OUTLINE SUBMITTAL

FOR CLINTON INITIAL EXAMINATION - JULY 2001

CLINTON

INITIAL LICENSE EXAM

JULY 16 THRU 23, 2001

ES-201-2,
"Examination Outline Quality Checklist"
and the Written Examination and
Operating Test Outlines

Facility: Date of Examination:

Item	Task Description	Initials a	b*	c
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	DC		AMS
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all knowledge and ability categories are appropriately sampled.	DC		AMS
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	DC		AMS
	d. Assess whether the repetition from previous examination outlines is excessive.	DC		AMS
2. SIM	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	DC		AMS
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; ensure each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s)*, and scenarios will not be repeated over successive days.	DC		AMS
	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.	DC		AMS
3. W/T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	DC		AMS
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	DC		AMS
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	DC		AMS
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	DC		AMS
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	DC		AMS
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	DC		AMS
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	DC		AMS
	d. Check for duplication and overlap among exam sections.	DC		AMS
	e. Check the entire exam for balance of coverage.	DC		AMS
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	DC		AMS

	Printed Name / Signature	Date
a. Author	DALLAS B. CLINES Dallas B Clines	3/14/01
b. Facility Reviewer(*)	Larry A Westbrook	3/15/01
c. Chief Examiner	AnnMarie J Stone AnnMarie J Stone	3/28/01
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(*) Not applicable for NRC-developed examinations.

Facility: Clinton Power Station Form ES-401-2

Exam Date: 07/16/2001 **Exam Level:** RO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	2	3	3				2	2			1	13
	2	4	3	3				3	4			2	19
	3	1	1	0				2	0			0	4
	Totals Tier	7	7	6				7	6			3	36
2. Plant Systems	1	3	2	3	2	3	2	3	3	2	3	2	28
	2	2	1	2	2	2	2	2	2	2	1	1	19
	3	0	0	0	1	0	1	0	1	1	0	0	4
	Tier Totals	5	3	5	5	5	5	5	6	5	4	3	51
3. Generic Knowledge And Abilities					Cat 1		Cat 2		Cat 3		Cat 4		
					3		3		4		3		13

Note:

1. Attempt to distribute topics among all K/A Categories; select at least one topic from every K/A category within each tier.
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline
5. The shaded areas are not applicable to the category tier.

Facility: Clinton Power Station

BWR RO Examination Outline

Printed: 03/14/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-2**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295006	SCRAM / 1			X				AK3.01 - Reactor water level response	3.8	1
295007	High Reactor Pressure / 3	X						AK1.01 - Pump shutoff head	2.9	1
295007	High Reactor Pressure / 3			X				AK3.03 - RCIC operation: Plant-Specific	3.4	1
295009	Low Reactor Water Level / 2		X					AK2.02 - Reactor water level control	3.9	1
295009	Low Reactor Water Level / 2					X		AA2.01 - Reactor water level	4.2	1
295014	Inadvertent Reactivity Addition / 1					X		AA2.01 - Reactor power	4.1*	1
295015	Incomplete SCRAM / 1		X					AK2.03 - Rod control and information system: Plant-Specific	3.2	1
295015	Incomplete SCRAM / 1			X				AK3.01 - Bypassing rod insertion blocks	3.4	1
295024	High Drywell Pressure / 5	X						EK1.02 - Containment building integrity: Mark-III	3.9	1
295025	High Reactor Pressure / 3		X					EK2.08 - Reactor/turbine pressure regulating system: Plant-Specific	3.7	1
295031	Reactor Low Water Level / 2						X	2.4.11 - Knowledge of abnormal condition procedures.	3.4	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.04 - SBLC	4.5*	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.05 - CRD hydraulics systems	3.9	1

K/A Category Totals: 2 3 3 2 2 1 **Group Point Total:** 13

Facility: Clinton Power Station

BWR RO Examination Outline

Printed: 03/14/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-2**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295001	Partial or Complete Loss of Forced Core Flow Circulation / 1						X	2.4.11 - Knowledge of abnormal condition procedures.	3.4	1
295002	Loss of Main Condenser Vacuum / 3		X					AK2.07 - Offgas system	3.1	1
295003	Partial or Complete Loss of A.C. Power / 6			X				AK3.02 - Selective tripping	2.9	1
295003	Partial or Complete Loss of A.C. Power / 6					X		AA2.04 - System lineups	3.5	1
295004	Partial or Complete Loss of D.C. Power / 6	X						AK1.04 - Effect of battery discharge rate on capacity	2.8	1
295008	High Reactor Water Level / 2			X				AK3.07 - HPCS isolation: Plant-Specific	3.2	1
295012	High Drywell Temperature / 5				X			AA1.01 - Drywell ventilation system	3.5	1
295012	High Drywell Temperature / 5					X		AA2.01 - Drywell temperature	3.8	1
295016	Control Room Abandonment / 7					X		AA2.01 - Reactor power	4.1*	1
295017	High Off-Site Release Rate / 9				X			AA1.07 - Process radiation monitoring system	3.4	1
295019	Partial or Complete Loss of Instrument Air / 8				X			AA1.01 - Backup air supply	3.5	1
295020	Inadvertent Containment Isolation / 5	X						AK1.05 - Loss of drywell/containment cooling	3.3	1
295020	Inadvertent Containment Isolation / 5		X					AK2.10 - Drywell equipment/floor drain sumps	2.9	1
295026	Suppression Pool High Water Temperature / 5						X	2.4.11 - Knowledge of abnormal condition procedures.	3.4	1

Facility: Clinton Power Station

BWR RO Examination Outline

Printed: 03/14/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-2**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295027	High Containment Temperature (Mark III Containment Only) / 5	X						EK1.02 - Reactor water level measurement: Mark-III	3.0	1
295027	High Containment Temperature (Mark III Containment Only) / 5					X		EA2.04 - Containment radiation levels: Mark-III	3.3	1
295030	Low Suppression Pool Water Level / 5		X					EK2.03 - LPCS	3.8	1
295034	Secondary Containment Ventilation High Radiation / 9	X						EK1.02 - †Radiation releases	4.1	1
600000	Plant Fire On Site / 8			X				AK3.04 - Actions contained in the abnormal procedure for plant fire on site	2.8	1

K/A Category Totals: 4 3 3 3 4 2 **Group Point Total:** 19

Facility: Clinton Power Station

BWR RO Examination Outline

Printed: 03/14/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3** **Form ES-401-2**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295021	Loss of Shutdown Cooling / 4				X			AA1.01 - Reactor water cleanup system	3.4	1
295023	Refueling Accidents / 8	X						AK1.01 - Radiation exposure hazards	3.6	1
295023	Refueling Accidents / 8				X			AA1.02 - Fuel pool cooling and cleanup system	2.9	1
295032	High Secondary Containment Area Temperature / 5		X					EK2.04 - PCIS/NSSSS	3.6	1

K/A Category Totals: 1 1 0 2 0 0 **Group Point Total:** 4

BWR RO Examination Outline

Printed: 03/14/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201005	Rod Control and Information System (RCIS) / 1				X								K4.02 - Bank position withdrawal sequence (BPWS): BWR-6	3.3	1
209002	High Pressure Core Spray System (HPCS) / 2	X											K1.12 - Reactor vessel: BWR-5, 6	3.4	1
209002	High Pressure Core Spray System (HPCS) / 2											X	2.1.10 - Knowledge of conditions and limitations in the facility license.	2.7	1
211000	Standby Liquid Control System / 1					X							K5.04 - Explosive valve operation	3.1	1
212000	Reactor Protection System / 7							X					A1.09 - Individual relay status: Plant-Specific	2.7	1
212000	Reactor Protection System / 7									X			A3.05 - SCRAM instrument volume level	3.9	1
215003	Intermediate Range Monitor (IRM) System / 7		X										K2.01 - IRM channels/detectors	2.5*	1
215003	Intermediate Range Monitor (IRM) System / 7							X					A1.03 - RPS status	3.6	1
215004	Source Range Monitor (SRM) System / 7	X											K1.01 - Reactor protection system	3.6	1
215004	Source Range Monitor (SRM) System / 7										X		A4.03 - CRT displays: Plant-Specific	2.9	1
215005	Average Power Range Monitor/Local Power Range Monitor System / 7			X									K3.08 - †core thermal calculations	3.0	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
215005	Average Power Range Monitor/Local Power Range Monitor System / 7								X				A2.07 - Recirculation flow channels flow mismatch	3.2	1
216000	Nuclear Boiler Instrumentation / 7	X											K1.21 - SPDS/ERIS/CRIDS/GDS: Plant-Specific	2.6*	1
216000	Nuclear Boiler Instrumentation / 7			X									K3.10 - Recirculation flow control system	3.2	1
217000	Reactor Core Isolation Cooling System (RCIC) / 2										X		A4.03 - System valves	3.4	1
217000	Reactor Core Isolation Cooling System (RCIC) / 2											X	2.1.28 - Knowledge of the purpose and function of major system components and controls.	3.2	1
218000	Automatic Depressurization System / 3					X							K5.01 - ADS logic operation	3.8	1
223001	Primary Containment System and Auxiliaries / 5		X										K2.09 - Drywell cooling fans: Plant-Specific	2.7	1
223001	Primary Containment System and Auxiliaries / 5					X							K5.10 - Hydrogen combustibility versus hydrogen concentration and oxygen concentration	2.9	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5				X								K4.01 - Redundancy	3.0	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5									X			A3.03 - SPDS/ERIS/CRIDS/GDS: Plant-Specific	2.5*	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
239002	Relief/Safety Valves / 3						X						K6.04 - D.C. power: Plant-Specific	3.0	1
239002	Relief/Safety Valves / 3							X					A1.04 - Reactor pressure	3.8	1
241000	Reactor/Turbine Pressure Regulating System / 3								X				A2.05 - Failed open/closed main stop valve(s)	3.8	1
259002	Reactor Water Level Control System / 2			X									K3.01 - Reactor water level	3.8	1
259002	Reactor Water Level Control System / 2										X		A4.10 - Setpoint setdown reset controls: Plant-Specific	3.1	1
261000	Standby Gas Treatment System / 9						X						K6.09 - Primary containment high pressure: Plant-Specific	3.1	1
264000	Emergency Generators (Diesel/Jet) / 6								X				A2.09 - Loss of A.C. power	3.7	1
K/A Category Totals:		**3**	**2**	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**Group Point Total:**		**28**

BWR RO Examination Outline

Printed: 03/14/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201003	Control Rod and Drive Mechanism / 1					X							K5.01 - Hydraulics	2.6	1
204000	Reactor Water Cleanup System / 2					X							K5.07 - Conductivity measurement	2.5	1
204000	Reactor Water Cleanup System / 2						X						K6.07 - SBLC logic	3.3	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4	X											K1.02 - Reactor water level	3.6	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4			X									K3.01 - Reactor pressure	3.3	1
214000	Rod Position Information System / 7									X			A3.04 - RCIS: Plant-Specific	3.5	1
219000	RHR/LPCI: Torus/Suppression Pool Cooling Mode / 5	X											K1.03 - LPCI/RHR piping	3.7	1
226001	RHR/LPCI: Containment Spray System Mode / 5		X										K2.02 - Pumps	2.9*	1
239001	Main and Reheat Steam System / 3			X									K3.08 - Decay heat removal	3.4	1
239001	Main and Reheat Steam System / 3							X					A1.10 - Reactor power	3.8	1
245000	Main Turbine Generator and Auxiliary Systems / 4											X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
256000	Reactor Condensate System / 2								X				A2.04 - A.C. power failures	2.9	1
262002	Uninterruptable Power Supply (A.C./D.C.) / 6									X			A3.01 - Transfer from preferred to alternate source	2.8	1
271000	Offgas System / 9								X				A2.07 - Low oxygen injection flow: Plant-Specific	2.7	1
286000	Fire Protection System / 8				X								K4.07 - Diesel engine protection	3.3	1
286000	Fire Protection System / 8										X		A4.04 - Fire main pressure: Plant-Specific	2.8	1
290001	Secondary Containment / 5				X								K4.02 - Protection against over pressurization: Plant-System	3.4	1
290001	Secondary Containment / 5							X					A1.01 - System lineups	3.1	1
290003	Control Room HVAC / 9						X						K6.01 - Electrical power	2.7	1
K/A Category Totals:		**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**1**		**Group Point Total:**	**19**

BWR RO Examination Outline

Printed: 03/14/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 3** **Form ES-401-2**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
233000	Fuel Pool Cooling and Clean-up / 9				X								K4.06 - Maintenance of adequate pool level	2.9	1
239003	MSIV Leakage Control System / 9						X						K6.01 - A.C. electrical distribution: BWR-4, 5, 6(P-Spec)	2.8	1
268000	Radwaste / 9								X				A2.01 - System rupture	2.9	1
288000	Plant Ventilation Systems / 9									X			A3.01 - Isolation/initiation signals	3.8	1
K/A Category Totals:		**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**Group Point Total:**		**4**

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 03/14/2001

BWR RO Examination Outline

Form ES-401-5

Facility: Clinton Power Station

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.8	Ability to coordinate personnel activities outside the control room.	3.8	1
	2.1.11	Knowledge of less than one hour technical specification action statements for systems.	3.0	1
	2.1.14	Knowledge of system status criteria which require the notification of plant personnel.	2.5	1
			Category Total:	**3**
Equipment Control	2.2.11	Knowledge of the process for controlling temporary changes.	2.5	1
	2.2.28	Knowledge of new and spent fuel movement procedures.	2.6	1
	2.2.33	Knowledge of control rod programming.	2.5	1
			Category Total:	**3**
Radiation Control	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1
	2.3.2	Knowledge of facility ALARA program.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	2.5	1
			Category Total:	**4**
Emergency Plan	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	3.0	1
	2.4.25	Knowledge of fire protection procedures.	2.9	1
	2.4.12	Knowledge of general operating crew responsibilities during emergency operations.	3.4	1
			Category Total:	**3**
			Generic Total:	**13**

Facility: Clinton Power Station Form ES-401-1

Exam Date: 07/16/2001 **Exam Level:** SRO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	4	4	4				3	7			4	26
	2	3	3	2				3	3			3	17
	Tier Totals	7	7	6				6	10			7	43
2. Plant Systems	1	2	2	2	2	2	2	3	2	2	1	3	23
	2	1	1	1	1	1	2	1	1	1	1	2	13
	3	0	0	1	0	1	0	0	1	0	0	1	4
	Tier Totals	3	3	4	3	4	4	4	4	3	2	6	40
3. Generic Knowledge And Abilities					Cat 1		Cat 2		Cat 3		Cat 4		
					5		4		4		4		17

Note:

1. Attempt to distribute topics among all K/A Categories; select at least one topic from every K/A category within each tier.
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category tier.

Facility: Clinton Power Station

BWR SRO Examination Outline

Printed: 03/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-1**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295003	Partial or Complete Loss of A.C. Power / 6			X				AK3.02 - Selective tripping	3.1	1
295003	Partial or Complete Loss of A.C. Power / 6					X		AA2.04 - System lineups	3.7	1
295006	SCRAM / 1			X				AK3.01 - Reactor water level response	3.9	1
295007	High Reactor Pressure / 3	X						AK1.01 - Pump shutoff head	3.2	1
295007	High Reactor Pressure / 3			X				AK3.03 - RCIC operation: Plant-Specific	3.5	1
295009	Low Reactor Water Level / 2		X					AK2.02 - Reactor water level control	3.9	1
295014	Inadvertent Reactivity Addition / 1					X		AA2.02 - Reactor period	3.9	1
295014	Inadvertent Reactivity Addition / 1					X		AA2.01 - Reactor power	4.2*	1
295015	Incomplete SCRAM / 1		X					AK2.03 - Rod control and information system: Plant-Specific	3.6	1
295015	Incomplete SCRAM / 1			X				AK3.01 - Bypassing rod insertion blocks	3.7	1
295016	Control Room Abandonment / 7					X		AA2.01 - Reactor power	4.1*	1
295017	High Off-Site Release Rate / 9				X			AA1.07 - Process radiation monitoring system	3.6	1
295023	Refueling Accidents / 8	X						AK1.01 - Radiation exposure hazards	4.1	1
295023	Refueling Accidents / 8				X			AA1.02 - Fuel pool cooling and cleanup system	3.1	1
295024	High Drywell Pressure / 5	X						EK1.02 - Containment building integrity: Mark-III	4.1	1

Facility: Clinton Power Station

BWR SRO Examination Outline

Printed: 03/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-1**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295025	High Reactor Pressure / 3						X	2.4.1 - Knowledge of EOP entry conditions and immediate action steps.	4.6	1
295025	High Reactor Pressure / 3		X					EK2.08 - Reactor/turbine pressure regulating system: Plant-Specific	3.7	1
295026	Suppression Pool High Water Temperature / 5					X		EA2.03 - Reactor pressure	4.0	1
295026	Suppression Pool High Water Temperature / 5						X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1
295027	High Containment Temperature (Mark III Containment Only) / 5	X						EK1.02 - Reactor water level measurement: Mark-III	3.2	1
295027	High Containment Temperature (Mark III Containment Only) / 5					X		EA2.04 - Containment radiation levels: Mark-III	3.7	1
295030	Low Suppression Pool Water Level / 5					X		EA2.02 - Suppression pool temperature	3.9	1
295030	Low Suppression Pool Water Level / 5		X					EK2.03 - LPCS	3.9	1
295031	Reactor Low Water Level / 2						X	2.4.11 - Knowledge of abnormal condition procedures.	3.6	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.04 - SBLC	4.5*	1
295038	High Off-Site Release Rate / 9						X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1

K/A Category Totals: 4 4 4 3 7 4 **Group Point Total:** 26

Facility: Clinton Power Station

BWR SRO Examination Outline

Printed: 03/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-1**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295002	Loss of Main Condenser Vacuum / 3		X					AK2.07 - Offgas system	3.1	1
295004	Partial or Complete Loss of D.C. Power / 6	X						AK1.04 - Effect of battery discharge rate on capacity	2.9	1
295005	Main Turbine Generator Trip / 3					X		AA2.04 - Reactor pressure	3.8	1
295008	High Reactor Water Level / 2						X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1
295008	High Reactor Water Level / 2			X				AK3.07 - HPCS isolation: Plant-Specific	3.3	1
295011	High Containment Temperature (Mark III Containment Only) / 5						X	2.4.11 - Knowledge of abnormal condition procedures.	3.6	1
295012	High Drywell Temperature / 5				X			AA1.01 - Drywell ventilation system	3.6	1
295019	Partial or Complete Loss of Instrument Air / 8				X			AA1.01 - Backup air supply	3.3	1
295020	Inadvertent Containment Isolation / 5	X						AK1.05 - Loss of drywell/containment cooling	3.6	1
295020	Inadvertent Containment Isolation / 5		X					AK2.10 - Drywell equipment/floor drain sumps	3.1	1
295021	Loss of Shutdown Cooling / 4				X			AA1.01 - Reactor water cleanup system	3.4	1
295032	High Secondary Containment Area Temperature / 5		X					EK2.04 - PCIS/NSSSS	3.8	1
295033	High Secondary Containment Area Radiation Levels / 9					X		EA2.03 - †Cause of high area radiation	4.2	1
295034	Secondary Containment Ventilation High Radiation / 9	X						EK1.02 - †Radiation releases	4.4*	1

Facility: Clinton Power Station

BWR SRO Examination Outline

Printed: 03/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-1**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295036	Secondary Containment High Sump/Area Water Level / 5						X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1
295036	Secondary Containment High Sump/Area Water Level / 5					X		EA2.02 - Water level in the affected area	3.1	1
600000	Plant Fire On Site / 8			X				AK3.04 - Actions contained in the abnormal procedure for plant fire on site	3.4	1

K/A Category Totals: 3 3 2 3 3 3 **Group Point Total:** 17

BWR SRO Examination Outline

Printed: 03/13/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
209002	High Pressure Core Spray System (HPCS) / 2											X	2.1.11 - Knowledge of less than one hour technical specification action statements for systems.	3.8	1
211000	Standby Liquid Control System / 1											X	2.1.32 - Ability to explain and apply system limits and precautions.	3.8	1
212000	Reactor Protection System / 7							X					A1.09 - Individual relay status: Plant-Specific	3.0	1
212000	Reactor Protection System / 7									X			A3.05 - SCRAM instrument volume level	3.9	1
215004	Source Range Monitor (SRM) System / 7	X											K1.01 - Reactor protection system	3.7	1
215004	Source Range Monitor (SRM) System / 7										X		A4.03 - CRT displays: Plant-Specific	2.7	1
215005	Average Power Range Monitor/Local Power Range Monitor System / 7			X									K3.08 - †core thermal calculations	3.4	1
216000	Nuclear Boiler Instrumentation / 7	X											K1.21 - SPDS/ERIS/CRIDS/GDS: Plant-Specific	2.9*	1
216000	Nuclear Boiler Instrumentation / 7			X									K3.10 - Recirculation flow control system	3.3	1
218000	Automatic Depressurization System / 3					X							K5.01 - ADS logic operation	3.8	1
223001	Primary Containment System and Auxiliaries / 5		X										K2.09 - Drywell cooling fans: Plant-Specific	2.9*	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
223001	Primary Containment System and Auxiliaries / 5					X							K5.10 - Hydrogen combustibility versus hydrogen concentration and oxygen concentration	3.1	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5				X								K4.01 - Redundancy	3.2	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5									X			A3.03 - SPDS/ERIS/CRIDS/GDS: Plant-Specific	2.8*	1
226001	RHR/LPCI: Containment Spray System Mode / 5		X										K2.02 - Pumps	2.9*	1
239002	Relief/Safety Valves / 3						X						K6.04 - D.C. power: Plant-Specific	3.2	1
239002	Relief/Safety Valves / 3							X					A1.04 - Reactor pressure	3.8	1
241000	Reactor/Turbine Pressure Regulating System / 3								X				A2.05 - Failed open/closed main stop valve(s)	3.9	1
261000	Standby Gas Treatment System / 9						X						K6.09 - Primary containment high pressure: Plant-Specific	3.3	1
261000	Standby Gas Treatment System / 9											X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1
264000	Emergency Generators (Diesel/Jet) / 6								X				A2.09 - Loss of A.C. power	4.1	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
290001	Secondary Containment / 5				X								K4.02 - Protection against over pressurization: Plant-System	3.5	1
290001	Secondary Containment / 5							X					A1.01 - System lineups	3.1	1
K/A Category Totals:		**2**	**2**	**2**	**2**	**2**	**2**	**3**	**2**	**2**	**1**	**3**		**Group Point Total:**	**23**

BWR SRO Examination Outline

Printed: 03/13/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
204000	Reactor Water Cleanup System / 2					X							K5.07 - Conductivity measurement	2.6	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4	X											K1.02 - Reactor water level	3.6	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4			X									K3.01 - Reactor pressure	3.3	1
215003	Intermediate Range Monitor (IRM) System / 7		X										K2.01 - IRM channels/detectors	2.7	1
215003	Intermediate Range Monitor (IRM) System / 7							X					A1.03 - RPS status	3.7	1
239003	MSIV Leakage Control System / 9						X						K6.01 - A.C. electrical distribution: BWR-4, 5, 6(P-Spec)	3.0	1
259001	Reactor Feedwater System / 2											X	2.1.32 - Ability to explain and apply system limits and precautions.	3.8	1
262002	Uninterruptable Power Supply (A.C./D.C.) / 6									X			A3.01 - Transfer from preferred to alternate source	3.1	1
271000	Offgas System / 9								X				A2.07 - Low oxygen injection flow: Plant-Specific	3.3	1
286000	Fire Protection System / 8				X								K4.07 - Diesel engine protection	3.3	1
286000	Fire Protection System / 8										X		A4.04 - Fire main pressure: Plant-Specific	2.8	1

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
290003	Control Room HVAC / 9						X						K6.01 - Electrical power	2.9	1
400000	Component Cooling Water System (CCWS) / 8											X	2.1.32 - Ability to explain and apply system limits and precautions.	3.8	1
K/A Category Totals:		**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**2**		**Group Point Total:**	**13**

BWR SRO Examination Outline

Printed: 03/13/2001

Facility: Clinton Power Station

ES - 401 **Plant Systems - Tier 2 / Group 3** **Form ES-401-1**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201003	Control Rod and Drive Mechanism / 1					X							K5.01 - Hydraulics	2.7	1
233000	Fuel Pool Cooling and Clean-up / 9											X	2.4.11 - Knowledge of abnormal condition procedures.	3.6	1
239001	Main and Reheat Steam System / 3			X									K3.08 - Decay heat removal	3.5	1
268000	Radwaste / 9								X				A2.01 - System rupture	3.5	1
K/A Category Totals:		**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**		**Group Point Total:**	**4**

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 03/13/2001

BWR SRO Examination Outline

Form ES-401-5

Facility: Clinton Power Station

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.11	Knowledge of less than one hour technical specification action statements for systems.	3.8	1
	2.1.14	Knowledge of system status criteria which require the notification of plant personnel.	3.3	1
	2.1.4	Knowledge of shift staffing requirements.	3.4	1
	2.1.22	Ability to determine Mode of Operation.	3.3	1
	2.1.8	Ability to coordinate personnel activities outside the control room.	3.6	1
			Category Total:	**5**
Equipment Control	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
	2.2.5	Knowledge of the process for making changes in the facility as described in the safety analysis report.	2.7	1
	2.2.11	Knowledge of the process for controlling temporary changes.	3.4*	1
	2.2.28	Knowledge of new and spent fuel movement procedures.	3.5	1
			Category Total:	**4**
Radiation Control	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements.	3.0	1
	2.3.9	Knowledge of the process for performing a containment purge.	3.4	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1
	2.3.2	Knowledge of facility ALARA program.	2.9	1
			Category Total:	**4**

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 03/13/2001

BWR SRO Examination Outline

Form ES-401-5

Facility: Clinton Power Station

Generic Category	KA	KA Topic	Imp.	Points
Emergency Plan	2.4.36	Knowledge of chemistry / health physics tasks during emergency operations.	2.8	1
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	4.0	1
	2.4.25	Knowledge of fire protection procedures.	3.4	1
	2.4.12	Knowledge of general operating crew responsibilities during emergency operations.	3.9	1

Category Total: 4

Generic Total: 17

Facility: Clinton Power Station		Date of Examination: 07/16/01
Exam Level (circle one): [RO] / SRO		Operating Test No.: 2001-01
Administrative Topic/Subject Description		Describe method of evaluation 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations Fuel Handling	JPM – Perform CPS 9000.03, Core Alteration Surveillance Log. (Discrepancies in operable SRMs) 2.1.18
	Conduct of Operations Plant Parameter Verification	JPM – Determine if Power, Flow, or Core Thermal Limits have been Exceeded per CPS 3005.01. 2.1.19
A.2	Equipment Control Surveillance Testing	JPM – Perform restoration section of CPS 9011.01, "Control Rod/ Position Indication Operability" 2.2.12
A.3	Radiation Control Calculating Exposure	JPM – Determine dose operator would receive while completing Fill and Vent of RCIC (Mode 1) 2.3.10
A.4	Emergency Plan Emergency Communications	JPM – Make an announcement of FIRE around the Turbine Lube Oil Storage room with area evacuation. 2.4.43

Facility: Clinton Power Station		Date of Examination: 07/16/01
Exam Level (circle one): RO / SRO		Operating Test No.: 2001-01
Administrative Topic/Subject Description		Describe method of evaluation 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations Shift Staffing Requirements	JPM – Determine shift staffing adjustments, actions, and time restraints required due to an operator absence during shift. 2.1.4
	Conduct of Operations Plant Parameter Verification	JPM – Determine if Power, Flow, or Core Thermal Limits have been Exceeded per CPS 3005.01. 2.1.19
A.2	Equipment Control Surveillance Testing	JPM – Review completed CPS 9011.01, "Control Rod/Position Indication Operability" and identify discrepancies. 2.2.12
A.3	Radiation Control Calculating Exposure	JPM – Determine expected dose operator would receive while performing a Fill and Vent of RCIC (Mode 1) and select an operator to prevent exceeding dose limit. 2.3.10
A.4	Emergency Plan Protective Action Recommendation	JPM – Determine an EP Protective Action Recommendation with subsequent wind direction change. 2.4.44

Facility: Clinton Power Station Date of Examination: 07/16/01

Exam Level (circle one): [RO] / [SRO(I)] / SRO(U) Operating Test No.: 2001-01

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. 202001 Recirculation Perform Emergency Shutdown and Isolation of Reactor Recirc Loop per CPS 3302.01.	(S) (D)	1
b. 259001 Reactor Feedwater Startup Motor Driven Reactor Feedwater Pump (MDRFP) per CPS 3103.01.	(S) (D) (L)	2
c. 239001 Main and Reheat Steam Defeat MSIV/MSL Drains Group 1 Isolations per CPS 4410.00C007.	(C) (N)	3
d. 209001 Low Pressure Core Spray Manually Start LPCS per CPS 3313.01.	(S) (M) (A)	4
e. 262001 A. C. Electrical Distribution Transfer 4160v Bus From Reserve to Main Supply per CPS 3501.01.	(S) (D) (A)	6
f. 272000 Radiation Monitoring Shift Off-Gas Post Treatment Process Radiation Monitors per CPS 3315.03.	(S) (N)	7
g. 290003 Control Room HVAC Manually Initiate Main Control Room Ventilation (VC) High Radiation Isolation per CPS 3402.01.	(S) (M) (A)	9
B.2 Facility Walk-Through		
a. 295037 Scram Condition Present & Reactor Pwr >5% Open RPS SCRAM Breakers Outside the Main Control Room per CPS 4411.08.	(R) (D)	1
b. 223001 Primary Containment Systems & Auxiliaries Startup a Hydrogen Recombiner from the Local Control Panel per CPS 4411.11	(R) (D)	5
c. 286000 Fire Protection Manually Start a Diesel Driven Fire Pump per CPS 3213.01.	(D) (A)	8

*Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol Room, (S)imulator, (L)ow-Power, (R)CA

Facility: Clinton Power Station Date of Examination: 07/16/01

Exam Level (circle one): RO / SRO(I) / SRO(U) Operating Test No.: 2001-01

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a.		
b. 259001 Reactor Feedwater Startup Motor Driven Reactor Feedwater Pump (MDRFP) per CPS 3103.01.	(S) (D) (L)	2
c.		
d. 209001 Low Pressure Core Spray Manually Start LPCS per CPS 3313.01.	(S) (M) (A)	4
e. 262001 A. C. Electrical Distribution Transfer 4160v Bus From Reserve to Main Supply per CPS 3501.01.	(S) (D) (A)	6
f.		
g.		

B.2 Facility Walk-Through

a. 295037 Scram Condition Present & Reactor Pwr >5% Open RPS SCRAM Breakers Outside the Main Control Room per CPS 4411.08.	(R) (D)	1
b. 223001 Primary Containment Systems & Auxiliaries Startup a Hydrogen Recombiner from the Local Control Panel per CPS 4411.11	(R) (D)	5
c.		

*Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol Room, (S)imulator, (L)ow-Power, (R)CA

Facility: Clinton Power Station Scenario No.: One Operating Test No.: 01-01

Examiners: _____ Operators: _____

Objectives: Evaluate the crews ability to 1) commence a plant shutdown 2) Start VG surveillance 3) respond to a Hotwell level controller failure 4) respond to a Main EHC temperature controller failure 5) respond to a Recirc FCV ramping open 6) Respond to two MSIVs failing shut 7) execute EOP-1A ATWS and 7) respond to a CRD pump trip

Initial Conditions: IC-1: 100% power

Turnover: Plans are to commence a shutdown for a planned outage. CPS 9067.01.01 VG System Train Flow/Heater operability is in progress. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		RO-R(N) CREW-N	Plant Shutdown
2		BOP-N	Start Standby Gas Treatment (VG) surveillance
3	Override	RO-I	Condenser overflow controller fails high
4	Override	BOP-I	Main EHC Fluid Temperature Controller Failure
5	Override	RO-C	Recirc FCV A ramps open
6	MS08A MS08C	M	B21-F022A and B21-F0022C
7	RP03A[1]	M	Partial failure to scram
8	LC08B	BOP-C	CRD Pump trip

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

Facility: Clinton Power Station Scenario No.: Two Operating Test No.: 01-01

Examiners: _____ Operators: _____

_____ _____

_____ _____

Objectives: Evaluate the crews ability to 1) make unit power change 2) secure RCIC from surveillance 3) respond to a feedwater pump control signal failure 4) respond to a RWCU filter demin isolation 5) respond to an inadvertent Suppression Pool Dump 6) respond to a trip of a running CCW pump 7) Respond to a loss of Main EHC hydraulics 8) execute EOP-1 RPC and EOP-6 Containment Control in response to a drywell steam leak and excess drywell bypass leakage 9) respond to an RHR B fail to start 10) respond to an RHR A trip

Initial Conditions: 80% power

Turnover: The station is operating at 80% power. Plans are to raise power to 100%. CPS 9054.01 RCIC system operability is in progress. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		RO-R(N) CREW-N	Power ascension with RR flow
2		BOP-N	Secure RCIC from surveillance
3	FW09B	RO-I	TDRFP B control signal failure
4	CU102	RO-C	RWCU filter demin isolation
5	Override	BOP-I	Inadvertent Suppression Pool Dump
6	CW06C	BOP-C	CCW pump trip
7	TC06A TC06B	M	Loss of Main EHC hydraulics
8	MS05C PC14	M	Drywell steam leak and excess drywell bypass leakage
9	RH01B	BOP-C	RHR B fail to start
10	RH02A	BOP-C	RHR A trip

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

Facility: Clinton Power Station Scenario No.: Three Operating Test No.: 01-01

Examiners: _____ Operators: _____

Objectives: Evaluate the crews ability to 1) withdraw control rods to raise reactor power and establish a reactor heatup 2) shift CCP fans 3) respond to an uncoupled control rod 4) Respond to an auto start of a shutdown service water pump with a failure of the WS isolation valve to fully shut 5) Respond to a WT pump trip 6) Respond to a recirc leak in the drywell 7) execute EOP-1 and EOP-6 8) respond to a control rod that fails to insert 9) respond to a divisional bus lockout 10) respond to a LPCI injection valve failing to open.

Initial Conditions: 135 psig, the reactor critical with ½ a bypass valve open.

Turnover: A plant startup is in progress following an unplanned outage. Performing step 8.1.2 in conjunction with step 8.4.2 of 3002.01. Plans are to increase power to establish 1½ bypass valves open and then start the heatup. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		RO-R CREW-N	Establish a reactor heatup
2		BOP-N	Shift CCP fans
3	LC02	RO-C	Control rod uncoupled
4	Override	BOP-C	SX Pump auto starts on faulty low pressure and WS to SX isolation valve does not fully shut
5	Override	BOP-I	WT Pump trips on storage tank level instrument failure (intermittent)
6	RR03	M	RR leak ramped to 10% over 300 sec
7	RP04	RO-C	Auto and manual scram failure, ARI works
8	LC02	M	One control rod fails to insert
9	ED04	M	Div 1 bus locks out when LPCS pump starts
10	RH07B	BOP-C	LPCI B injection valve fails to auto open

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

CLINTON
INITIAL LICENSE EXAM

JULY 16 THRU 23, 2001

NRC Comments and Resolution on
Licensee Submitted Test Outlines

None