	APE 067 (JPP-205) Cross train connection of swing battery charger (FEP-2.0)	D,E,R	6
k.	APE 025 (JPP-408) Align Spent Fuel Cooling Loop B to return Refueling Cavity water to the RWST (AOP-115.4)	N,L,E,R	8

@	All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.	
* Type Codes	Criteria for:	RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3	NA/NA/2
(C)ontrol room		
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4	NA/NA/2
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1	NA/NA/3
(EN)gineered safety feature	NA / NA / ≥ 1(control room system)	NA/NA/1
(L)ow-Power	≥ 1 / ≥ 1 / ≥ 1	NA/NA/2
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1	NA/NA/3
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)	NA/NA/0
(R)CA	≥ 1 / ≥ 1 / ≥ 1	NA/NA/2
(S)imulator		

VC SUMMER 2011 NRC JPM SUMMARY

a. Take actions to ensure containment isolation in accordance with EOP-1.0, *REACTOR TRIP/SAFETY INJECTION ACTUATION*, Attachment 3. The applicant will identify that containment integrity is not intact. This leads to the alternate path for this JPM. The applicant attempts to initiate a phase A or close valves from the MCB. One penetration is isolated from the MCB. Another penetration will not close from the MCB and the applicant sends a local operator to close a backup valve. This JPM will be modified from one in the bank to change the valves involved and increase the number of valves.

b. Block Source Range Hi Flux Trip in accordance with GOP-3, *REACTOR STARTUP FROM HOT STANDBY TO STARTUP (MODE 3 TO MODE 2).* The applicant will raise power using rods from the source range up to 10^{-3} % power. On the power increase the source range will be blocked before an automatic reactor trip occurs. This JPM is new.

c. Not selected for SRO.

d. Not selected for SRO.

e. Not selected for SRO.

f. Not selected for SRO.

g. Not selected for SRO.

h. Not selected for SRO.

i. Take actions necessary after evacuation of the control room in accordance with AOP-600.1, *CONTROL ROOM EVACUATION.* Due to bomb threat the control room is evacuated without any equipment tripped from the MCB. SRO candidates will perform the actions of the CRS. The alternate path for the SRO is determining that emergency boration is required due to two stuck rods.

j. Take actions to cross-train the battery charger in accordance with FEP-2.0, *TRAIN A PLANT SHUTDOWN TO HOT STANDBY DUE TO FIRE*, Enclosure K. The swing

battery charger will be aligned to cross-train AC power from "A" Train to DC power of "B" Train to support equipment operation.

k. Take actions to align Spent Fuel Cooling Loop B to return Refueling Cavity water to the RWST in accordance with AOP-115.4, *LOSS OF RHR WHILE REFUELING*, Attachment I, *REFUELING CAVITY LEVEL CONTROL WITH SPENT FUEL GATE IN*. Applicant will establish a return of water to the RWST so that spent fuel can be cooled and level can be controlled in the refueling cavity as RHR is returned to service. This is a new JPM.

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO's		
1/2	000032AA2.03	Source range high voltage is never removed at VCS (Gammametrics fission chamber NIS) KA replaced with 000032AA2.06 for RO test
2/1	063 A2.01	Not able to write discriminating question at RO level since only response to DC grounds in procedures is to have electrical maintenance trouble shoot. KA replaced with 063 A3.01 for RO test.
2/2	011 K4.03	Pressurizer level is not density compensated at VC Summer. KA replaced with 011 K4.05 for RO test.
3	G2.4.39	No responsibilities of RO in emergency plan implementation. KA replaced with G2.4.25 for RO test.
2/1	078K1.01	VC Summer has no specific system that is equivalent to sensor air. KA replaced with 078K1.03 for RO test.
SRO's		
1/2	000059 AA2.03	Not able to write an operationally relevant question that is discriminating for an SRO. KA replaced with 000059 AA1.01 for SRO test.
2/2	028 G2.2.40	Hydrogen Recombiner was removed from Technical Specifications. KA replaced with 028 G 2.1.27 for SRO test.
2/2	086A2.01	Not able to write an operationally relevant question that is discriminating for an SRO. KA replaced with 002A2.04 for SRO test.
2/2	072A2.03	Not able to write an operationally relevant question that is discriminating for an SRO. KA replaced with 034K4.02 for SRO test.

Facility: V.C Summer Date of Exam: 10/20/11 Exam Level: RO ☒ SRO ☒

Item Description					Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.						
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.						
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401						
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).						
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or __ the examinations were developed independently; or ☒ the licensee certifies that there is no duplication; or __ other (explain)						
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank 34 / 3 45% / 12%	Modified 0 0% / 0 0%	New 41 / 22 55% / 88%			
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory 36 / 6 48% / 24%	C/A 39 / 19 52% / 76%				
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.						
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.						
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.						
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.						

	Printed Name / Signature	Date
a. Author	Matthew R. Bender /	10/18/11
b. Facility Reviewer (*)	Robert Johnston /	10/18/11
c. NRC Chief Examiner (#)	Richard S. Baldwin /	10/19/20
d. NRC Regional Supervisor	Michael A. Jones /	10/19/20

Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

ES-401, Rev. 9

VC Summer 2011-301 Examination
Written Examination Review Worksheet

Form ES-401-9

VC SUMMER 2011-301 EXAM REVIEW

Instructions

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

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

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
Generic Issues.															
1. In the stem of the question, need to determine if a period is or is not going to be used in the bulleted area of the stem. Sometimes it is used and sometimes it is not. It does not matter which one just do it one way or the other.															
2. For the first few questions that use annunciator windows in the stem or distractors, these are not written the same. Some have the panel some have the panel and tile number, we need to get that uniform.															
3. Reference material assembled is insufficient for examination review, system diagrams are not provided, key ARPs and AOPs not provided. Appears that the littlest amount of material was provided for the review to take place.															
4. Add to those questions where necessary, applicable procedures being used to accomplish the appropriate tasks. This ensures validity of each question.															

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
1	F	2				X								E Question still needs work. Could be a U. S	004K4.07, Task Master ™ question 4483 1. Distractor B is NOT plausible. In that, when does a single failure cause the system to actuate unless there is some other information provided in the stem to identify they have to think of this. Need to change this distractor. 2. Characterized as Higher, this is a very low higher cognitive question. 3. KA appears to match Tuesday, October 04, 2011 1. Change provides values associated with the parameter identified in the distractor. 2. Actual 3. Using the values, in B and C make them more implausible. HOW does the instrument failing HIGH, cause emergency makeup to occur? Actual have no relevance to the control system, so putting actual level does not help. Recommendation: 1. Develop a 2 by 2 question using 2. The design feature of what happens on the failure and then what operator actions are necessary to combat that failure. ** Design feature of what happens, then operator actions to combat the failure. This question needs more work, it is still an E. Or potentially a U. Thursday, October 13, 2011 1. Added actual in each of the NEW 2/2 question. 2. SAT. Satisfactory

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
2	H	2												S	012K6.03, New, 1. This question is kind of backwards logic, in that, it is you have to think of it failed? Not sure if this is a good way to ask this. 2. Were there any issues with reading this question? Based on evaluator review. Ask licensee. 3. Do we need names of each of these or are they required to know that form memory. The licensee states that they are required to know this material. 4. Kind of simple. 5. KA appears to match Thursday, October 13, 2011 1. No changes, operators are required to know the P numbers. 2. Still Sat.
3	H	3												S	011K4.03, Higher, New, 1. In distractor A, need to somehow identify the word **NO**, so the applicants do not miss it. Bold, underline, don't care, pick one use it the same throughout the test. 2. Would it be better to add to 1) that will "eventually" cause a reactor trip? This may ensure that they have to evaluate the entire cycle like the analysis identifies. . Ask licensee. 3. KA appears to match Tuesday, October 04, 2011 1. Still think in question number 1 that we bold an underline the NO before operator, like **no.** 2. **Otherwise ok.** Thursday, October 13, 2011 1. Made consistent with other questions. 2. Rearranged SERVE after ONLY, GL suggested. 3. Bolded in B and D, serve **only**

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
4	H	2	X											E S	016A2.01, Modified, Higher, Modified question was not supplied with package. 1. Not sure that the initial information in the stem has a real meaning to answer the question. Other than it provides a starting point. This can be removed from the stem. 2. The KA requires in the second part to use procedures, while this is sort of the way about it, but it does not state what procedure just the actions to accomplish the required. Is there a way to add procedures in the second part rather than stating it in the stem? Ask licensee. 3. Add the word "the" prior to the word "failure" in the stem of the question. Just to clarify a little. Tuesday, October 04, 2011 1. The question as changed still does not meet the KA, in that, there is no procedure listed in the answer. This is awkward! . 2. Change the stem to read: WOOTF identifies the Resistance Temperature Detector (RTD) failure that would cause these indications **and** the appropriate operator actions in accordance with AOP 304.3, Continuous Control Ro Motion? 1. Remove the procedure from distracters A and B. 2. Add parenthesis around the A as in "A" for all distracters since parenthesis are used in the initial conditions. Make this a global change for all questions. This needs to be fixed before it is Satisfactory. Thursday, October 13, 2011 1. Changed the second part to as if they had to enter the AOP or not to and for rods in MANUAL. Changes SAT.

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
5	H	2-3												E	00005G2.1.31, New, Higher, 1. How is it known that the alarm provided is the one that comes in FIRST? Was this run on the simulator to prove that it actually is the first? Ask licensee. 2. Distractor C, P-12 is written differently here on this question than it was written on Question # 2. Is there a reason why? Should they read the same and change # 2 or does this provide information to help decide that on Question # 2 that the distractor it appears is NOT correct for either. Discuss with licensee. 3. KA while it is not a complete match, it appears to cover the question fairly well. OK 4. Not sure if distractor is plausible. Need to ask another examiner.
														S	Tuesday, October 04, 2011 1. Why was the question's stem changed? 2. As the question appears the change is ok. Now a Sat question Thursday, October 13, 2011 1. Changed the stem to be clearer. See question. WOOTF will be received simultaneously with a feedwater isolation signal actuation?
6	H/F	2-3												E	000007EK2.03, New, Higher, 1. The reference material identifies the annunciator to have "an intermittent fast flash." This is significant difference from the way the question is worded. Recommend that the essence of these words be put in for the answer other distractors that use the same wording, ie. Distractor B. 2. Do not agree this is higher level. The first part of the question is memory, does a failure of the IR cause a rx trip. Also second part of question, how does the alarm flash. Also could be memory. Discuss with licensee. 3. KA appears to match.
														S	Tuesday, October 04, 2011 1. Question was changed as requested, now satisfactory.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
															Thursday, October 13, 2011 1. No further changes. Still satisfactory.
7	F	2-3										X		U	000032AA.2.03, Modified, Knowledge (Fundamental)? 1. Remove from stem the word “choices” it is redundant and not necessary. The first sentence can read, in almost every case, Which One of the following (WWOTF)…..describes, indicates. … 2. Modified question not supplied. 3. When were these new NI’s installed? Was everyone in class when they were changed out? Or are the ONLY individuals who were around then were the SRO-Us? I would imagine that this is the case. IF this is true, then the plausibility of the OLD versus the NEW does not bode well for the plausibility. 4. The procedure provided actually states to verify AT and not ABOVE as the question indicates. Could there be an issue with distractor B, in that, this may be close to the P-6 interlock (Source Range Permissive). Is this what we are looking at in this question? Discuss with licensee. 5. KA appears to NOT match. The KA asks the expected values of source range indication when high voltage is automatically removed. This is for a LOSS of Source Range NI. Discuss with licensee.
														S	Tuesday, October 04, 2011 1. The question was entirely replaced with a new question. 2. The KA was changed at the request of the licensee. The NEW KA is 000032AA2.06 3. Question matches KA, 4. Put a comma between EOP-12.0 and Monitoring Critical Safety Functions. 5. Otherwise, question appears to be Satisfactory. Thursday, October 13, 2011 No further changes still ok,. Made minor changes to stem.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
8	H	3												E S	000029EK2.06, New, Higher, 1. The question is kind of confusing, in that, the stem is asking about minimum number of malfunctions that would cause a failure of an automatic reactor trip during the situation presented. Can this be worded a little differently? Is this like in the answer that there are three malfunctions? This does not make any sense to me. . 2. How did the evaluators do? 3. What reference are you going to give? Not sure if it is only going to be the print of the RTBs and bypass breakers and emergency borate flow. 4. Is it necessary to have the emergency borate flow there? 5. KA appears to Tuesday, October 04, 2011 1. This change removed the requirement for the use of a reference. 2. Question as changed is satisfactory. Thursday, October 13, 2011 1. Scott P identified an issue with this question. Will discuss this on Friday. Friday, October 14, 2011 SAT
9	H	2-3												S	010A4.01, Bank, Higher, 1. KA appears to match\ 2. Question was used on Watts Bar last exam. 3. Not a hard question. Tuesday, October 04, 2011 1. Made a change to the IC, added statement for group 2 Backup heaters. No reason was provided for the added statement. Added 2. Appears to be Satisfactory

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
10														U E	063K4.04, New, Fundamental, 1. THE KA does not match. This is almost the way it can be but it is talking about DC power and Trips, this would be better to identify what electrical trips are not available for the DG or only the TRIPS associated with electrical. BUT they do not mean the mechanical trips how to stop the DG. Loss of Electrical power causes the loss of most trips which ones do not get bypassed. The DG overspeed and the DG reverse power trip. This needs to be corrected. Discuss with licensee. Tuesday, October 04, 2011 2. Question was completely replaced. 3. The question asks what is the response of the EDG during the loss of All "A" train DC power. Ask it this way! The question asks the response, which would indicate something should happen. However from the answer, nothing happens. It is really asking what is the status of the EDG, running or tripped? This is the way it should be asked, that status, not response. 4. To make it more valid, need to add what test is being done so that the operator understands what the situation is with the EDG. Can this be added to the initial conditions. ASK LICENSEE. 5. Each distractor has a loss of DC power, it is already asked in the stem, it is not necessary in each distractor. Remove the statement due to a loss of DC power. 6. Same idea with second question, either there is or is not protected. Therefore re write the question to read After the ICs

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														S	WOOTF describes a) the status of the EDG following the loss of DC power and b). the protection 1DA has from the 51 overcurrent trip. A.) a.) EDG will trip b.) 1DA is protected by the 51 trips. B.) a.) EG will trip b.) 1DA is **not** protected by the 51 trips C.) a.) EDG will remain running b.) 1DA is protected by the 51 trips D.) a.) EDG will remain running b.) 1DA is **not** protected by the 51 trips with this change it should be easier to read and will be Satisfactory. Licensee please make this change to this question and ensure we still have a valid question. Basically the question is ok, just look at the above and note the changes that will help shorten and make it easier to read for the applicants. Thursday, October 13, 2011 1. needed to add words to the stem to identify closer what was being asked. 2. Additionally, added output to the EDG breaker and the noun name to the breaker to be clearer. SAT

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
11	F	2--3												U if #2 is correct and OK otherwise.	022K1.01, New, Fundamental, 1. KA appears to match 2. Distractors B and D second part do not seem plausible. After reading the analysis it seems like they may be ok, but, I am going to ask G. Laska, tomorrow to see how he feels about this part of the distractor. It does not sit well with me, it seems to be easy to eliminate them.
														E/U	Tuesday, October 04, 2011 1. Second part of distracters C and D have been changed. 2. Are there vacuum relief valves on the return lines of the RBCUs? This is a question I am not sure of. Need to ask the licensee if this is a true statement or is it something made up. 3. This needs some more work to understand what is or is not happening. IS there something like what is described in distracters C and D available on any other system? Ask licensee. If there is NO other system that has this kind of vacuum relief valves then these distractors are unsat.
														s	Friday, October 14, 2011 1. Question was replaced. 2. See new question as SAT 3. SAT

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
12	H	2-3												E S	064K1.05, Higher, VCS Closed Bank 1. Remove reason for DG will not start from the Main Control Room (MCR), faulty wiring. All they need to know is it will not start from the MCR. Done 2. In the bulleted part, the A in the third bullet is not in quotes as it is in the stem of the question. Write it one way or the other, I do not care which method is used, just be consistent. Same for distractor D with the "A" or just A. 3. The A distractor uses a period and the rest do not have periods, be consistent within and all questions. Either way is ok with me. 4. KA appears to match Wednesday, October 05, 2011 1. After reviewing this question again, the question asks if the EDG will be prevented from coming up to speed. It does not say start, it states come up to speed. This is key in understanding 2. The air start system ONLY provides air to turn the crankshaft to allow the combustion cycle to start, that's what causes this to come up to speed. The air system would not get the EDG to operating speed. 3. If an operator ONLY depresses the air start system valve, does this then start the EDG or does the operator have to place a start signal to the circuit for the EDG to actually start? Was the action that INITIALLY started the EDG that locked IN? SO did the DG have a start signal that would allow the DG to run after the engine is turned over???? ASK LICENSEE. I am not sure that this is clear and if it is, then the distractors may not be plausible. **DISCUSS.** 4. ADD to the stem WOOTF …. IAW AOP 304.3. Is this the procedure Friday, October 14, 2011 SATISFACTORY

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
13	H	2-3												E S S	W/E10EK3.4, BANK, VCS closed , higher 1. Is this abbreviation something the applicants would know, ESFLSs? Should we have it spelled out to begin with? Ask Licensee. 2. Why in the stem do we NOT use the actual procedure the crew would be in? 3. KA does it match? Well kind of. The KA speaks to "adhered to and the limitations in the facility's license and amendments are not violated." This is not covered in this question. Discuss with licensee. 4. Need to have another examiner review for KA match. Wednesday, October 05, 2011 1. The question as changed appears to be ok. 2. No further changes warranted. Friday, October 14, 2011 Minor changes from validation comments, see exam for changes. ADDED MINIMUM in the stem SAT.
14	H	2												S	000057AA.2.12, MOD, VCS Closed, Higher. 1. APN-5901 thru 5904, what is the noun name of that bus? Is there any? 2. Are operators expected to know this information from memory? 3. Is 5902 channel II? 4. Low level higher question, really is memory, how if not memorized anyone would know this. Wednesday, October 05, 2011 1. Question Matches KA 2. Why not add the high PZRP level alarm annunciator alarm that should come in also? Ask if this does come in and add it if it does. Discuss with licensee. Minor enhancement, but it would make the question more technically correct. 3. Other than that, it is appears to be ok. Friday, October 14, 2011 1. Added appropriate alarms that came in, as asked. 2. SATISFACTORY.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
15	H	2				X								U U S	064A3.03, New, Higher, 1. Is there a noun name for XTF-31? If so, add it to the stem. 2. Distractors C and D, second part are NOT plausible. The operator applicants all have observed DG starts and know that there is not a cycling of the frequency as described. Something better has to be used. The way this is it is not plausible. This is describing sequencing. Let's just say that. "Frequency fluctuates as the load sequencer sequences. " 3. The analysis does not describe the function of XTF-31 or where to find information about it. No reference identified. 4. The stem is difficult to read. "Which choice below identifies the following with regard to….." With regard to the A DG response, which one of the following (WOOTF). May read better. Use recommendation above. Should be a S then. Wednesday, October 05, 2011 1. None of the suggestions were used. 2. Answer D is another correct answer. This makes the question unsat. 3. D has to be changed to make this question sat. Discuss with licensee. Friday, October 14, 2011 1. SAT SEE EXAM CHANGES.
16	F	2				X								E/S	063A2.01, New, Lower, 1. The question's KA was replaced with 063A3.01. This should be in the header of the question. Replace 2.01 with 3.01 in the header. Otherwise, it does not make sense for the question. 2. It states Local indication, is there no location where battery voltage can be observed? This is not clear and should ensure this is not another provable answer. Discuss with licensee.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														U	3. KA appears to match. Wednesday, October 05, 2011 1. Licensee identifies there is a LOCAL battery meter, provides a reference, reference was not submitted to identify that there are local battery meters. Are there 126 v and 108 v system local meters. 2. Licensee states that the procedure means in the reference "monitor Batter Bus Voltage throughout this procedure" implies the MCB. If this is the case WHY would anyone select LOCAL for reading the battery bus voltage? Why is it plausible? With this new information, distractors B and C are NOT plausible. Discuss with licensee. This makes this question UNSAT.
														S	Friday, October 14, 2011 CHANGES SAT
17	H	2-3												E	062A2.01, Bank, Higher, 1. Add to the stem the procedure they would actually be in. 2. Why is it necessary to add "on low flow" in both A and B. This is not necessary and can be deleted. 3. Why is it necessary for the 1 minute time after the event? Discuss with licensee. 4. KA appears to match. Wednesday, October 05, 2011 1. ADD to the question the procedure, SOP-XX the crew would be in, in addition, to the GOP. Is there another one to parallel the MTG? 2. Question modified as requested, appears to be SAT. Friday, October 14, 2011 1. SAT NO CHANGES MADE.
														S	
														S	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
18	H	2-3												S S	045 G2.4.3, Bank, Higher. 1. Add noun name for 1A1X. This may or may not be necessary 2. KA appears to almost match. This is a borderline analysis. 3. The questions KA discusses use of annunciator alarms, indications or procedure response. The question uses a ARP that came in based on loss of a power supply. The correct answer analysis uses the AOP. The answer to the question does not use a procedure but identifies how the system works. The question barely matches the KA. Discuss with licensee. 4. The manual adjustment of the field provides the reason for the first part of the question. This really has nothing to do with the procedure. What is the response procedure we are answering in this question? Discuss with licensee Wednesday, October 05, 2011 1. Why was the question changed from the loss of 1A1X to the Regulator Core Alarm? This was not suggested in the above? Discuss with licensee! SO IT WAS CLOSER TO KA 2. The new question provides information as to why the annunciator came in. AND provides the ARP correct actions to address this event. The skill set is different for answering this question than for the first question. 3. The first part of each distractor should have the words "…load will vary," with either "…load will increase," or "…load will decrease." This will then make the question more operationally valid. What will have happen to the reactive or real load. Basically, as it sits the operator does not have to know what the action taken will do. 4. Additionally, the second part of the question has to be re-written to the following: "…AND based on a over temperature condition how the Main Generator Voltage Regulator will respond." Currently, the question does not really identify that the condition is higher than the information provided in the IC. Recommendations: If the above are followed the question will be considered SAT. Friday, October 14, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
															MADE CHANGES TO THE QUESTION. See changes on exam SATISFACTORY.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
19	H	3												E U	026K2.01, New, Higher, 1. I do not understand why the 480 v bus is a plausible distractor. I understand what is written, however, I do not understand why that is plausible. 2. The analysis does not explain the function of the XCP-639 point 6-4 BUS 1DX LCKOUT 86 B. The ARP was not provided. It should have been. 3. Does the Reactor building Spray pump get any control power from the 480V bus? Does the 480 V bus 1DA1 bus get powered from the 7.2KV Bus 1DA. 4. No information provided about the lockout 5. KA appears to match. Wednesday, October 05, 2011 1. The question stem was changed from the submittal. The information asked for is in a different order than those of the answers. The question stem asks for the location of the breaker and the ultimate power supply. The distractors answer the power supply and then where power comes from. The question does NOT elicit the answers. Again, stem asks for the LOCATION of breaker and answers identify From power supply, ie from offsite power, from the A EDG. Doesn't Location mean the BUS it is on, 1DA, on or the building it bus sits in. This now makes this question UNSAT. 2. I still do not believe that the 480 V bus is plausible. Discuss directly with licensee to understand why anyone would select A or B and that a Safety Related Motor would be ONLY 480 volts. While this was characterized as an E, it initially should have been characterized as a U. Regardless, of the characterization the question has two distractors that have been determined as implausible and therefore is UNSAT. The licensee did not provide a good reason why the less than competent operator would select a pump that is safety related and is powered from the 480V power supply. 3. IS 1 EA powered in this instance with 1 DA? What is the voltage of 1EA1 bus? Discuss if either of these buses are

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	plausible under the plant conditions listed in the IC. Monday, October 17, 2011 1. #2 1DA is ok as a distractor because the rhr and spray pumps are in the same room, however, they are powered from different buses. Question is sat.
20	H	2-3												E U S	001K2.01,Modified, Higher, 1. KA appears to match 2. So 1DA2 and 1DB2 are safeguards buses? I don't understand why these are plausible! It seems like we are comparing apples and oranges, in that, one is 7200v and the other is 480v. Discuss with licensee 3. Need to understand why those in 2 are plausible. Wednesday, October 05, 2011 1. Why was the power supplies identified at the next lower voltage power? Why not use buses 1B3 and 1C2 as the alternate answers for distractors B and D? Discuss with licensee. 2. Why is the above not as good or better answer than 1A3X and 1C3X? 3. Question has two implausible distractors B and D, this is the same type of argument identified in question 19 using different power supplies one being a lower voltage than the other. Monday, October 17, 2011 1. Used the suggestion above, as 480 switch gear. 2. SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
21	F	3										X		E/S S	000055EA2.06. New, Knowledge, 1. No reference diagram for power line up. Discussed in the analysis of the answer but that is hard if not impossible to understand without a diagram. 2. Does the conditions of the stem put the plant in a Station Blackout? Not sure it does. Ask licensee. 3. The KA talks about clearing an item to allow re-energization. The question concerns itself with preventing closing. It's a little difference but it is not the KA requirements. Discuss with licensee. 4. Have licensee explain this question with references. Wednesday, October 05, 2011 1. Question is OK as it is. No further changes necessary. Monday, October 17, 2011 1. Sat
22	F	2-3				X								U U	0000056AK3.02, New, Knowledge, 1. KA appears to match 2. Distractors A and B do not make sense, in that, placing the Service Water pumps in PTL, Pull to Lock, does not make sense to remove the cooling medium for the EDGs. 3. The second part of B and D are not plausible to me. To immediately provide a heat sink for CCW. This does not seem plausible. The system being without power, CCW that is, has no ability to cool anything, no heat transfer is being accomplished, so when power comes back the heat load on CCW should be low, so an IMMEDIATE requirement will not appeal to any of the applicants. This needs to be changed. 4. Fix both sets of concerns. Wednesday, October 05, 2011 1. First issue was corrected, however, now we have numerous reasons for doing this. Why only 2 in the 2 by 2 format. 2. Second part of B is still not plausible. Needs to be fixed.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	3. Second part of second part of D needs to be replaced. Not plausible. 4. Use second part of C in B and then use the second part of A in D. Then it will be sat until fixed remains unsat. Monday, October 17, 2011 1. Followed the above suggestion. 2. Changed the order of distractors to have them look like the other questions. 3. Also changed the loss SAT
23	F	2												S	071A1.06, Modified, Knowledge, 1. In the stem, separate the wind direction from the speed. Make wind speed a separate bullet. 2. IS there a reason why the procedure that is governing the release is not being identified? I think it should be in the stem. 3. What is actually going to be provided to the applicants for the reference? Is it just the SOP-119, Table A? IF so the reference should be ok to be provided. 4. Original question not provided. 5. KA appears to match. Wednesday, October 05, 2011 1. Question changed as requested, question SAT. Monday, October 17, 2011 1. SAT
24	F	2										X		U	039A1.05, New, Knowledge, 1. KA speaks to Main and Reheat Steam and ability to predict and or monitor changes in Tave (without exceeding design limits) associated with operating the MRSS controls. What is the design limit in this question? Could use the 547 and 543 to make it a 2 by 2, but as it sits it does not match. 2. Distractor C does not appear to be plausible due to system alignment. 3. Also distractor D does not seem plausible because this is

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	something that is done for Every Reactor trip. 4. The main issue with the question is that it does not prevent exceeding the limit. How is this tested with current question? This needs to be changed to match the KA Ask Licensee. Wednesday, October 05, 2011 1. KA match addressed. Appears to match now. 2. Change stem to add WOOTF based on the conditions provided…(this is a minor change to the modified question). 3. Question as changed is satisfactory. Monday, October 17, 2011 1. Used above # 2. 2. Added 1 and 2 in stem added to the distractors. 3. Reworded the stem. 4. SAT
25	F	2-3												E	061K6.02, Bank, Knowledge 1. Simple1 line diagram not provided. Cannot validate where valves are wrt the other valves. Don't have time to look up every system. 2. KA appears to match 3. Is there a flow rate even associated with FCV 3546? Why would anyone think this valve has a runout feature also? Ask Licenee. 4. The stem is too wordy. WOOTF completes the following statement? Which one of the following ….. That's all that is necessary. Wednesday, October 05, 2011 1. Question changed as requested. 2. Only one minor change, should the word "RUNOUT" be identified in quotes as identified above? Not necessary but want to ensure that the applicants do not miss this word. 3. Otherwise appears to be satisfactory Monday, October 17, 2011
														S	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
															Changed minor, see exam. Sat.
26	F	2-3												S	078K1.01, Bank, Knowledge 1. This KA was changed to have 1.03 vice 1.01, need to change the header to reflect this when exam is built. 2. KA appears to match Wednesday, October 05, 2011 1. Changed as requested, still satisfactory.
27	F	2				X								U S	000026AK3.02, New, Knowledge, 1. KA appears to match. 2. Distractors C and D, first part are not plausible. This makes this questions unsat. We need to come up with something that makes this question more plausible. Maximize the flow to the RHR heat exchangers is not plausible. This is a basic system knowledge to know that CCW flow would not increase during the injection phase of an accident. This does not make sense why anyone would pick this. How did the validation fare? Did anyone choose this? Need to replace this with something more plausible. Wednesday, October 05, 2011 1. Change to question appears to be a better choice, question is now considered satisfactory. Monday, October 17, 2011 1. Made minor changes. 2. SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
28	F	2-3												E S	073K3.01, New, Knowledge. 1. KA appears to match. 2. Distractors B and D, need to separate the other Valve and write it like, A & B. The way it is written is like the procedure and you could choose either valve. This does not work for that and needs to be separated. 3. How about swapping the second line in A and C and start with the word ONLY. This will be consistent with B and C where BOTH starts them off. Discuss with Licensee. 4. What is the difference between XPB and PVB, are they considered the same? Explain. Wednesday, October 05, 2011 1. ALL comments addressed 2. Question is considered satisfactory Monday, October 17, 2011 1. SAT NO changes.
29	H	2-3												E E	2.3.11, Bank, Higher. 1. Need to add to the stem the procedure the release is being done under. 2. It seems that there are a LOT of “A”s for answers, we need to look at the end of the exam and determine if we have too many one or the other. 3. Add another time prior to the answer and make the answer B, something like 0300 on 10/3. Wednesday, October 05, 2011 1. Do not understand the comment in the second submittal. I Still want to add some time prior to 10/06 at 2330 that will be wrong and will make answer B be the correct answer. There are WAY to many A’s or add two times and make the answer C. Either way, I would like to have an answer other than A. 2. Still E, until discussed with licensee.

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	Monday, October 17, 2011 1. Changed to 0300 on 10/6. 2. Bolded and highlighted without in the stem. 3. Added additional quotes around tank letters and capitalized Tank and Decay. See exam for the comments. 4. SAT.
30	F	2												E	103K4.04, New, Knowledge 1. KA appears to match. 2. Change “door” to “airlock”
														S	Wednesday, October 05, 2011 1. Understand requirements for airlock and airlock door or doors, however, do not understand both AIRLOCKS vent valves. Have licensee explain this concept. 2. Otherwise appears to be Satisfactory. Monday, October 17, 2011 1. Sat no changes.
31	F	2												S	022A4.02, Bank,Higher 1. KA appears to match. 2. Is the 2000 gpm minimum flow rate knowledge that the operators are expected to memorize?
														S	Wednesday, October 05, 2011 1. Comment, the word MINIMUM does not follow the convention used to identify other like aspects of what it is being identified. For example, it seems that it should be small letters with bolding and underlining **minimum** 2. Otherwise appears to be satisfactory. Monday, October 17, 2011 1. Made minor changes. See exam. 2. SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
32	F	2				x								E S	008A1.001,New,Knowledge 1. KA appears to match. 2. The stem of the first part of the question answers the second part. You open the header when flow reaches the band. Therefore, B and D distracters are not plausible. Wednesday, October 05, 2011 1. Understand issue with typo in the stem. 2. Question appears to be satisfactory. Monday, October 17, 2011 1. Sat as changed 2. Minor changes see exam.
33	H	2				x						X		U U U?	028AK2.03,Bank, Higher 1. KA does not match. Not pressurizer level malfunction. 2. A flow control valve that supplies a fluid to the system would never throttle closed in response to a low level signal. Distracters A and D are not plausible. RSB Agree this question is unsat, it does not match the ka, it does cover controllers and positioners however, it does not cover anything with the Pressurizer Level malfunction. While this covers level control it does not match the intent of the KA. Wednesday, October 05, 2011 1. Disagree with KA match, the question concerns itself with charging flow now Pressurizer LEVEL malfunctions. Discuss with M Meeks to get his view on this analysis. Until this is done, this question remains unsatisfactory. Monday, October 17, 2011 1. New question has teaching in it. This is a failure of the Controlling PZR level control 2. This may need to be run on the simulator to see how long 3. THIS QUESTION IS NOT CONSIDERED SAT TILL THIS IS

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		RUN ON THE TABLE TOP SIMULATOR.
34	F	3												S S	004A2.09, New, Knowledge 1. KA appears to match. Wednesday, October 05, 2011 1. No changes, still satisfactory
35	F	2							X					E S	007G2.4.18, New, Knowledge 1. KA appears to match. . 2. Distracters C. and D. are trivial during an EOP. If you have a valid safety injection, the operator is not going to be concerned about breaking or potentially breaking the rupture disks. RSB This question distractors C and D are not plausible. Above states exactly why would anyone think that there was a reason to vent to the PRT during a LOCA and SI. This does not make sense at all. Additionally, this would make this question evaluation UNSAT since both C and D would be considered not plausible. Wednesday, October 05, 2011 1. Initially should have been analyzed as Unsatisfactory because it

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															had two distractors that were not plausible. 2. Changed C only, appears to be ok. 3. Question appears to be satisfactory. Minor issue, change answer so that A is NOT the correct answer. Re arrange to make C the correct answer to better distribute the answers across A B and C and D. Monday, October 17, 2011 1. CHANGED AS REQUESTED. `
36	H	2												S	006A3.01, Bank, Higher 1. KA appears to match. Wednesday October 5, 2011 1. Can third bullet be deleted? Based on Appendix E brief, applicant should understand that automatic actions occurred unless explicitly given otherwise. 2. Verify with licensee shutoff head of RHR pumps—distractor analysis states that 350 psig is in RHR pressure band for decay heat removal. 3. Recommend adding “Based on the given plant conditions” to the question statement to be clear to applicant about time frame of question—because if time keeps moving, answer choice “C” will also be correct. Q statement could say “Based on the plant conditions as given, which ONE (1) of the following….” Friday, October 14, 2011 1. Licensee implemented the suggestions above. 2. Question is still SAT.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
37	H	2				X								E S	036AA2.03, Bank, Higher 1. KA appears to match. . 2. Distracters C. and D. do not appear to be very plausible considering the short time frame involved. Answer C might be improved by being in a lowered inventory status. Answers D. and C. are similar in that you're trying to imply fuel damage due to inadequate cooling. Perhaps the 4th option could have something to do with dry storage. Wednesday, October 05, 2011 1. Distractor B is not plausible. Applicant can easily differentiate between dropping a spent fuel assembly that has been irradiated for hundreds of days vs. dropping a brand new fuel assembly that hasn't been in the reactor core. 2. Can distractor D be a correct answer? Ref. lesson plan GS-05 fig. GS5.3 flowpath from 6669 to 6674 to 6681 to SFP purification pump to 6691 to RWST. What is the maximum radiation field given whatever will be the height of spent fuel pool water above the 6669 valve siphon? 3. We don't need any information above the WOOTF statement—can be deleted. Friday, October 14, 2011 1. Verified that D is NOT the answer. 2. Changed B, validation
38	H	2												S	012K5.01, New Higher 1. KA appears to match.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	Wednesday, October 05, 2011 1. Need to bound the time frame that the question is asking—for example, 5 seconds? 10 seconds? after the spray valve is open and before the reactor trips. 2. Also need to mention before any operator action?
														S	Friday, October 14, 2011 1. Made the question easier to read and identified the 1 and 2 in stem and each distractor. 2. Added Assume no operator action.
39	H	3												S	07A4.10, Modified, Higher 1. KA appears to match. 2. GFE type question. 3. PRT Temperature is not required. 4. If the Pressurizer Code Safety is leaking, which ONE (1) of the following is the expected temperature as read on TI-465 (Use Noun Name)?
														E	Wednesday, October 05, 2011 1. Check the correct answer—using steam tables and interpolation should correct answer be 267 degrees F, not 260? 2. Delete first and second bullets as unnecessary? 3. Need to add “approximate” to the temperatures because some people will use Mollier diagram and some will interpolate, etc..

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	For example, change Q statement to read as follows: "If a Pressurizer Code Safety valve is leaking, which ONE (1) of the following is the expected approximate temperature as read…." 4. Distractor 'D' is not plausible—recommend to come up with another wrong way to calculate an answer in the 200s range of temperatures. Having a single distractor 327 degrees F too big from three other answers is hard to believe. Friday, October 14, 2011 1. Changed this as suggested. 2. SAT SAT
40	H	2				X								S	005 K6.03, Modified, Higher 1. Sort of matches KA. 2. Distracter D is weak. Why would anyone assume that the temperature recorder measured HX outlet only. Wednesday, October 05, 2011 1. K/A match is weak, willing to accept. 2. Q is OK as written. Friday, October 14, 2011 1. No changes. Ok as is.
41	H	2-3												S	041 K1.02, Modified, Higher 1. KA appears to match. Wednesday, October 05, 2011 1. Need to add that steam dumps are controlling in automatic pressure mode to second bullet? Implied by correct answer but

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	not completely stated. added 2. Inserting control rods is not plausible. In the power range control rods ultimately control Tavg not reactor power. Every other choice involves a manipulation of the secondary system. Potential recommendation: "Raising the setpoint on the STM DUMP CNTRL potentiometer (clock)." 3. Is it necessary to add "potentially" to the question statement? i.e. "Which ONE (1) of the following actions would potentially cause a "swell" in S/G level?" I.e. what are effects of FRV operation, etc. 4. Need to provide current Tavg value in Q stem to make distractor A. more plausible (i.e. would actual Tavg be greater than 5 degrees higher than no load, which would lead someone to erroneously believe the steam dumps would open in Tavg mode?)
														S	Friday, October 14, 2011 1. Changed as selected, see exam for changes. 2. SAT SAT
42	H	2-3												S	035 K6.01, Modified, Highe r 1. KA appears to match. 2. Correct answer uses similar thought process to 41. Wednesday, October 05, 2011
														E	1. GFE question that examines same concepts—shrink vs. swell as 41. Low discriminatory value/no tie to plant-specific knowledge. 2. Change distractor C. to "Steam Generator "B" narrow range level will decrease" for parallelism with distractor B? 3. How is this question operationally valid? If the reactor should trip on an inadvertent MSIV closure, and it does not, operators

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														S	are in an ATWS/FR-S.1 situation and steam generator parameters are irrelevant. 4. Potential double jeopardy with previous Q (#40)—applicant could potentially get two Q wrong if applicant has a misconception of shrink and swell phenomena. Friday, October 14, 2011 1. Completely new question to avoid double jeopardy with steam dumps. In 41. SATISFACTORY
43	H	2												S	003 K5.04, New, Higher 1. KA appears to match. 2. Not very discriminative. Just a GFE question. Thursday, October 06, 2011
														s	1. How is it plausible to have higher steam flows with no change in steam generator pressure, or to have higher steam generator pressures with no change in steam flows? Need to discuss with licensee, may be o.k. if validators missed? Friday, October 14, 2011 1. sat

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
44	F	2				X								S	002 2.3.13, Modified, Knowledge 1. KA appears to match. 2. B and D are not plausible. Operators do not carry rad monitors. 3. Specifically identify the procedure in which these requirements exist. RSB The plausibility of B and D needs to be fixed. Operators do not normally use rad monitors themselves. Do they use them at Summer? I doubt it, see what we can do to identify a more plausible distractor. Wednesday, October 05, 2011 1. DISAGREE with licensee concerning that the second part of distractors B and D are plausible. 2. NORMALLY the individual does NOT have the radiation monitoring device. The procedure does not allow an individual go to by them self. Change B and D to read: Must be accompanied by another operator who radiation monitor qualified with a radiation monitor. 3. How is 500 rads/hr plausible? How many system restoration valve lineups (i.e. normal ops) take place in a room posted with 500 rad/hr fields? Friday, October 14, 2011 1. CHANGED as requested. 2. The change has generic terminology concerning rad qualified. Need to change that 3. Removed 500 rads SATISFACTORY

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
45	F	2										X		U S	001 2.1.31, Bank, Knowledge KA does not match. KA discusses the ability to locate CR switches and indications and determine if they correctly reflect the desired plan lineup. Wednesday, October 05, 2011 1. Question was replaced, 2. KA appears to match 3. With two protection channels failed high, you would not be in a 3.0.3 shutdown, the reactor would automatically trip. Question as written is not operationally valid. In either case (whether the Rx trips or not), what procedure would specifically direct operation of PORV PCV-444B (i.e. to ensure a single correct answer)? 4. Recommend adding "both" to first bullet: "…have both failed high." 5. There are multiple switches on the CREP panel—one is the isolation switch and one is the switch to position the valve/component. If Q is salvageable, the Q statement needs to reflect this. Recommend: "Which ONE (1) of the following describes the location of the switch (or switches) that will be used to control Pressurizer PORV PCV-444B and the correct position of that switch (or switches), in accordance with AOP-???" 6. As written distractor A. is potentially correct, because those should be the at-power positions of the switches at the CREP. 7. Question is still U due to operational validity issues. Friday, October 14, 2011 1. NEW Question 2. See exam for changes. 3. SAT
46	F	2												S	003 2.1.2, Modified, Knowledge KA appears to match.

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	Thursday, October 06, 2011 1. Recommend changing word “ones” to “operators” in the Q statement, would say “The NROATC and the CRS are the only operators present in the Control Room.” 2. Otherwise Q looks SAT. Friday, October 14, 2011 1. SAT
47	F	2										X		S or U U S	003 2.1.29, Bank, Knowledge 1. Need to discuss if KA matches. If it matches question is SAT. Wednesday, October 05, 2011 1. This question does NOT match the KA. Just because you ask the question associated with Component/Condition Verification , SAP 153, it does not match the KA. The question asked is more of a radiation question. 2. Ideas for questions associated with this KA, red tag procedure, locked valve procedure, expectations associated with second person verification. 3. WHY should an RO know this from recognizing this value? One could possibly identify that this is an SRO only knowledge. It would be better to rewrite this question and hit the KA better associated with valve line up. Friday, October 14, 2011 1. New question, 2. Changed what was proposed. 3. SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
48	F	2-3												S U S	003 2.4.25, Modified, Knowledge 1. KA appears to match. 2. KA importance rating for 2.4.25 is only 3.3. Wednesday, October 05, 2011 1. Unsure as to WHY this question changed from the initial submittal. 2. UPON Further review, this question is considered UNSAT. When in ANY procedures does the RO/SRO/BOP operate DISCONNECT SWITCHES as Immediate operator actions. 3. Changes made in green (2nd part of distractors) look o.k. and are plausible given AOP-600.1 knowledge of the RO in-plant JPM "i" (where leaving one RCP running was a critical step). The issue with the Q is that tripping the Reactor is such a strong correct choice as an immediate operator action that it may be hard to develop a second choice that is technically incorrect (when viewed against Rx trip) and plausible. 4. K/A covers all aspects of fire protection procedures, does not necessarily need to cover immediate actions of FEP-4.0. 5. Q is U due to two non-plausible distractors. Friday, October 14, 2011 1. Chose to use disconnects for IPV-445a and b and C. BOP does not trip the reactor. Rx trip is a duty of the RO. \ 2. Changes are sat 3. Question is sat SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
49	F	2-3										X		E S	003 2.4.34, Modified, Knowledge 1. KA does NOT fully match. Need to discuss tasks AND "resultant operational effects". Thursday, October 06, 2011 1. K/A is now met with the changes as made. 2. Q now looks SAT. Friday, October 14, 2011 SATISFACTORY.
50	F	3												S E	086 K3.01, Modified, Knowledge 1. KA appears to match. 2. Supplied documentation does not fully support basis for correct answer or distracters. Distracters appear valid based on limited documentation. Thursday, October 06, 2011 1. Questions 48, 49, and 50 all deal with FEP-4.0 and may present a potential "double jeopardy" for an applicant. For example, if an applicant has a misconception that train "A" is used during FEP-4.0 rather than train "B" the applicant may get both 49 and 50 wrong. Recommend licensee and chief examiner discuss to determine if this is acceptable. 2. Need to bound the time frame of actions performed within the scope of the Q—specifically, the attachments of FEP-4.0 specify that actions to black out the "A" ESF train and start turbine-driven EFW pump need to be completed within 30 minutes. This needs to be reflected in the Q stem. Potential fix to last

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	bullet: "It has been 45 minutes (**note to licensee: pick a technically correct time here, 35 min? 40 min? 1 hour?)** since the crew began implementing FEP-4.0 CONTROL ROOM EVACUATION DUE TO FIRE." 3. If double jeopardy issues resolved to satisfaction, Q should be o.k. with changes as recommended. Friday, October 14, 2011 1. BOUNDED THE TIME TO BE 45 min, all actions should be done by 30 minutes. 2. Changed as requested. See exam for changes 3. Question is SAT. SAT

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
51	H	3												S	003 2.4.31, New, Higher 1. KA appears to match. 2. Last bullet on given information does not appear to have any value. Thursday, October 06, 2011 1. K/A is met. 2. Distractor "D" is not plausible as written. The combination of leaving the RCPs running, in combination with a loss of all seal cooling, does not make any sense. However, changing distractor "D" in a 2x2 format means that other aspects of the Q also have to change. 3. Potential recommendation: "Initial plant conditions: -100% power Current plant conditions: -XCP-612 pt 4, PHASE B ISOL, alarms -RB Spray pumps "A" and "B" are NOT running -RB pressure is 0.4 psig and stable -all phase B automatic actions have occurred Based on the current conditions, which ONE (1) of the following states how RCPs should be operated, in accordance with ARP-001-XCP-612 for PHASE B ISOL; AND what is the status of RCP seal cooling? A. Trip all RCPs immediately. Seal cooling still exists. B. Trip all RCPs immediately.

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	All seal cooling has been lost. C. RCP operation may continue as long as parameters remain within limits as displayed on IPCS ZZRCPBRG. Seal cooling still exists. D. RCP operation may continue as long as parameters remain within limits as displayed on IPCS ZZRCPBRG. All seal cooling has been lost." 4. Note: the reason it would not be recommended to simply insert the above first part of C. and D. into the Q as written now, is the LOCA in progress. Specifically, RCP trip criteria is so well-known that if the LOCA progresses to the point that a valid phase B occurs, it is much less plausible to keep the RCPs running. I.e., if the LOCA started out as a small enough SBLOCA that we didn't have to trip RCPs on the first pass through EOP-1.0/EOP-2.0, now the LOCA has gotten so big there's 12 psig into the RB—so the operators will be thinking shut down the RCPs even without the phase B actuation.
														S	Friday, October 14, 2011 1. Made the question into 2 by 2, good 2. SAT SAT
52	H	2-3												S	002 G2.2.44, New, Higher KA appears to match. Thursday, October 06, 2011 1. Second part of distractors A. and C. are weak, because no RWST level to be worried about is provided in the Q stem.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	2. Recommendation: keep the distractors as shown, modify the Q statement to read something like "Given the following plant conditions: -The crew is responding to a Faulted Steam Generator (S/G) -The S/G has blown dry -The crew has transitioned to EOP-1.2, SI TERMINATION -RCS pressure is increasing -RWST level is 40% and slowly decreasing **(licensee verify a good RWST level at this point)** -"A" charging pump is running -The crew has **<u>just</u>** secured the "B" charging pump Based on the given conditions, which ONE (1) of the following is the **<u>next</u>** required action, in accordance with EOP-1.2; AND why a reduction in SI flow should be done expeditiously?"
														S	Friday, October 14, 2011 1. Changed this to have just RWST is decreasing. 2. SAT
53	H	2-3												S	002 K5.14, New, Higher KA appears to match. Thursday, October 06, 2011 1. Potential issue is that the electronic references for EOP-4.0 rev 20 do not seem to have any steps that put in aux spray at steps 22 and 23 of EOP-4.0 (where the operators depressurize the RCS to refill pressurizer). However, there is a step at EOP-4.0 22.c.2) that closes PVT-8125? When would this valve ever be opened before this point in EOP-4.0? Is this a potential procedural error? Discuss with licensee. 2. This Q has overlap with a simulator JPM—applicants will be very familiar with steps 22 and 23 of EOP-4.0. 3. How is it plausible to put in aux spray if EOP-4.0 does not list that as an option at steps 22/23?
														E	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	4. Potential fix: put the operators in EOP-4.2 (i.e. step 27) in the fifth bullet of the Q stem. Maybe say something like "the operators are at the step to depressurize the RCS to reduce break flow in EOP-4.2, SGTR WITH LOSS…" Does the Q still work then—check with licensee? Since there is a chance to use aux spray in this procedure (EOP-4.2 vs. EOP-4.0), the plausibility issues are enhanced. Friday, October 14, 2011 1. Changed the starting point to EOP 4.2 at step 27. SATIFSACTORY
54	H	2												S	003 EA2.04, New, Higher KA appears to match. Thursday, October 06, 2011 1. Need to discuss with licensee the potential for first part of A. and C. to be correct—potential for C. to also be true. The provided distractor analysis for A. or C. does not discuss why primary to secondary leak flow has decreased is incorrect. 2. If first part of A. and C. can be shown to be incorrect, Q should be SAT. Friday, October 14, 2011 1. SAT. 2.
55	F	2												S	002 EK1.3, Bank, Knowledge KA appears to match.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	Thursday, October 06, 2011 1. Q is low discriminatory value, operators who saw the EOP-2.5 simulator scenario (and resulting simulator "freeze" issue) will be very familiar with this Q and the correct answer. 2. Distractor C. is not plausible. Is there any procedure in the Westinghouse EOP network where SI flow rates are used as parameters? Recommend modifying C. to be "RCS subcooling" 3. Q should be o.k. with modification.
														S	Friday, October 14, 2011 1. Fixed distractor C 2. SAT 3.
56	F	2												S	009 EK1.02, New, Knowledge KA appears to match Friday, October 07, 2011
														E	1. If the S/Gs are dry, answer choices to stop removing heat may be correct. Need to add S/G levels to stem of Q to ensure RCS-to-S/Gs coupled in order for reflux boiling to occur? Maybe add a bullet to state: "All S/G narrow range levels are approximately 50% and stable." 2. Steam binding is a phenomena normally associated with pumps, not U-tube S/Gs, making the second part changes to A. and B. suspect. Recommend "stop removing heat due to interruption of natural circulation." Ensure not too much overlap/potential double jeopardy with Q 53. 3. The time frame is also important in this Q, because if the hot legs are completely voided would reflux boiling be able to occur? Recommend modification to second Q statement as follows: "After RCS level decreases to the point that steam voiding has just begun to occur in the RCS hot leg…." Friday, October 14, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															1. Added all the recommendations. 2. SAT
57	H	2												E S	KA appears to match Friday, October 07, 2011 1. Potential overlap with Q 52, ensure we're not putting the applicant in too much double jeopardy. Should be o.k. 2. The fact that every distractor except C. deals with Both RHR pumps gives it weak plausibility. Recommend either changing C. to "Both RHR pumps were stopped to conserve RWST inventory," or potentially changing B. to read something like "ONE (1) RHR pump was stopped to align to charging pump suction," if you want to keep C. as written—this will improve the parallelism of the Q. 3. Recommend adding "in accordance with EOP-2.0 LOSS OF REACTOR OR SECONDARY COOLANT" to the end of the WOOTF statement to clearly identify the source of the correct answer. Friday, October 14, 2011 Satisfactory,
58	H	2												E	004 A2.01, Higher, New 1. KA appears to match. 2. Question uses much of the same information required to answer question 57.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	Friday, October 07, 2011 1. Q looks SAT. SAT
59	H	2				X								E	003 A1.2, Higher, New 1. KA appears to match. 2. For the choices give, "5% power level" could never be wrong. It is more severe than IR SUR positive, therefore without knowing anything else, if the SUR answer led to a red path, then the power range answer must too. Friday, October 07, 2011 1. Q still has a potential subset issue/multiple correct answers, because if Intermediate Range SUR is positive, wouldn't Source Range SUR be positive as well? 2. Recommend modifying the Q statement as follows: "WOOTF… and the **lowest** Intermediate Range SUR indication that will result in an ORANGE path on the Subcriticality critical safety function, in accordance with EOP-12.0, MONITORING OF CRITICAL SAFETY FUNCTIONS? A. End of Life 0.1 DPM and stable B. End of Life 0.2 DPM and stable C. Beginning of Life 0.1 DPM and stable D. Beginning of Life 0.2 DPM and stable" Friday, October 14, 2011 1. Used recommendation. 2.
														S	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
60	F	3												E S	E13 EK3.4, Knowledge, Bank KA appears to match Friday, October 07, 2011 1. This Q has overlap issues with SRO Q 94. 2. Need to understand the impact of the loss of instrument air header pressure—has it been long enough to bleed down MSIV accumulators and close all MSIVs? Issue is that if the condenser is "available," then EOP-15.1 step 8 alternate action would first have the operator locally operate steam dump valves before attempting to locally operate SG PORVs. 3. Distractor C is not plausible. Common knowledge that TDEFW pump has steam line sources from B & C S/Gs, not the A S/G. If the overlap issues can be resolved and it made clear that it has been a long-term loss of instrument air, changing distractor C. to say "Locally operate steam dump valves in all condenser sections to reduce affected SG pressure," may be a plausible candidate for replacing C. 4. Should delete "…based upon a yellow condition on the Heat Sink CSF status tree" as teaching in the stem; you can only get to EOP-15.1 on a yellow path. Friday, October 14, 2011 1. Changed no overlap issue. 2. MSIVs no accumulators 3. Removed teaching from the stem. 4. In C removed in each condenser section. To each condenser like the procedure. SAT
61	F	2												S	W/E15 EA1.3 get this from here. Friday, October 07, 2011 1. Distractor B. is a subset of correct answer A. A faulted SG

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															inside containment would be one of the unexpected sources of water. Therefore B. is a non-plausible distractor. 2. Potential recommendation for B.: "Evaluate ECCS system status to determine strategy to transition to cold and hot leg injection." to play off distractor D. Friday, October 14, 2011 1. Changed B to look like D. SATISFACTORY
62	H	2-3												E	022 G2.4.11, Higher, Modified 1. KA appears to match. 2. Using the word "Immediately" implies immediate action. Instead suggest using "which step will the AOP require first"? Friday, October 07, 2011
														S	1. Q was modified as requested in first 401-9. 2. Q is of low discriminatory value, but acceptable. 3. Q now appears SAT. Friday, October 14, 2011 SAT

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
63	F	2										X		E S	00024AK1.01 need to get this one from file. 003 AK1.01, Knowledge, New 1. KA slightly matches. 2. The question is NOT very discriminating. The candidates really do not need to understand the operational impact of the loss of RHR, the just need to know the max pressure and temperature that it can be put in service. A better question might put them outside one of the limits and have them determine that they cannot put it in service until they restore the parameter. Friday, October 07, 2011 1. Q was modified as requested in first 401-9. 2. Could be acceptable Q if source is provided for correct answer—i.e. design limits based on what document? Westinghouse Design Basis Document for RHR system? VC Summer FSAR? Etc. Once source is specified, recommend listing it as an "in accordance with…" at the end of WOOTF statement. 3. Q may be o.k. with modifications as requested Friday, October 14, 2011 1. Changed question based on the comment from NRC.
64	F	2-3												S E	076 K3.05,Knowledge, New 1. KA appears to match. 2. Answer is logical. Does not appear to be adequate procedural documentation to ensure only one correct answer. How long is RCS temperature expected to remain stable? Friday, October 07, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														S	1. Distractor B is non-plausible. How would the condenser still be available? Recommend slight modification to read: "Dump steam using S/G PORVs." Friday, October 14, 2011 1. Version two uses SG PORVs. 2. Changed B to use MDAFW to feel one SG and use that S/G to depressurization.
65	F	3										X		E	065 AA1.03, Knowledge, New 1. KA sort of matches. 2. KA is asking how to operate equipment when air is restored. In other words, what do you need to do prior to restoring air to ensure you don't damage the plant or cause another transient when you restore air. Valve switches may be placed in hard open or closed (or gagged open or closed) to prevent repositioning upon air restoration. This question appears to be written from a standpoint of operating without air vice operating while restoring air.
														S	Friday, October 07, 2011 1. Q was modified as requested in initial 401-9. 2. Q now looks SAT.
														S	Friday, October 14, 2011 Validation identified that it was a gaging handwheel so had to change the stem to a valve that needed to be ungagged.
66	F	2				X								E	079 A4.01, Higher, New 1. KA appears to match. 2. Answer C is NOT plausible. Why would service air isolate before the backup compressor started?

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	Friday, October 07, 2011 1. Q modified as requested in initial 401-9. 2. Q now looks SAT. Friday, October 14, 2011 1. Not higher level of knowledge otherwise ok. 2. SAT
67	F	2-3												S E S	059 G2.4.11, Higher, Bank 1. KA appears to match. 2. Consider asking which AOP would they enter and what is the first action that would be taken. 3. Is it certain that manually controlling all three FRVs cannot cause SG levels to rise? Friday, October 07, 2011 1. Distractor A. is still potentially correct. For the given plant conditions, operators would meet entry conditions for AOP-210.1 and A. is the first immediate operator action of AOP-210.1. Also, use of the word “all” in distractor A. is a giveaway word. 2. If agreement can be reached that A. is clearly technically incorrect, recommend changing A. to read “take feed reg. valves to manual for the affected S/Gs.” 3. If A. is not clearly incorrect, recommend development of new distractor to replace A. Would it be plausible to start additional condensate pumps or feedwater booster pumps? Friday, October 14, 2011 1. Changed A to start feed water booster pump. 2. Changed the stem . see final exam for changes. 3. Sat SAT
68	H	3												S	077 AK3.02, Higher, New 1. KA appears to match. Friday, October 07, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															1. Unsure about higher cognitive, Q can be answered via simple recall of AOP-301.1 CAUTION/first step. Should be Fundamental LOK. 2. Recommend adding "Based on the given conditions, …" to the WOOTF statement. 3. Otherwise Q looks SAT. Friday, October 14, 2011 1. SAT SAT
69	F	2												E S	059 AK1.01, Knowledge, New 1. KA appears to match. 2. If this is knowledge that the operators are expected to memorize, it is OK. However it is not very discriminating. Specific to plant. Friday, October 07, 2011 1. What microcuries/gm setpoint would correspond to a full Condensate Storage Tank? i.e. check to ensure A. and B. are incorrect. 2. As mentioned in first 401-9, not very discriminating; however, if above concern is resolved Q should be SAT. Friday, October 14, 2011 1. SAT as is, need to know spec. SAT
70	F	2												S	058 G2.2.36 Higher, New 1. KA appears to match. 2. Memorization. No higher level ability required. 3. Not very discriminating. Any person knowledgeable of PWR operations could answer. Friday, October 07, 2011 1. Q should be SAT.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															Friday, October 14, 2011 sat
71	F	2				X								S	003 3.01, Higher, New 1. KA appears to match. 2. Stopping dilution within 1 hour is part of the material below the line. ROs do not need to know this information. This makes these distracters very weak. Recommend using be in cold shutdown within 12 hours as a better distracter.
														E	Friday, October 07, 2011 1. Potential subset issue—if second part of distracters B. and D. were correct, second part of distracters A. and C. are also correct. 2. Also need to add “with no operator action” to the Q statement? Because FCV-122 is in MANUAL… 3. Potential fix for this issue would be to change WOOTF statement to read: “Which ONE(1) of the following describes an expected parameter trend if the running RHR pump trips with no other operator actions, and the required action as stated in Technical Specifications?”
														S	Friday, October 14, 2011 1. Fixed the subset issues. 2. Added with no operator actions to the stem. SATISFACTORY

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
72	F	2												U S	017 AK2.10, Knowledge, New 1. KA matches somewhat. 2. Memorization. No higher level ability required. 3. Not very discriminating. Memorization of the trip setpoint and a basic understanding of reactor physics that any nuclear professional should have. Friday, October 07, 2011 1. This Q has multiple subset issues. As written D. is a potentially correct answer along with C. Second part of A. and B. are not plausible because they would allow operators to restart a RCP at 100% power (current MODE is MODE 1), and because if the second part of A. and B. are true, then the second part of C. and D. are also true. 2. 311 degrees is also not plausible because it's too high—seal return would be superheated at this temp? (return flow at VCT pressure?) 3. Q as written is UNSAT due to the above issues. 4. Potential fix/recommendation: (delete the Given… and the bullets) In accordance with SOP-101, REACTOR COOLANT SYSTEM, which ONE (1) of the following correctly identifies: 1) The **lowest** seal water outlet temperature at which a RCP **must** be stopped. 2) The **highest** MODE in which a RCP can be restarted after the cause of the high temperature is corrected? A. 1) 195 F 2) MODE 3 B. 1) 195 F 2) MODE 4 C. 1) 235 F 2) MODE 3

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
															D. 1) 235 F 2) MODE 4" Friday, October 14, 2011 Followed all recommendations. SAT
73	H	2				X								S	003 AK1.21 Higher, New 1. KA appears to match. 2. Not very discriminating. Bases for the plausibility of AFD being within the band is that the candidate must know that the surveillance requires 2/4 to be outside the band to be considered outside the band. Given that it is easy to see that two NIs are outside the band, the average person with no knowledge would declare it out. A more discriminating question would have three inside and one outside.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														E	Friday, October 07, 2011 1. Q was not changed given the recommendation of the first 401-9. As written, first part of Q is essentially a direct look-up on the 100% power line (points given on the provided reference). Therefore, with two values outside the acceptable region, plausibility of first part of A. and C. is weak. 2. Recommend changes to delta flux indications as follows: Before the Drop / After the drop N41 -4.4% / -3.6% N42 -4.4% / -5.7% N43 -4.4% / -9.1% N44 -4.4% / -6.8% 3. Recommend changing the second half of the Q statement to "The BOP is required to maintain Tavg within a **maximum** of _____ of Tref, in accordance with AOP-403.5, STUCK OR MISALIGNED CONTROL ROD." 4. If the above changes are made, C. is the new correct answer. 5. Q should be ok with modifications. Friday, October 14, 2011 1. Sat as changed, it is a little different but ok
74	F	2												S	2.2.35, Knowledge, New KA appears to match Friday, October 07, 2011
														E	1. K_eff values up to 0.99 are not plausible. How could you ever refuel at that value? Recommend making one first part choice

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			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	"less than or equal to 0.90" and the other "less than or equal to 0.95" Temperature choices in the 2x2 are ok. 2. Another potential enhancement to WOOTF statement: "WOOTF … that can exist when the **first** Rx Vessel head bolt is detensioned in accordance with Technical Specifications?" Friday, October 14, 2011 1. Changed from 0.99 to 0.90, changed less than or equal to . 2.
75	F	3												S S 	003 2.2.37, Knowledge, Bank 1. KA appears to match. 2. Memorization. Plant specific. Friday, October 07, 2011 1. Q appears to be SAT. Friday, October 14, 2011 1.
SRO ONLY Questions															

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
76	H	3												E	017 AK2.10, Knowledge, New 4. KA matches somewhat. 5. Memorization. No higher level ability required. 6. Not very discriminating. Memorization of the trip setpoint and a basic understanding of reactor physics that any nuclear professional should have. Friday, October 07, 2011 5. This Q has multiple subset issues. As written D. is a potentially correct answer along with C. Second part of A. and B. are not plausible because they would allow operators to restart a RCP at 100% power (current MODE is MODE 1), and because if the second part of A. and B. are true, then the second part of C. and D. are also true. 6. 311 degrees is also not plausible because it's too high—seal return would be superheated at this temp? (return flow at VCT pressure?) 7. Q as written is UNSAT due to the above issues. 8. Potential fix/recommendation: (delete the Given… and the bullets) In accordance with SOP-101, REACTOR COOLANT SYSTEM, which ONE (1) of the following correctly identifies: 1) The **lowest** seal water outlet temperature at which a RCP **must** be stopped.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	2) The **highest** MODE in which a RCP can be restarted after the cause of the high temperature is corrected? A. 1) 195 F 2) MODE 3 B. 1) 195 F 2) MODE 4 C. 1) 235 F 2) MODE 3 D. 1) 235 F 2) MODE 4”

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
77	H	2										X		U	W/E16G2.4.30, New, Higher, 1. Depending on the other questions, the reference provided should be the entire EAL matrix. This way the applicant at least has to find the section necessary to answer the question. IF ONLY the page that is associated with each question is provided then the question becomes a look up for only that item on that page. Suggest the entire EAL Matrix be provided, unless it helps answer other questions on the exam (RO or SRO) 2. An event occurred that increased (raised) the readings… Not sure it is necessary to say significant. Also, reading should be plural, readings. And at the end of the second bullet add the word "respectively." 3. KA does not match, reporting to agencies internal or external, not done, only classification is done. Not notification. Repair or replace Wednesday, September 28, 2011 1. 1. Replacement question. New Lower, 2. Distractors C is NOT plausible, the stem of the question does not provide any substantive information concerning the information that would require the identification of offsite dose projections. While the question analysis states that the INITIAL notification does not require the offsite dose projection, the question in the stem does not provide any information that would be used to do this. Additionally, the stem states offsite radiation is normal. 3. Distractor D is NOT plausible. This new question still warrants an evaluation of a U. Thursday, October 13, 2011 1. Changed to a 2 by 2 format.
														U	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														U	2. Event prognosis and estimated release duration was used. 3. Stem has a radiation monitor that needs to be changed because there is a 309 that needs to be removed from the rad monitorl RMG-7 needs to be changed. ***** 4. Fission product matrix is used. 5. PM states remove the 1 hour. Added note to the make sure that the ED JUDGEMENT is NOT used. 6. ****** still have to ensure that RMG-7 nomenclature is corrected.
78	F	2				X								U	G2.2.25, New, Lower, 1. Distractors with run out are not plausible A and C. This is a system knowledge item that is covered by everyone, not just SRO knowledge. 2. The 13 gpm value listed in the question in C and D are also not valid. In that, what or where does this number come up that would cause the operators to think it is plausible? Additionally, what did the results of the validation see for this question? Anyone pick anything but the correct answer? Did anyone pick D? or C? If not these most likely are not valid answers and not plausible. 3. Asked G. Laska concerning the evaluation of the question. He agrees. Thursday, September 29, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														S	1. Question was UNCHANGED. The above evaluation still is valid. Question is still a U. Thursday, October 13, 2011 1. The new question still has subset issues. B and D can be also correct. Subset issues. Changes to this are necessary so it is bounded. 2. Change maximum of 33 and a maximum of 39. This was changed during this meeting. 3. JL asks what part is the SRO? 4. Had to change to maximum of vice less than. This included a less than 13 which would also be 33 gpm. 5. Also changed distracters to add during the design basis LOCA. 6. Changed pump to RCP. Question is satisfactory.
79	H	2											X	U	000062AA2.03, New, Higher, 1. In the stem of the question, the “A” EDG is listed this way and A EDG. With or without quotes. Pick a standard for all questions and do it the same. 2. This information while in the basis of TSs, is not SRO ONLY knowledge. 3. Question needs to be re-written to be at SRO level. 4. Verified with G. Laska to ensure it was NOT SRO ONLY, he

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	agrees. Thursday, September 29, 2011 1. Replacement question. New Lower. 2. Attempting is misspelled in the last bullet in the stem. 3. Suggest to put a comma after the first line in each distractor, this will separate the answers 4. KA appears to match 5. Otherwise, this appears to be OK. --- -How is Q lower cognitive? Should be higher cog based on evaluation of plant conditions, operability call required, etc.? Thursday, October 13, 2011 SATISFACTORY

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ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
80	H	2-3												U	00025AA2.04, New, Higher, 1. Use of period in bulleted area, one has all rest do not have periods 2. Question is NOT SRO ONLY. Systems knowledge can answer this without any knowledge of the procedure. 3. The procedure is provided so the SRO does not have to identify what procedure to handle this in. 4. The PZR level is not described sufficiently, uncontrollably, is not good enough to evaluate. 5. The stem TELLS the applicant that there is an indication of a LOSS of inventory. Why not use that instead of teaching that. Don't tell the applicant what is going on. 6. G. Laska reviewed for verification of NOT SRO ONLY, he agrees. 7. KA appears to match. Thursday, September 29, 2011
														U	1. NEW, LOWER, current question was MODIFIED from 45 day submittal. 2. Question should NOT ask how operators would use, but how the SRO would direct! This would be a better indication of what we are asking the applicant to figure out. Discuss this with licensee. This is an enhancement. 3. This question while closer to the requirements of an SRO question is low level. 4. KA appears to match, not really close but close enough. 5. The question appears to be more common sense and can be answered with that. The first part is basic knowledge. The subcooling is decreasing and this will need to be fixed by being in the injection mode. 6. Why would anyone select distractors C and D with LOCA OUTSIDE CONTAINMENT? This does not seem plausible. Discuss with the licensee. WHY would an applicant pick these? 7. In the analysis, it is stated that EOP 2.5 will NOT be entered from mode 4. Need to understand this and why it is plausible. 8. Matches KA 9. Still considered a U because of the procedure selected. Thursday, October 13, 2011

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	1. New question 2. Changed wording of initial conditions. 3. Changed PZR level that has level go from 60 to 30 in the time frame and do they enter 112.2, loca during mode 4. 4. Leak needs to be greater than the capacity of the CCP. Does the 60 to 30 do this? 5. Changed the time to 0415,
81	H	2-3												U U ??	086A2.01, New, Higher, 1. Question is trivial. 2. Question can be salvaged by, removing in the stem not reset in the second bullet. It should read the pump has been shutdown and the (whatever the switch is called is) either OFF. Do not say it was reset. 3. This question is not SRO ONLY. The only part is the timeframe for which to return to operability. 4. What is the difference between a roving fire watch or a continuous fire watch? I believe they are the same. 5. Discussed with BC M. Widmann and G. Laska both believe the question is NOT SRO ONLY. Thursday, September 29, 2011 1. The licensee changed the question as discussed in # 2 above. However, the information provided does not appear to be correct. How is the switch labeled? Is there an AUTO position on the switch? If there is, then the switch was taken from the AUTO to OFF/RESET. Not the ON position. Discuss with licensee. 2. The distractors A and B are not credible. Why would anyone that is trained call something OPERABLE and then have a compensatory measure for it being OPERABLE. 3. Discuss with licensee Thursday, October 13, 2011 New question and will be discussed later,

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															Also, MM provided a NEW KA Friday, October 14, 2011 New ka provided by MM. 0002A2.04 New question is SAT. See exam for new test item.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
82	H	3												U	000007EG2.4.34, New, Higher, 1. Need to add the noun name of procedure AOP-600.01, 2. NOT SRO ONLY, this question requires an operator to determine if when transferring control of a pump to the Control Room Evacuation Panel (CREP) is Operable or Inoperable. This knowledge is not just the SROs in this case. The RO is taught this and should know this for control of the pump as well as if it was not swapped to the local area for control. 3. The second part of the question concerns itself with the requirement of starting room coolers when starting equipment. This is a system requirement and the RO is taught this also to prevent failure of the equipment. 4. KA does NOT match. The KA was supposed to be written during a situation of Reactor-Trip Stabilization and Recovery, performed OUTSIDE the MCR during an emergency and the resultant operational effects. While this is OUTSIDE the control room it is not during a reactor trip…. Thursday, September 29, 2011 1. This question was inserted into the examination at this point. 000007EG2.4.34, New, Higher, is the new question 7 or SRO 82 this questions was the # 9 in the first submittal. 2. AOP 600.1 at step 6 states 6 Attempt to start the Diesel Generator by depressing the ENGINE SHUT DOWN RESET Pushbutton Is this the step the analysis is talking about? Will this work in this case? Ask licensee to explain how this works. Stem of the question should ask what procedure to use and then what action the procedure should direct. For example, the answer should now read: AOP 600.1, Control Room Evacuation, start the "B" EDG. Now the stem does not identify the procedure is being asked. It starts with the action then a procedure. Also, it does not identify where the operator is going to operate MVT-8104. Discuss with licensee. Enhancements----------Additional comments on 007EG2.4.34 as submitted in "2011 NRC SRO Test 2nd Submittal" -need to ensure operators are in correct procedure—could 'A' be correct? Or, once 'B' EDG is started as per choice 'D,' based on the note before steps 12-19 of AOP-600.1 would 'A' not also be correct? -stem should probably state reason why control room was evacuated, otherwise FEP-4.0 could be the right procedure. -not sure about operational validity—from AOP-600.1 step 12.d. Alernative Action, wouldn't operator emergency borate with AOP-

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
														U	
														S	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
83 OLD	H	2-3										X		U	063A2.02, New, Higher, 1. KA does NOT match. The second part of the KA was not tested. It is required to test the (b) part of the KA when there is a two part KA. The (b) part required the question be written to use procedures to correct, control or mitigate. This question does not do this. This question only identifies the generation of Hydrogen or Sulphuric acid vapors. Has nothing to do with procedure that will correct etc. .This makes this question unsat. Thursday, October 13, 2011 1. SAT
At this point, the licensee submitted the Second submittal. This second submittal the numbers and KAs for each question was changed. Not sure why. As licensee why this was done. Starting with question 82 the KAs were swapped.															
83 NEW	H	2												S	063A2.02 Thursday, September 29, 2011 1. KA 063A2.02, was number 10 in submittal # 1, (S1) now it is question number 8 in Submittal # 2 (S2) 2. S1 it was higher new and now it is lower new. 3. In stem put quotes around XVA1A and commas as appropriate. i.e. “A charge of “A” Battery, “XBA1A,” is in progress.” This will make this read better. 4. KA appears to match 5. The stem is a little confusing concerning the lifting of the lead and then the requirement to continue or recommence the charge. Has the charge ever been stopped because of the fans being found off? Ask licensee if this is important or not. 6. Otherwise appears to be ok. Thursday, October 13, 2011 1. Changed 14 days to 96 hours. 96 hours, nuisance annunciators, can open a link from 48 to extend the open to 96 hours. What was wrong with 14 days. Operations does nothing in 14 days.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
															2. Changed back to 14 days. SAT QUESTION.
84	H	3				X								E S	012A2.01, New, Higher, Summer Thursday, September 29, 2011 Question was changed from S1 1. Distractor D identifies just to SHUT down the reactor, however, A and B identify to be in HOT STANBY, this keys the applicant that D is not totally correct, in that, the MODE is NOT listed. I believe that this makes this distractor not plausible. 2. For distractor A and B, is this plant terminology, "Initiate Measures …." Prepare for plant shutdown by XXXX to Hot Standby by XXX. 3. When the stem states asks for the MINIMUM action, does that mean the shortest action? Discuss with the licensee. 4. KA appears to match, this is a TS question, need to make sure that we do not have too many for the A2 KAs. 5. The distractors could be made such that the first two have the BS trip times added to the end of the statements and then have the opposite where the BS are tripped as in Distractor D and then have the reactor down power done to hot standby. This would alleviate the unsymmetrical distractor part of C. Discuss with licensee. Thursday, October 13, 2011 1. NEW FORMAT and 2 x 2 question. 2. SAT

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
85	H	3				X								U S	Thursday, September 29, 2011 039G2.4.11, New, Higher, 1. Question was NOT changed from S1 to S2. 2. Question concerns itself with TS evaluation. We need to be careful with the use of TS questions. There were a lot before and we may exceed or emphasis on TSs. 3. This question, needs a reference because it is greater than an hour. If the reference is presented, then the question as is written this would make it a direct look up. This makes the questions unacceptable. 4. Main and reheat steam, could have used ARPs and maybe with a PORV that had failed open, maybe there could have been a reportability call to make, i.e. an SRO ONLY type question. How long, who to call. 5. As the question is not Sat because of the call of TS greater than 1 hour, information not required to be memorized by operators. 6. Also in the stem could shorten action or actions by using action(s). IF the licensee validates that this knowledge is REQUIRED for the SRO, then this question could be Satisfactory. Discuss with licensee. Thursday, October 13, 2011 1. NEW question, suggested by MM. 2. New question will require TS 3.7.1.2, 78 hours, 3 days plus 6. 3. REFERENCE will be provided. SAT

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
86	H	2												U	00027AA2.01, New, Higher, Thursday, September 29, 2011 1. Question was re-written from S1 to S2. Minor changes to make consistent with other questions. 2. Analysis of the answer A states procedure step 10 a. however in EOP 1-2, this step is not the requirement for subcooling margin being greater than 52.2 F. This is in the foldout page but not in step 10a. Have licensee identify where this comes from. 3. Do not understand What the stem is asking, PZR level greater than the SI termination criterion is expected for this event and whether other conditions are met to transfer to EOP 1.2. have the licensee explain what this is asking. 4. KA appears to match question --- Additional comments on 027AA2.01 as submitted in "2011 NRC SRO Test 2nd Submittal" -not sure about SRO-only match on procedure selection, operators are not selecting a procedure but only staying in current procedure. Would it be better to ask expected procedural flowpath (i.e. E-1 to ES-1.2, then ES-1.3) or give four-choices of procedures with some additional info in stem? E.g. choose between staying in E-1, going to ES-1.2, going to ES-1.1, or going to ES-1.3 (WOG

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	designators). Otherwise Q is potential RO-level knowledge of SI Termination criteria (e.g. subcooling value is foldout page item). -careful about teaching in answer choices—"subcooling is too low" should be "subcooling not met," etc. Thursday, October 13, 2011 1. Replaced. 2. Replacement ok. SAT
87	H	3												S	000056EA2.06, New, Higher, Thursday, September 29, 2011 1. This question is the new number 12, but corresponds to the old # 15. 2. Question was made into a two part question/answer. 3. Question appears to be ok. 4. KA appears to match
														S	Thursday, October 13, 2011 1. Changed the graphic from 5% to 2%. Changed this because as soon as the SI pump is started it would or could be secured. SAT.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
88	H	3												E S	076A2.01, New Higher Monday, October 03, 2011 1. In the stem of the question, the Loop is identified with parenthesis. However, the last bullet the A train, should be the same "A" train. Also there is one extra space in the last bullet between Pump and is. 2. SW is not defined until the first question. 3. In the second question in the stem there is a missing period. 4. The First question, should not be an "AN", it should be an A. Would recommend that this be re written to something like: • Due to the "A" Service Water pump failure this caused the ….. 5. What is the status of the "C" Service Water pump at this time? Per the figure provided for the start logic (Figure IB1.6), shouldn't the "C" service water pump auto-start on low header pressure? If the pump is running, the answer choices may be different. 6. As currently written, first part of distracters C. and D. are weak. Recommend changing first part of C. and D. to "The "A" Motor-Driven Emergency Feedwater Pump is OPERABLE." Thursday, October 13, 2011 1. Rewrote question in 2X 2 2. Appears to do all the above, SAT.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
89	H	3				X								U	K/A 103G2.4.18 NEW HIGHER Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Q statement needs to specifically reference the EOP; for example, "Which ONE (1) of the choices below is correct in accordance with EOP-2.4?" 3. Second part of distracters C. and D. is not plausible. RWST would have to gravity drain through the RB spray header rings against a 40 psig differential pressure. 4. Need to lower RWST level to make securing a RB Spray pump more plausible—30% level is above the 18% setpoint to go to cold leg recirculation. 5. Question is U due to more than one non-plausible distractor. Thursday, October 13, 2011 1. Wants to keep rwst level at 30%, 2. Changes the pressure of containment to 32 psig rather than 40 psig. 3. SAT with changes to C and D, see question for change.
														S	
90	H	3						X						E	K/A 011G2.4.21 NEW HIGHER Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Operational validity/stem content: how would any SRO be

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	entering a YELLOW path procedure 15 minutes after a LBLOCA? Must increase the time frame to be operationally valid. Did increase comment. 3. Stem needs to provide all criteria for critical safety path evaluation—for example, needs to include intermediate range power and startup rate values, containment pressure values, and RHR sump level values. Thursday, October 13, 2011 1. SAT SAT
91	H	3												E	G 2.2.38, Bank, Higher. 1. Question appears to be within the SRO knowledge requirements. 2. KA appears to match. 3. Question is kind of easy, not trivial but it does not require much cognitive skills to answer. 4. Why is the answer 92 days, is that the time frame you use for a Quarter?. 5. The description for the analysis for distractor A is incorrect. TS 4.0.3, allows up to 24 hours, so why is that not the reason for A rather than the applicant's miss-reading quarterly as Shiftly? That does not make sense. K/A G2.2.38

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	NEW HIGHER Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Fourth bullet needs to explicitly match the language in the TS 4.0.3 for completing a risk assessment. For example, "A Risk Evaluation has been performed for the surveillance, and has concluded that the risk associated with the delay of the surveillance is **minimal**." 3. For the distracters, need to specify time limit from the time of discovery; for example: A. Within the next 24 **hours** from time of discovery B. Within the next 23 days from time of discovery C. Within the next 92 days from time of discovery D. Within the next 115 days from time of discovery" Friday, October 14, 2011 1. Question was replaced. See exam for question. 2. Presented question with word shiftly, GL states not terminology 3. Question is SAT.
92	F	3										X		U	072A2.03, New, Knowledge. 1. When a KA has a two part K or A if the question cannot be written to the part (a) and (b) then the goal is to write the question using the SRO portion of the K or A, meaning the (b) part of the KA. This question does not meet the (a) part, it does not predict the impact. There is no justification why the (a) was not written in this question. 2. Procedures to correct. Part (b), this is a 30 day action, the questions indicates INITIAL action required if the power supply fails. There is no INITIAL action in any of the distractors. 3. The RM used in distractors C and D, RM-A4, would, if in service, alarm for ANY leak. 4. As written, this question is unsat 5. Is the SRO required to know 14 day and 30 day TSs from

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	memory? Ask licensee, this seems unreasonable K/A 072A2.03 LOWER Monday, October 03, 2011 1. Q is essentially unchanged from initial submittal. 2. Distractor "A" is potentially another correct answer. 3. Q is still U 4. Making the applicants recognize instruments that may or may not be in TS. Is this something you expect? Items are 7 days, 72 hours?? Ask licensee. Friday, October 14, 2011 1. New KA provided by MM. 034K3.02 2. See new question, modified slightly from what was provided.

Generic Comment: in two-part questions, it is better to indent the (1) and the (2) parts of the question statement (offset from the "Which ONE of the following") for readability.

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
93	F	2												U S	K/A 028G2.1.27 Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Last bullet for temperatures needs degrees Fahrenheit (F) after the degree symbol. 3. Recommend modification to question statement as follows: "Based on the initial conditions, which ONE (1) of the following is correct in accordance with EOP-14.0? did (1) How many hydrogen recombiners will be started? (2) What is the **next** procedure transition?" 4. When would operators ever start both Hydrogen Recombiners at the same time? First part of distracters C. and D. are not plausible. 5. Recommend potential fix for first part C. and D. to say "No recombiner will be started." 6. Correct spelling error for "Guideline" in all choices. 7. Q is U due to two non-plausible distracters. Thursday, October 13, 2011 1. Changed as suggested. 2. SAT Satisfactory

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
94	H	3												U	K/A WE13EA2.2 Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only level. 2. Distractor B. is not plausible because all MSIVs are closed, why would you dump steam from the B&C steam generators when you had an option to use A? (distractor A.) Also it is not clear whether "dump steam" infers using steam dumps or steamline PORVs. 3. Distractor D. is not plausible because there is not physical steam supply from the A S/G to the turbine driven EFW pump. 4. Q is U due to two non-plausible distracters. 5. Need to move the last bullet ("Operators have entered EOP-15.1, STEAM GENERATOR OVERPRESSURE") to bullet number three. 6. Potential fix/recommendation: "Based on the given conditions, which ONE (1) of the following is the procedure and the action the CRS will direct? A. Remain in EOP-15.1, STEAM GENERATOR OVERPRESSURE, and dump steam from "A" Steam Generator steamline PORV. B. Remain in EOP-15.1, STEAM GENERATOR OVERPRESSURE, and initiate blowdown from the "A" Steam Generator. C. Transition to EOP-15.2, STEAM GENERATOR HIGH LEVEL, and dump steam from "A" Steam Generator steamline PORV. D. Transition to EOP-15.2, STEAM GENERATOR HIGH LEVEL, and initiate blowdown from the "A" Steam Generator. (new correct answer)

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	Thursday, October 13, 2011 1. Followed recommendations. \ 2. 2/2 format. Satisfactory
95	H	3												E	K/A WE08G2.4.21 NEW HIGHER Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only 2. Valid with respect to physics and thermodynamics? RCS and RB pressures are matched—is there a LBLOCA in progress as

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	well as the steam line break? 3. Delete "30 minutes ago" from first Q statement. Again, do not believe conditions would be established as stated in 30 min timeframe. 4. Distractor D. is not plausible, Recommend changing to "Remain in EOP-3.1, UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS." 5. Change question statement to read: "WOOTF identifies the procedure the CRS will direct the crew to implement to effectively mitigate this condition?" Friday, October 14, 2011 1. New question, did not follow the above recommendation. 2. Changed from what was presented slightly, see question for new sat question. SAT
96	F	2												S	K/A G2.3.14 Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Q is SAT. Friday, October 14, 2011 1. The licensee wants to change this question based ONLY on the results of the everyone FAILED. Initially this question was validated by 2 SROs and was not an issue. The question was revalidated again because there were 5 individuals who Question would not be justifiable. The OLD version will be used.

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
97	F	2												E S	K/A G2.3.12 Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Q is SAT as submitted . Tuesday, October 04, 2011 When is the RB Charcoal Clean up unit energized? Licensee needs to identify. This is from OAP 108.1 **b. Determine if operation of four RBCU's (fast speed) per SOP-114 should be performed in order to increase stay times for teams entering containment.** Why is D not also correct? Distractor C appears to be not plausible. Need to clarify or identify a special case for entering the RB and then Key off of that. Discuss. Thursday, October 13, 2011 1. ADDED in stem a DAC reference to make C more plausible, 2. Changed D to slow speed. 3. SAT Satisfactory.
98	H	2												S	K/A G2.1.4 Monday, October 03, 2011 1. Q appears to match K/A. Q appears to be SRO-only. 2. Remove “to regain SRO proficiency” from distractor D. Thursday, October 13, 2011 SATISFACTORYs

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
99	F	2-3												U s	G 2.1.3, New, Lower 1. KA appears to match 2. Distracters C and D are not plausible. The situation for a reactor start up NO distractions would occur and therefore implausible. This makes the SRO functions trivial, there is no instance where an operator would select these. 3. Recommendation Knowledge between long and short term turnovers. Use the 2 by 2 format to identify 2 items from each or something that is unique to the short and not to the long. Thursday, October 13, 2011 1. NEW QUESTION 2. OK SATISFACTOY
100														U	2.4.37, VCS CLOSED, Lower, 1. KA does NOT match, SRO ONLY, trivial knowledge 2. The answers for the second part are not really answered by the answers in the distracters. For example, what happens if the TSC is not manned but the ED takes command from the IED? Should the question ask when is the IED relieved from his duties? There is some information needed to the stem of the question. Recommendation:

VC Summer 2011-301 Examination

ES-401, Rev. 9 **Written Examination Review Worksheet** **Form ES-401-9**

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only		
														S	1. The ED declares that the cross connection of 1DA and 1DB is necessary for the protection of health and safety of the public. This would then help in the decision for the SS to comply with the cross connection of the power supplies. There is a lot of information not identified that should be here. 2. The reference provided is associated with the EOP users Guide. The KA is the lines or authority during implementation of the EPlan. These are different. Thursday, October 13, 2011 1. SUGGESTED REPLACEMENT, DID NOT LIKE. VERY SIMPLE. Changed second part for the new question. Not ready yet.

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility:	VC Summer	Date of Examination:	May 2010

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	CRA	N/A	BM
	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.	CRA	N/A	BM
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	CRA	N/A	BM
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	CRA	N/A	BM
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	n/a	n/a	n/a
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	n/a	n/a	n/a
	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.	n/a	n/a	n/a
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	n/a	n/a	n/a
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	n/a	n/a	n/a
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	n/a	n/a	n/a
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	N/A	N/A	N/A
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	CRA	N/A	BM
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	CRA	N/A	BM
	d. Check for duplication and overlap among exam sections.	n/a	n/a	n/a
	e. Check the entire exam for balance of coverage.	n/a	n/a	n/a
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	CRA	N/A	BM

	Printed Name/Signature	Date
a. Author	Craig Kontz	2/17/09
b. Facility Reviewer (*)		
c. NRC Chief Examiner (#)	BRUNO CABALLERO / B. Caballero	2/13/09
d. NRC Supervisor	MALCOLM T. WIDMANN /	02/17/09

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

This outline (written only) provided to licensee in Feb 2009 for early start on development. BM

ES-401 **PWR Examination Outline** **Form ES-401-2**

Facility: **VC Summer** Date of Exam: **May 2010**

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

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

ES-401 PWR Examination Outline Form ES-401-2
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		R				S	R: EK2.03 S: EG2.4.34	R3.5 S4.1	
000008 Pressurizer Vapor Space Accident / 3				R			R: AA1.05	R3.4	
000009 Small Break LOCA / 3	R						R: K1.01	R4.2	
000011 Large Break LOCA / 3						S	S: EG2.4.21	S4.6	
000015/17 RCP Malfunctions / 4		R					R: K2.10	R2.8	
000022 Loss of Rx Coolant Makeup / 2						R	R: AG2.4.11	R4.0	
000025 Loss of RHR System / 4	R				S		R: AK1.01 S: AA2.04	R3.9 S3.6	
000026 Loss of Component Cooling Water / 8			R				R: AK3.02	R3.6	
000027 Pressurizer Pressure Control System Malfunction / 3					S		S: AA2.01	S3.8	
000029 ATWS / 1		R					R: EK2.06	R2.9	
000038 Steam Gen. Tube Rupture / 3					R		R: EA2.04	R3.9	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4				R			R: EA1.2	R3.6	
000054 (CE/E06) Loss of Main Feedwater / 4						R	R: AG2.1.31	R4.6	
000055 Station Blackout / 6					R		R: EA2.06	R3.7	
000056 Loss of Off-site Power / 6			R			S	R: AK3.02 S: AG2.1.19	R4.4 S3.8	
000057 Loss of Vital AC Inst. Bus / 6					R		R: AA2.12	R3.5	
000058 Loss of DC Power / 6						R	R: AG2.2.36	R3.1	
000062 Loss of Nuclear Svc Water / 4					S		S: AA2.03	S2.9	
000065 Loss of Instrument Air / 8				R			R: AA1.03	R2.9	
W/E04 LOCA Outside Containment / 3	R						R: EK1.3	R3.5	
W/E11 Loss of Emergency Coolant Recirc. / 4									
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
000077 Generator Voltage and Electric Grid Disturbances / 6			R				R: AK3.02	R3.6	
K/A Category Totals: (RO)	3	3	3	3	3	3	Group Point Total:		18/6
(SRO)					3	3			

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									
000003 Dropped Control Rod / 1	R						R: AK1.21	R2.7	
000005 Inoperable/Stuck Control Rod / 1									
000024 Emergency Boration / 1									
000028 Pressurizer Level Malfunction / 2		R					R: AK2.03	R2.6	
000032 Loss of Source Range NI / 7					R		R: AA2.03	R2.8	
000033 Loss of Intermediate Range NI / 7									
000036 (BW/A08) Fuel Handling Accident / 8					R		R: AA2.03	R3.1	
000037 Steam Generator Tube Leak / 3									
000051 Loss of Condenser Vacuum / 4									
000059 Accidental Liquid RadWaste Rel. / 9	R				S		R: AK1.01 S: AA2.03	R2.7 S3.6	
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / 8									
000068 (BW/A06) Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5									
000074 (W/E06&E07) Inad. Core Cooling / 4									
000076 High Reactor Coolant Activity / 9									
W/EO1 & E02 Rediagnosis & SI Termination / 3						R	R: EG2.2.44 (W/E02)	R4.2	
W/E13 Steam Generator Over-pressure / 4			R		S		R: EK3.4 S: EA2.2	R3.1 S3.4	
W/E15 Containment Flooding / 5				R			R: EA1.3	R2.8	
W/E16 High Containment Radiation / 9						S	S: EG2.4.30	S4.1	
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7									
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08; W/E03 LOCA Cooldown - Depress. / 4									
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4			R				R: EK3.4 (W/E10)	R3.4	
BW/E13&E14 EOP Rules and Enclosures									
CE/A11; W/E08 RCS Overcooling - PTS / 4						S	S: EG2.4.21 (W/E08)	S4.6	
CE/A16 Excess RCS Leakage / 2									
CE/E09 Functional Recovery									
K/A Category Point Totals: (RO)	2	1	2	1	2	1	Group Point Total:		9/4
(SRO)					2	2			

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)											Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump					R							R: K5.04	R3.2	
004 Chemical and Volume Control				R				R				R: A2.09 R: K4.07	R3.0 R3.0	
005 Residual Heat Removal			R			R						R: K3.01 R: K6.03	R3.9 R2.5	
006 Emergency Core Cooling									R			R: A3.01	R4.0	
007 Pressurizer Relief/Quench Tank										R	R	R: A4.10 R: G2.4.18	R3.6 R3.3	
008 Component Cooling Water							R					R: A1.01	R2.8	
010 Pressurizer Pressure Control										R		R: A4.01	R3.7	
012 Reactor Protection					R	R		S				R: K5.01 R: K6.03 S: A2.01	R3.3 R3.1 S3.6	
013 Engineered Safety Features Actuation								R				R: A2.01	R4.6	
022 Containment Cooling	R									R		R: A4.02 R: K1.01	R3.2 R3.5	
025 Ice Condenser												NOT APPLICABLE		
026 Containment Spray		R										R: K2.01	R3.4	
039 Main and Reheat Steam							R				S	R: A1.05 S: G2.4.11	R3.2 S4.2	
059 Main Feedwater											R	R: G2.4.11	R4.0	
061 Auxiliary/Emergency Feedwater						R						R: K6.02	R2.6	
062 AC Electrical Distribution		R										R: K2.01	R3.3	
063 DC Electrical Distribution				R				R S				R: A2.01 R: K4.04 S: A2.02	R2.5 R2.6 S3.1	
064 Emergency Diesel Generator	R								R			R: A3.03 R: K1.05	R3.4 R3.4	
073 Process Radiation Monitoring			R									R: K3.01	R3.6	
076 Service Water			R					S				R: K3.05 S: A2.01	R3.0 S3.7	
078 Instrument Air	R											R: K1.01	R2.8	
103 Containment				R							S	R: K4.04 S: G2.4.18	R2.5 S4.0	
K/A Category Point Totals: (RO)	3	2	3	3	2	3	2	3	2	3	2	Group Point Total:		28/5
(SRO)								3			2			

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive		R										R: K2.01	R3.5	
002 Reactor Coolant					R							R: K5.14	R3.7	
011 Pressurizer Level Control				R								R: K4.03	R2.6	
014 Rod Position Indication														
015 Nuclear Instrumentation														
016 Non-nuclear Instrumentation								R				R: A2.01	R3.0	
017 In-core Temperature Monitor														
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control											S	S: G2.2.40	S4.7	
029 Containment Purge														
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment														
035 Steam Generator						R						R: K6.01	R3.2	
041 Steam Dump/Turbine Bypass Control	R											R: K1.02	R2.7	
045 Main Turbine Generator											R	R: G2.4.31	R4.2	
055 Condenser Air Removal														
056 Condensate														
068 Liquid Radwaste														
071 Waste Gas Disposal							R					R: A1.06	R2.5	
072 Area Radiation Monitoring								S				S: A2.03	S2.9	
075 Circulating Water														
079 Station Air										R		R: A4.01	R2.7	
086 Fire Protection			R					S				R: K3.01 S: A2.01	R2.7 S3.1	
K/A Category Point Totals: (RO)	1	1	1	1	1	1	1	1	0	1	1	Group Point Total:		10/3
(SRO)								2			1			

ES-401 **Generic Knowledge and Abilities Outline (Tier 3)** **Form ES-401-3**

Facility: VC Summer		Date of Exam: May 2010				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.2	R: G2.1.2	4.1			
	2.1.29	R: G2.1.29	4.1			
	2.1.31	R: G2.1.31	4.6			
	2.1.3	S: G2.1.3			3.9	
	2.1.4	S: G2.1.4			3.8	
	Subtotal		3		2	
2. Equipment Control	2.2.35	R: G2.2.35	3.6			
	2.2.37	R: G2.2.37	3.6			
	2.2.25	S: G2.2.25			4.2	
	2.2.38	S: G2.2.38			4.5	
	Subtotal		2		2	
3. Radiation Control	2.3.13	R: G2.3.13	3.4			
	2.3.11	R: G2.3.11	3.8			
	2.3.12	S: G2.3.12			3.7	
	2.3.14	S: G2.3.14			3.8	
	Subtotal		2		2	
4. Emergency Procedures / Plan	2.4.31	R: G2.4.31	4.2			
	2.4.34	R: G2.4.34	4.2			
	2.4.39	R: G2.4.39	3.9			
	2.4.37	S: G2.4.37			4.1	
	Subtotal		3		1	
Tier 3 Point Total			10	10	7	7

Facility: SUMMER Date of Exam: 2010

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

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

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
007EK2.03	Reactor Trip - Stabilization - Recovery / 1	3.5	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor trip status panel
008AA1.05	Pressurizer Vapor Space Accident / 3	3.4	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	LPI System
009EK1.01	Small Break LOCA / 3	4.2	4.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Natural circulation and cooling, including reflux boiling
015AK2.10	RCP Malfunctions / 4	2.8	2.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	RCP indicators and controls
022AG2.4.11	Loss of Rx Coolant Makeup / 2	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
025AK1.01	Loss of RHR System / 4	3.9	4.3	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Loss of RHRS during all modes of operation
026AK3.02	Loss of Component Cooling Water / 8	3.6	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS
029EK2.06	ATWS / 1	2.9	3.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Breakers, relays, and disconnects.
038EA2.04	Steam Gen. Tube Rupture / 3	3.9	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Radiation levels (MREM/hr)
054AG2.1.31	Loss of Main Feedwater / 4	4.6	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.
055EA2.06	Station Blackout / 6	3.7	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Faults and lockouts that must be cleared prior to re-energizing buses

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
056AK3.02	Loss of Off-site Power / 6	4.4	4.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in EOP for loss of offsite power
057AA2.12	Loss of Vital AC Inst. Bus / 6	3.5	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	PZR level controller, instrumentation and heater indications
058AG2.2.36	Loss of DC Power / 6	3.1	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations
065AA1.03	Loss of Instrument Air / 8	2.9	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Restoration of systems served by instrument air when pressure is regained
077AK3.02	Generator Voltage and Electric Grid Disturbances / 6	3.6	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in abnormal operating procedures for voltage and grid disturbances
WE04EK1.3	LOCA Outside Containment / 3	3.5	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Annunciators and conditions indicating signals, and remedial actions associated with the (LOCA Outside Containment).
WE12EA1.2	Steam Line Rupture - Excessive Heat Transfer / 4	3.6	3.7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Operating behavior characteristics of the facility.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003AK1.21	Dropped Control Rod / 1	2.7	3.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Delta flux (I)
028AK2.03	Pressurizer Level Malfunction / 2	2.6	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Controllers and positioners
032AA2.03	Loss of Source Range NI / 7	2.8	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Expected values of source range indication when high voltage is automatically removed
036AA2.03	Fuel Handling Accident / 8	3.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Magnitude of potential radioactive release
059AK1.01	Accidental Liquid RadWaste Rel. / 9	2.7	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Types of radiation, their units of intensity and the location of the sources of radiation in a nuclear power plant
we02EG2.2.44	SI Termination / 3	4.2	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
WE10EK3.4	Natural Circ. With Seam Void/ 4	3.4	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.
WE13EK3.4	Steam Generator Over-pressure / 4	3.1	3.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.
WE15EA1.3	Containment Flooding / 5	2.8	3.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Desired operating results during abnormal and emergency situations.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003K5.04	Reactor Coolant Pump	3.2	3.5	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Effects of RCP shutdown on secondary parameters, such as steam pressure, steam flow and feed flow
004A2.09	Chemical and Volume Control	3.0	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	High primary and/or secondary activity
004K4.07	Chemical and Volume Control	3.0	3.3	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Water supplies
005K3.01	Residual Heat Removal	3.9	4.0	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RCS
005K6.03	Residual Heat Removal	2.5	2.6	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	RHR heat exchanger
006A3.01	Emergency Core Cooling	4.0	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Accumulators
007A4.10	Pressurizer Relief/Quench Tank	3.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Recognition of leaking PORV/code safety
007G2.4.18	Pressurizer Relief/Quench Tank	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.
008A1.01	Component Cooling Water	2.8	2.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	CCW flow rate
010A4.01	Pressurizer Pressure Control	3.7	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	PZR spray valve
012K5.01	Reactor Protection	3.3	3.8	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	DNB

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
012K6.03	Reactor Protection	3.1	3.5	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Trip logic circuits
013A2.01	Engineered Safety Features Actuation	4.6	4.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	LOCA
022A4.02	Containment Cooling	3.2	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	CCS pumps
022K1.01	Containment Cooling	3.5	3.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	SWS/cooling system
026K2.01	Containment Spray	3.4	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Containment spray pumps
039A1.05	Main and Reheat Steam	3.2	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RCS T-ave
059G2.4.11	Main Feedwater	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
061K6.02	Auxiliary/Emergency Feedwater	2.6	2.7	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Pumps
062K2.01	AC Electrical Distribution	3.3	3.4	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Major system loads
063A2.01	DC Electrical Distribution	2.5	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Grounds
063K4.04	DC Electrical Distribution	2.6	2.9	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Trips

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
064A3.03	Emergency Diesel Generator	3.4	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Indicating lights, meters and recorders
064K1.05	Emergency Diesel Generator	3.4	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Starting air system
073K3.01	Process Radiation Monitoring	3.6	4.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Radioactive effluent releases
076K3.05	Service Water	3.0	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RHR components, controls, sensors, indicators and alarms, including rad monitors
078K1.01	Instrument Air	2.8	2.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensor air
103K4.04	Containment	2.5	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Personnel access hatch and emergency access hatch

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001K2.01	Control Rod Drive	3.5	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	One-line diagram of power supply to M/G sets.
002K5.14	Reactor Coolant	3.7	4.2	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Consequences of forced circulation loss
011K4.03	Pressurizer Level Control	2.6	2.9	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Density compensation of PZR level
016A2.01	Non-nuclear Instrumentation	3.0	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Detector failure
035K6.01	Steam Generator	3.2	3.6	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	MSIVs
041K1.02	Steam Dump/Turbine Bypass Control	2.7	2.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	S/G level
045G2.4.31	Main Turbine Generator	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures
071A1.06	Waste Gas Disposal	2.5	2.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Ventilation system
079A4.01	Station Air	2.7	2.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Cross-tie valves with IAS
086K3.01	Fire Protection	2.7	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Shutdown capability with redundant equipment

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.2	Conduct of operations	4.1	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operator responsibilities during all modes of plant operation.
G2.1.29	Conduct of operations	4.1	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.
G2.1.31	Conduct of operations	4.6	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.
G2.2.35	Equipment Control	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine Technical Specification Mode of Operation
G2.2.37	Equipment Control	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
G2.3.11	Radiation Control	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to control radiation releases.
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.31	Emergency Procedures/Plans	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures
G2.4.34	Emergency Procedures/Plans	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects
G2.4.39	Emergency Procedures/Plans	3.9	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the RO's responsibilities in emergency plan implementation.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
007EG2.4.34	Reactor Trip - Stabilization - Recovery / 1	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects
011EG2.4.21	Large Break LOCA / 3	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions
025AA2.04	Loss of RHR System / 4	3.3	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Location and isolability of leaks
027AA2.01	Pressurizer Pressure Control System Malfunction / 3	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Conditions which will cause an increase in PZR level
056AG2.1.19	Loss of Off-site Power / 6	3.9	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to use plant computer to evaluate system or component status.
062AA2.03	Loss of Nuclear Svc Water / 4	2.6	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	The valve lineups necessary to restart the SWS while bypassing the portion of the system causing the abnormal condition

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
059AA2.03	Accidental Liquid RadWaste Rel. / 9	3.1	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Failure modes, their symptoms and the causes of misleading indications on a radioactive-liquid monitor
we08EG2.4.21	RCS Overcooling - PTS / 4	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions
WE13EA2.2	Steam Generator Over-pressure / 4	3.0	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.
we16EG2.4.30	High Containment Radiation / 9	2.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of events related to system operations/status that must be reported to internal orginizations or outside agencies.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
012A2.01	Reactor Protection	3.1	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Faulty bistable operation
039G2.4.11	Main and Reheat Steam	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
063A2.02	DC Electrical Distribution	2.3	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of ventilation during battery charging
076A2.01	Service Water	3.5	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of SWS
103G2.4.18	Containment	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
028G2.2.40	Hydrogen Recombiner and Purge Control	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
072A2.03	Area Radiation Monitoring	2.7	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Blown power-supply fuses
086A2.01	Fire Protection	2.9	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Manual shutdown of the FPS

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.3	Conduct of operations	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of shift or short term relief turnover practices.
G2.1.4	Conduct of operations	3.3	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license statur, 10CFR55 etc.
G2.2.25	Equipment Control	3.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
G2.2.38	Equipment Control	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility license.
G2.3.12	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.14	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
G2.4.37	Emergency Procedures/Plans	3.0	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the lines of authority during implamentation of an emergency plan.