

NRC Exam 04-01

ES-301

Administrative Topics Outline

Form ES-301-1

Facility: <u>Clinton</u>		Date of Examination: 7/11/05_____	
Examination Level (circle one): RO		Operating Test Number:ILT0401-1____	
Administrative (see Note)	Describe activity to be performed		
Conduct of Operations Plant Parameter Verification N	Complete a CPS 3006.01C003, Control Rod Withdrawal Checklist – Mode 4. K/A 2.1.23 (3.9) 30060117LAF01		
Conduct of Operations Mode Change P	Verify Conditions are Met to Enter Mode 2 From Mode 1 K/A 2.1.31 (4.2)		
Equipment Control Surveillance Testing D	Perform a Jet Pump Operability Test K/A 2.2.12 (3.0) 90410101LAN01		
Radiation Control Exposure Limits D	Determine expected dose operator would receive while performing an LLRT. K/A 2.3.10 (2.9) 99555501NAN01		
Emergency Plan	N/A		
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			
(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			

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Administrative Topics Outline

Form ES-301-1

Facility: <u>Clinton</u>		Date of Examination: <u>7/11/05</u>	
Examination Level (circle one): SRO		Operating Test Number: <u>ILT0401-1</u>	
Administrative (see Note)	Describe activity to be performed		
Conduct of Operations Security D	Determine Actions Required for a Security Threat K/A 2.1.6 (4.3) 43050101SAN01		
Conduct of Operations Mode Change D,P	Verify Conditions are Met to Enter Mode 2 K/A 2.1.31 (3.9)		
Equipment Control D	Review and Approve a Jet Pump Operability Test K/A 2.2.12 (3.4) 90410101SAF01		
Radiation Control M	Authorize An Emergency Dose For a Life-Saving Action K/A 2.3.4 (3.1) 99777703SAN01		
Emergency Plan D	Complete a NARS Form and make the required notifications. K/A 2.4.38 (4.0)		
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			
(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			

NRC Exam 04-01

ES-301

Control Room/In-Plant System Outline

Form ES-301-2

Facility: <u>Clinton</u> Exam Level (circle one): RO		Date of Examination: <u>7/11/05</u> Operating Test Number: <u>ILT0401-1</u>	
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
a.	Bypass a Rod Position at the Rod Action Control Cabinets K/A 201005, A4.01 (3.7/3.7) 33040220LSN01	D, C	1
b.	Inject to the RPV Using SX Through LPCI K/A 295031, EA1.08 (3.8/3.9) 44110315LSN01	D, S	2
c.	Place Main Turbine Control in Standby K/A 241000, A4.19 (3.5/3.4) 31050119LSN01	N, S	3
d.	RCIC Restart and swap of suction valve failure. K/A 217000, A2.16 (3.5/3.4) 33100108LSA01	A, N, S	4
e.	Verify Group 8 Isolation K/A 223002, A4.06 (3.6/3.7) 40010201LSF01	A, L, N, S	5
f.	Parallel DG 1B with Off Site Power K/A 264000, A2.01 (3.5/3.6) 35060105LSA01	D, A, P, S	6
g.	SBGT Shutdown with failure of Cooling fan to start K/A 261000, A2.13 (3.4/3.7) 33190103LSA01	N, A, S	9
h.	SF Valve Stroke Timing Test K/A 223002, A1.02 (3.7/3.7) 90610301LSA01	M,A,S	8
In-Plant Systems [®] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	Place RHR in Shutdown Cooling at the Remote Shutdown Panel K/A 205000, A1.06 (3.7/3.7) 40030104LSN01	D, E, L, R	4
j.	Lineup SLC Test Tank for RPV Injection K/A 295031, EA1.08 (3.8/3.9) 44110306NSN01	D, E, R	2
k.	Operate RPS Scram Breakers K/A 295015, AA1.02 (4.0/4.2) 44110804LSN01	D, E, R	7
* 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		$\geq 1 / \geq 1 / \geq 1$	
(L)ow Power		$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank		$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams		$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA		$\geq 1 / \geq 1 / \geq 1$	
(S)imulator			

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Control Room/In-Plant System Outline

Form ES-301-2

Facility: <u>Clinton</u> Exam Level (circle one): SRO(I)		Date of Examination: 7/11/05 Operating Test Number: <u>ILT0401-1</u>	
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
a.	Bypass a Rod Position at the Rod Action Control Cabinets K/A 201005, A4.01 (3.7/3.7) 33040220LSN01	D, C	1
b.	Inject to the RPV Using SX Through LPCI K/A 295031, EA1.08 (3.8/3.9) 44110315LSN01	D, S	2
c.	Place Main Turbine Control in Standby K/A 241000, A4.19 (3.5/3.4) 31050119LSN01	N, S	3
d.	RCIC Restart and swap of suction valve failure. K/A 217000, A2.16 (3.5/3.4) 33100108LSA01	A, N, S	4
e.	Verify Group 8 Isolation K/A 223002, A4.06 (3.6/3.7) 40010201LSF01	A, L, N, S	5
f.	Parallel DG 1B with Off Site Power K/A 264000, A2.01 (3.5/3.6) 35060105LSA01	D, A, P, S	6
g.	SBGT Shutdown with failure of Cooling fan to start K/A 261000, A2.13 (3.4/3.7) 33190103LSA01	N, A, S	9
h.			
In-Plant Systems [®] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	Place RHR in Shutdown Cooling at the Remote Shutdown Panel K/A 205000, A1.06 (3.7/3.7) 40030104LSN01	D, E, L, R	4
j.	Lineup SLC Test Tank for RPV Injection K/A 295031, EA1.08 (3.8/3.9) 44110306NSN01	D, E, R	2
k.	Operate RPS Scram Breakers K/A 295015, AA1.02 (4.0/4.2) 44110804LSN01	D, E, R	7
* 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		$\geq 1 / \geq 1 / \geq 1$	
(L)ow Power		$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank		$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams		$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA		$\geq 1 / \geq 1 / \geq 1$	
(S)imulator			

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Control Room/In-Plant System Outline

Form ES-301-2

Facility: <u>Clinton</u> Exam Level (circle one): SRO(U)	Date of Examination: 7/11/05_____ Operating Test Number: <u>ILT0401-1</u>	
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a.		
b. Inject to the RPV Using SX Through LPCI K/A 295031, EA1.08 (3.8/3.9) 44110315LSN01	D, S	2
c.		
d.		
e. Verify Group 8 Isolation K/A 223002, A4.06 (3.6/3.7) 40010201LSF01	A, L, N, S	5
f. Parallel DG 1B with Off Site Power K/A 264000, A2.01 (3.5/3.6) 35060105LSA01	D, A, P, S	6
g.		
h.		
In-Plant Systems [®] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. Place RHR in Shutdown Cooling at the Remote Shutdown Panel K/A 205000, A1.06 (3.7/3.7) 40030104LSN01	D, E, L, R	4
j.		
k. Operate RPS Scram Breakers K/A 295015, AA1.02 (4.0/4.2) 44110804LSN01	D, E, R	7
* 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	$\geq 1 / \geq 1 / \geq 1$	
(L)ow Power	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

Facility: <u>Clinton Power Station</u>	Scenario No.: <u>2 A</u>	Operating Test No.: <u>NRC 2005</u>	
Examiners: _____ _____	Operators: _____ _____		
<p>Initial Conditions: 73% power, Plant Shutdown in progress. Thunderstorm Watch is in effect. Service Air Compressor 1SA01C is OOS for Motor Bearing Replacement.</p> <p>Turnover:</p> <ul style="list-style-type: none"> • Continue normal plant shutdown and prepare to downshift RR Pumps after control rod pattern is verified. • Start and run SX Pump 'C' for 1 hour to obtain hot oil sample. 			
Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	N-BOP/SRO	Start SX Pump 'C'
2	Annunc	TS-SRO	Hydrogen Ignitor Division 1 Power Failure
3	N/A	R-ATC/SRO	Reduce power with flow
4	EG03 Override	I-ATC/SRO	High Generator Field Voltage requiring Manual Control of Voltage Regulator.
5	CW04C Override	C-BOP TS-SRO	SX Pump 'C' trips requiring manually opening 1SX014C. HPCS Inoperable.
6	DC02D	C-ATC/SRO	DCS Component Failure
7	RM01A	C-BOP/SRO	Trip of TBCCW Pump
8	ED02A ED02B	M-ALL C-BOP	Tornado, Loss of RAT & ERAT, Failure of DG Div II Diesel to Auto Start.
9	Override	M-ALL	RCIC Line Break that results in leakage into 2 rooms..

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

Scenario No.: 2Operating Test No.: ILT0401-1**Narrative Summary**

Event #	Description
1.	The BOP operator will start SX 1C Pump IAW CPS No. 3211.01, Section 8.1.2 to perform PMT.
2.	Annunciator CPS 5041-5H, Hyd Ignitor Sys Div 1 Trouble, is received. Technical Specifications will be evaluated and LCO 3.6.3.2, Action A1 will require the Hydrogen Ignitor Division to be restored to Operable status within 30 days.
3.	Power reduction with flow will commence. Power reduction can be halted upon direction from the Lead Examiner by initiating next event.
4.	Generator field voltage will start to increase requiring the ATC Operator to take manual control of the voltage regulator and adjust voltage. Annunciator CPS 5008-3E, Gen/Exciter Field Trouble, will also initiate alerting the operator to the problem.
5.	The Shutdown Service Water (SX) pump, which is running for PMT, will trip. The BOP operator will need to open the 1SX014C valve to restore cooling water to the SX components. Technical Specifications LCO 3.7.2, Action A. will be evaluated which will require that HPCS be declared Inoperable immediately.
6.	Annunciator 5004-2L, DCS Component Failure, causing a loss of the #4 and #8 DCS screens. This will require the RO to reroute the information by operating the DG 4 Bypass pushbutton on the P680 panel.
7.	A trip of TBCCW Pump 'B' will require the BOP Operator to start the standby pump.
8.	Security will report that the Thunderstorm Watch has been upgraded to a Tornado Warning and that a Tornado has been sighted on the South edge of Clinton. A Tornado will tear through the RAT and ERAT causing a loss of off-site power. The Div II DG will fail to auto start.
9.	A RCIC line break. will develop that simulates leakage into both the RCIC romm and the Steam Tunnel. This will cause entry into EOP-8, Secondary Containment Control as temperatures exceed Max Safe Values.

EOP

1, 8, 3

Critical tasks:

- Perform actions to re-energize 4160V Bus 1B1.
- Performs Blowdown when two or more areas are above the Max Safe Value.

Facility: <u>Clinton Power Station</u>	Scenario No.: <u>2 B</u>	Operating Test No.: <u>NRC 2005</u>	
Examiners: _____ _____	Operators: _____ _____		
<p>Initial Conditions: 73% power, Plant Shutdown in progress. Thunderstorm Watch is in effect. Service Air Compressor 1SA01C is OOS for Motor Bearing Replacement.</p> <p>Turnover:</p> <ul style="list-style-type: none"> • Continue normal plant shutdown and prepare to downshift RR Pumps after control rod pattern is verified. • Start and run SX Pump 'C' for 1 hour to obtain hot oil sample. 			
Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	N-BOP/SRO	Start SX Pump 'C'
2	Annunc	TS-SRO	Hydrogen Ignitor Division 1 Power Failure
3	N/A	R-ATC/SRO	Reduce power with flow
4	EG03 Override	I-ATC/SRO	High Generator Field Voltage requiring Manual Control of Voltage Regulator.
5	CW04C Override	C-BOP TS-SRO	SX Pump 'C' trips requiring manually opening 1SX014C. HPCS Inoperable.
6	DC02D	C-ATC/SRO	DCS Component Failure
7	RM01A	C-BOP/SRO	Trip of TBCCW Pump
8	ED02A ED02B	M-ALL C-BOP	Tornado, Loss of RAT & ERAT, Failure of DG Div II Diesel to Auto Start.
9	Override	M-ALL	RCIC Line Break that results in leakage into 2 rooms..

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

Scenario No.: 2Operating Test No.: ILT0401-1**Narrative Summary**

Event #	Description
1.	The BOP operator will start SX 1C Pump IAW CPS No. 3211.01, Section 8.1.2 to perform PMT.
2.	Annunciator CPS 5041-5H, Hyd Ignitor Sys Div 1 Trouble, is received. Technical Specifications will be evaluated and LCO 3.6.3.2, Action A1 will require the Hydrogen Ignitor Division to be restored to Operable status within 30 days.
3.	Power reduction with flow will commence. Power reduction can be halted upon direction from the Lead Examiner by initiating next event.
4.	Generator field voltage will start to increase requiring the ATC Operator to take manual control of the voltage regulator and adjust voltage. Annunciator CPS 5008-3E, Gen/Exciter Field Trouble, will also initiate alerting the operator to the problem.
5.	The Shutdown Service Water (SX) pump, which is running for PMT, will trip. The BOP operator will need to open the 1SX014C valve to restore cooling water to the SX components. Technical Specifications LCO 3.7.2, Action A, will be evaluated which will require that HPCS be declared Inoperable immediately.
6.	Annunciator 5004-2L, DCS Component Failure, causing a loss of the #4 and #8 DCS screens. This will require the RO to reroute the information by operating the DG 4 Bypass pushbutton on the P680 panel.
7.	A trip of TBCCW Pump 'B' will require the BOP Operator to start the standby pump.
8.	Security will report that the Thunderstorm Watch has been upgraded to a Tornado Warning and that a Tornado has been sighted on the South edge of Clinton. A Tornado will tear through the RAT and ERAT causing a loss of off-site power. The Div II DG will fail to auto start.
9.	A RCIC line break. will develop that simulates leakage into both the RCIC romm and the Steam Tunnel. This will cause entry into EOP-8, Secondary Containment Control as temperatures exceed Max Safe Values.

EOP

1, 8, 3

Critical tasks:

- Perform actions to re-energize 4160V Bus 1B1.
- Performs Blowdown when two or more areas are above the Max Safe Value.

Facility: <u>Clinton Power Station</u>		Scenario No.: <u>3</u>	Operating Test No.: <u>ILT0401-1</u>
Examiners: _____ _____		Operators: _____ _____	
<p>Initial Conditions: 73% Reactor Power, steady state, waiting on surveillance testing to complete. Thunderstorm Watch is in effect. Service Air Compressor 1SA01C is OOS for Motor Bearing Replacement.</p> <p>Turnover:</p> <ul style="list-style-type: none"> Shift Plant Service Water (WS) Pumps to 'A' in service and 'C' secured. 			
Event No.	Malf. No.	Event Type*	Event Description
1	N/A	TS-SRO	SLC Pump 'A' Oil Sightglass Empty
2	N/A	N-BOP/SRO	Shift WS Pumps
3	Annunc	C-BOP	Low Flow CW Pump 1C Brg Seal Water
4	CU01A	C-ATC/SRO	Loss of 'A' RT Filter Demin.
5	TU02	I-BOP	Turbine LO Temp Controller Failure
6	Annunc	C-ATC	Low Pressure RFP 1A Seal Water.
7	N/A	R-ATC/SRO	Power Reduction to remove RFP 1A from service.
8	Override	TS-SRO	LPCS/RHR A Water Leg Pump trip
9	Annunc RP01	M-ALL C-BOP	Seismic Event, Main Turbine High Vibration, with Scram and ATWS, SLC Squib Valves fail to fire.

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

Scenario No.: 3Operating Test No.: ILT0401-1**Narrative Summary**

Event #	Description
1.	A report will be made by the Area Operator stating that the Oil Sightglass for the 'A' SLC Pump is empty and there is oil on the skid. This will require entry into Technical Specification 3.1.7, Action A.1, which requires restoring the SLC Pump to Operable status within 7 days.
2.	The BOP Operator will shift Plant Service Water Pumps, placing 'A' WS Pump in service and securing 'C' WS Pump.
3.	Annunciator 5041-3G, Low Flow CW Pump 1C Brg Seal Water, is received. This will require the BOP operator to secure the 1C CW Pump.
4.	Annunciator CPS 5000-2C, F-D System Trouble will be received. The ATC Operator will then need to analyze system conditions and lineup system for 2 pump /1 filter operation.
5.	The BOP operator will need to diagnose the problem with the temperature controller and take manual control to stabilize temperature.
6.	Annunciator 5002-2A, Low Pressure Reactor Feed Pump 1A Seal Water, will be received. The RO will determine that seal pressure cannot be restored and will remove the RFP from service.
7.	A power reduction to <65% will be initiated to allow RFP 1A to be removed from service.
8.	Annunciator 5063-3H, LPCS/RHR A Water Leg Pump Auto Trip, is received. BOP operator will determine that the Water Leg Pump has tripped. This will require entry into Technical Specification 3.5.1, Action A.1, which requires restoring the low pressure subsystem to Operable status within 7 days.
9.	A seismic event exceeding an SSE condition will be received. This will require an orderly plant shutdown. The Main Turbine will experience high vibration which will require a manual scram with ATWS. The SLC Squib Valves will not fire preventing SLC Pump 'B' from injecting into the reactor. This will require Alternate Boron Injection.

EOP

6, 1A, (Alternate Boron Injection)

Critical tasks:

- Inhibit ADS
- Insert Control Rods to Shutdown the Reactor.
- Terminate and Prevent Injection to reduce power.