

Facility: HATCH		Date of Exam: APRIL 2009																	
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	4	3	2	N/A			4	3	N/A			4	20	3	4	7		
	2	1	1	1				1	1				2	7	1	2	3		
	Tier Totals			5				4	3				5	4	6	27	4	6	10
	2. Plant Systems	1	2	2	2	4	2	2	2	2	2	3	3	26	2	3	5		
2		1	1	1	1	2	1	1	1	1	1	1	12	0	1	3			
Tier Totals			3	3	3	5	4	3	3	3	4	4	38	3	5	8			
3. Generic Knowledge and Abilities Categories					1		2		3		4		10		1	2	3	4	7
					3		3		2		2				1	2	2	2	

- 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).
- 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.
- 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.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- *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.
- 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.
- 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.

[illegible]

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)						Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4		R					R 295001 AK2.03	R3.6	
295003 Partial or Complete Loss of AC / 6						R	R 295003 G2.4.34	R4.2	
295004 Partial or Total Loss of DC Pwr / 6				R			R 295004 AA1.03	R3.4	
295005 Main Turbine Generator Trip / 3			R				R 295005 AK3.04	R3.2	
295006 SCRAM / 1	R					S	R 295006 AK1.01 S295006 G2.1.27	R3.7	S 4.0
295016 Control Room Abandonment / 7					R		R 295016 AA2.01	R4.1	
295018 Partial or Total Loss of CCW / 8			R				R 295018 AK3.03	R3.1	
295019 Partial or Total Loss of Inst. Air / 8					R		R 295019 AA2.02	R3.6	
295021 Loss of Shutdown Cooling / 4					S	R	R 295021 G2.4.35, S295021 AA2.03	R3.8	S3.5
295023 Refueling Acc / 8				R		S	R 295023 AA1.04, S295023 G2.4.45	R3.4	S4.3
295024 High Drywell Pressure / 5					R		R 295024 EA2.06	R4.1	
295025 High Reactor Pressure / 3						R	R 295025 G2.1.23	R4.3	
295026 Suppression Pool High Water Temp. / 5		R			S		S295026 A2.03 R295026 EK2.01	R3.9	S3.9
295027 High Containment Temperature / 5									
295028 High Drywell Temperature / 5				R	S		R295028 EA1.03, S295028 EA2.04	R3.9	S4.2
295030 Low Suppression Pool Wtr Lvl / 5	R						R295030 KE1.02	R3.5	
295031 Reactor Low Water Level / 2				R			R295031 EA1.01	R4.4	
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1		R					R295037 EK2.12	R3.6	
295038 High Off-site Release Rate / 9	R					S	R295038 EK1.02, S295038 G2.4.9	R4.2	S4.2
600000 Plant Fire On Site / 8	R					S	R600000 AK1.01, S600000 G2.4.49	R2.5	S4.4
700000 Generator Voltage and Electric Grid Disturbances / 6						R	R700000 G2.4.4	R4.5	
K/A Category Totals:	4	3	2	4	3	4	Group Point Total: 20		20/7

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
295002 Loss of Main Condenser Vac / 3										
295007 High Reactor Pressure / 3										
295008 High Reactor Water Level / 2						S	S295008G2.4.20		S4.3	
295009 Low Reactor Water Level / 2										
295010 High Drywell Pressure / 5						R	R295010G2.2.22	R4.0		
295011 High Containment Temp / 5										
295012 High Drywell Temperature / 5										
295013 High Suppression Pool Temp. / 5		R					R295013AK2.01	R3.6		
295014 Inadvertent Reactivity Addition / 1						S	S295014G2.2.40		S4.7	
295015 Incomplete SCRAM / 1						R	R295015G2.2.42	R3.9		
295017 High Off-site Release Rate / 9					S		S295017AA2.01		S4.2	
295020 Inadvertent Cont. Isolation / 5 & 7	R						R295020AK1.05	R3.3		
295022 Loss of CRD Pumps / 1										
295029 High Suppression Pool Wtr Lvl / 5										
295032 High Secondary Containment Area Temperature / 5				R			R295032EA1.03	R3.7		
295033 High Secondary Containment Area Radiation Levels / 9										
295034 Secondary Containment Ventilation High Radiation / 9										
295035 Secondary Containment High Differential Pressure / 5					R		R295035EA2.02	R2.8		
295036 Secondary Containment High Sump/Area Water Level / 5										
500000 High CTMT Hydrogen Conc. / 5			R				R500000EK3.06	R3.1		
K/A Category Point Totals:	1	1	1	1	1	2	Group Point Total:	7/	7/3	

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)											Form ES-401-1	
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	#
203000 RHR/LPCI: Injection Mode											R	R203000G2.4.8	R3.8	
205000 Shutdown Cooling		R										R205000K2.01	R3.1	
206000 HPCI					R	R						R206000K5.08, R206000K6.02	R3.0 R3.3	
207000 Isolation (Emergency) Condenser														
209001 LPCS										R	R	R209001A4.04, R209001A4.05	R2.9 R3.8	
209002 HPCS														
211000 SLC				R								R211000K4.03	R3.8	
212000 RPS							R				S	R212000A1.07, S212000G2.2.36	R3.4	S4.2
215003 IRM							R					R215003A1.03	R3.6	
215004 Source Range Monitor						R						R215004K6.01	R3.2	
215005 APRM / LPRM											R	R215005G2.1.20, R215005G2.4.11	R4.6 R4.0	
217000 RCIC		R										R217000K2.03	R2.7	
218000 ADS	R											R218000K1.06	R3.9	
223002 PCIS/Nuclear Steam Supply Shutoff			R									R223002K3.11	R2.8	
239002 SRVs									R		S	R239002A3.01, S239002G2.4.18	R3.8	S4.0
259002 Reactor Water Level Control										R	S	R259002A4.01, S259002G2.4.20	R3.8	S4.3
261000 SGTS								R				R261000A2.12	R3.2	
262001 AC Electrical Distribution				R	R							R262001K4.02 R262001K4.05	R2.9 R3.4	
262002 UPS (AC/DC)								S	R			R262002A3.01, S262002A2.01	R2.8	S2.8
263000 DC Electrical Distribution								R				R263000A2.02	R2.6	
264000 EDGs				R	R							R264000K4.06, R264000K5.06	R2.6 R3.4	
300000 Instrument Air	R							S				R300000K1.03, S300000A2.01	R2.8	S2.8
400000 Component Cooling Water			R									R400000K3.01	R2.9	
K/A Category Point Totals:	2	2	2	4	2	2	2	2	2	3	3	Group Point Total: 26/		26/5

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5

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)												Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#	
201001 CRD Hydraulic					R							R201001 K5.02	R2.6		
201002 RMCS															
201003 Control Rod and Drive Mechanism															
201004 RSCS															
201005 RCIS															
201006 RWM															
202001 Recirculation				R								R202001 K4.07	R2.8		
202002 Recirculation Flow Control															
204000 RWCU										R		R204000 A4.09	R2.9		
214000 RPIS															
215001 Traversing In-core Probe									R			R215001 A3.03	R2.5		
215002 RBM					R							R215002 K6.04	R2.8		
216000 Nuclear Boiler Inst.															
219000 RHR/LPCI: Torus/Pool Cooling Mode															
223001 Primary CTMT and Aux.			R									R223001 K3.09	R2.8		
226001 RHR/LPCI: CTMT Spray Mode		R										R226001 K2.02	R2.9		
230000 RHR/LPCI: Torus/Pool Spray Mode															
233000 Fuel Pool Cooling/Cleanup											R	R233000 G2.2.25, S233000 G2.1.28	R3.2	S4.1	
234000 Fuel Handling Equipment															
239001 Main and Reheat Steam				R								R239001 K5.09	R3.4		
239003 MSIV Leakage Control															
241000 Reactor/Turbine Pressure Regulator	R											R241000 K1.25	R2.8		
245000 Main Turbine Gen. / Aux.															
256000 Reactor Condensate															
259001 Reactor Feedwater															
268000 Radwaste								R		S		R268000 A2.01, 268000 G2.4.21	R2.9	S4.6	
271000 Offgas															
272000 Radiation Monitoring															
286000 Fire Protection						R						R286000 A1.01	R2.9		
288000 Plant Ventilation															
290001 Secondary CTMT								S				S290001 A2.04		S3.7	
290003 Control Room HVAC															
290002 Reactor Vessel Internals															
K/A Category Point Totals:	1	1	1	1	2	1	1	1	1	1	1	Group Point Total: 12/		12/3	

Facility: <u>HATCH</u>		Date of Exam: <u>April 2009</u>				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.27	RD	3.9	1		
	2.1.31	RD	4.6	1		
	2.1.39	RD	3.6	1		
	2.1.20	SRO			4.6	1
	2.1.					
	2.1.					
	Subtotal					
2. Equipment Control	2.2.15	RD	3.9	1		
	2.2.25	RD	3.2	1		
	2.2.39	RD	3.9	1		
	2.2.11	SRO			3.3	1
	2.2.7	SRO			3.6	1
	2.2.					
	Subtotal					
3. Radiation Control	2.3.14	RD	3.4	1		
	2.3.7	RD	3.5	1		
	2.3.11	SRO			4.3	1
	2.3.5	SRO			2.9	1
	2.3.					
	2.3.					
	Subtotal					
4. Emergency Procedures / Plan	2.4.1	RD	4.6	1		
	2.4.9	RD	3.8	1		
	2.4.22	SRO			4.4	1
	2.4.30	SRO			4.1	1
	2.4.					
	2.4.					
	Subtotal					
Tier 3 Point Total				10		7

Facility: <u>Plant E. I. Hatch, HLT 4</u>		Date of Examination: <u>04/20/2009</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>2009-301</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations Admin 1	N, R	Requirements for position and safety gear around electrical equipment. RO & SRO, G 2.1.26, 3.4, 3.6
Conduct of Operations Admin 2	N, S	Perform ECCS Status Check and determine a valve is out of position. RO and SRO, G 2.1.29 4.1, 4.0
Equipment Control Admin 3	N, R	Given a inoperable Tech Spec component, initiate a Required Action Sheet (RAS). SRO ONLY, 2.2.23, 4.6
Equipment Control Admin 7	D, R	Prepare Equipment Danger Tagout RO ONLY 2.2.13, 4.1
Radiation Control Admin 4	N, R	Given an inoperable ODCM Effluent Radiation monitor, determine the required actions. SRO ONLY, G 2.3.11, 4.3
Radiation Control Admin 5	N, R	Evaluate an RWP, RO only, G2.3.7, 3.5
Emergency Procedures/Plan Admin 6	N, R	Review/Authorize Emergency Exposures SRO ONLY, G2.4.38, 4.4
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (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)		

Rec'd
3/5/09

Facility: Plant E. I. Hatch, HLT 4Date of Examination: 04/20/2009

Exam Level: RO X SRO-I X SRO-U

Operating Test No.: 2009-301Control Room Systems[®] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Perform IRM Overlap Test, All IRMs Do Not Pass Test. (JP25038)	L, D, S	215003, SF 7
b. Shutdown Cooling Isolation Failure. (JP13047)	A, L, N, S	223002, SF 5
c. Diesel Generator Manual Start Surveillance (Trip Failure) (JP25034)	A, D, S	264000, SF 6
d. Perform A Manual Startup Of HPCI, Controller Failure Low, Alternate Path (JP00502b)	A, D, S	295031, SF 2
e. Over Ride And Open PSW Isolation Valves, (JP20003)	M, S	295018, SF 8
f. Rx Press Control With SRVs (JP25040)	A, D, S	295025, SF 3
g. Using the Override Switches, Vent the Torus With the CAD System, (JP01363)	D, S	261000, SF 9
h. Move Control Rods after a CRD Pump Trip (JP25012) (RO Only)	A, D, S	202001, SF 1

In-Plant Systems[®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. Inject SBLC Locally (JP01112) Modified with failure of the "A" pump to start requiring start of the "B" pump.	A, E, M, R	295037, SF1
j. From the Remote Shutdown Panel, Start RHR in Torus Cooling (JP00720)	D, E, R	295013, SF 5
k. Transfer 600 VAC Essential (LPCI Bus) From Normal To Alternate (JP02718)	D, R	203000, SF 4

© All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

Rec'd
2/5/09

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Rec'd
3/5/09

Facility: <u>HATCH</u>		Date of Examination: <u>2009</u>
Exam Level: RO X SRO-I X SRO-U		Operating Test No.: _____
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Perform IRM Overlap Test, All IRMs Do Not Pass Test. (JP25038)	L, D, S	215003, SF 7
b. Shutdown Cooling Isolation Failure. (JP13047)	A, L, N, S	223002, SF 5
c. Diesel Generator Manual Start Surveillance (Trip Failure) (JP25034)	A, D, S	264000, SF 6
d. Perform A Manual Startup Of HPCI, Controller Failure Low, Alternate Path (JP00502b)	A, D, S	206000, SF 2
e. Over Ride And Open PSW Isolation Valves, (JP20003)	M, S	400000, SF 8
f. Rx Press Control With SRVs (JP25040)	A, D, S	239002, SF 3
g. Using the Override Switches, Vent the Torus With the CAD System, (JP01363)	D, S	261000, SF 9
h. Move Control Rods after a CRD Pump Trip (JP25012) (RO Only)	A, D, S	202001, SF 1
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. From Outside The Control Room, <u>During A Control Room Evacuation</u> , Maximize CRD System Flow (JP00124A)	A, E, M, R	201001, SF 1
j. From the Remote Shutdown Panel, Start RHR in Torus Cooling (JP00720)	D, E, S	219000, SF 5
k. Transfer 600 VAC Essential (LPCI Bus) From Normal To Alternate (JP02718)	D, R	203000, SF 4
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	

Rec'd
1/14/09

(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Rec'd
1/14/09