

Facility: Nine Mile Point Unit 2		Date of Exam: May 9, 2005																
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	4	1	N/A			5	4	N/A		3	20			7		
	2	1	1	1	N/A			1	2	N/A		1	7			3		
	Tier Totals	4	5	2	N/A			6	6	N/A		4	27			10		
2. Plant Systems	1	2	1	2	3	2	2	4	2	3	2	3	26			5		
	2	2	1	1	1	1	2	1	1	0	1	1	12			3		
	Tier Totals	4	2	3	4	3	4	5	3	3	3	4	38			8		
3. Generic Knowledge and Abilities Categories				1		2		3		4		10		1	2	3	4	7
				3		3		2		2								

Note: 1. Ensure that at least two topics from every 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 (IR) 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. 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		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)						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 RO 01	0 3						AK1.03 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: †Thermal limits.	3.6	1
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 RO 02					0 6		AA2.06 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Nuclear boiler instrumentation.	3.2	1
295003 Partial or Complete Loss of AC / 6 RO 03				0 2			AA1.02 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Emergency generators.	4.2	1
295004 Partial or Total Loss of DC Pwr / 6 RO 04				0 2			AA1.02 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Systems necessary to assure safe plant shutdown	3.8	1
295005 Main Turbine Generator Trip / 3 RO 05				0 1			AA1.01 Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP: Recirculation system.	3.1	1
295006 SCRAM / 1 RO 06		0 2					AK2.02 Knowledge of the interrelations between SCRAM and the following: Reactor water level control system.	3.8	1
295016 Control Room Abandonment / 7 RO 07		0 1					AK2.01 Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and the following: Remote shutdown panel.	4.4	1
295018 Partial or Total Loss of CCW / 8 RO 08	0 1						AK1.01 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Effects on component/system operations.	3.5	1
295019 Partial or Total Loss of Inst. Air / 8 RO 09		0 3					AK2.03 Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Reactor feedwater.	3.2	1
295021 Loss of Shutdown Cooling / 4 RO 10				0 4			AA1.04 Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: Alternate heat removal methods.	3.7	1
295023 Refueling Acc Cooling Mode / 8 RO 11	0 1						AK1.01 Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS: Radiation exposure hazards.	3.6	1
295024 High Drywell Pressure / 5 RO 12						X	2.1.32 Ability to explain and apply system limits and precautions.	3.4	1
295025 High Reactor Pressure / 3 RO 13				0 1			EA2.01 Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Reactor pressure.	4.3	1
295026 Suppression Pool High Water Temp. / 5 RO 14						X	2.2.22 Knowledge of limiting conditions for operations and safety limits.	3.4	1
295028 High Drywell Temperature / 5 RO 15		0 3					EK2.03 Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Reactor water level indication	3.6	1
295030 Low Suppression Pool Wtr Lvl / 5 RO 16						X	2.4.6 Knowledge symptom based EOP mitigation strategies.	3.1	1

295031 Reactor Low Water Level / 2 RO 17					0 4	EA2.04 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: Adequate core cooling.	4.6	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 RO 18					0 3	EA2.03 Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: SBLC tank level.	4.3	1
295038 High Off-site Release Rate / 9 RO 19				0 1		EA1.01 Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Stack-gas monitoring system.	3.9	1
600000 Plant Fire On Site / 8 RO 20			0 4			AK3.04 Knowledge of the reasons for the following responses as they apply to PLANT FIRE ON SITE: Actions contained in the abnormal procedure for plant fire on site.	2.8	1
K/A Category Totals:	3	4	1	5	4	3	Group Point Total:	20

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295009 Low Reactor Water Level / 2 RO 21					0 2		AA2.02 Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Steam flow/feed flow mismatch.	3.6	1
295012 High Drywell Temperature / 5 RO 22		0 2					AK2.02 Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell cooling.	3.6	1
295014 Inadvertent Reactivity Addition / 1 RO 23			0 1				AK3.01 Knowledge of the reasons for the following responses as they apply to INADVERTENT REACTIVITY ADDITION: Reactor SCRAM.	4.1	1
295015 Incomplete SCRAM / 1 RO 24	0 1						AK1.01 Knowledge of the operational implications of the following concepts as they apply to INCOMPLETE SCRAM: Shutdown margin.	3.6	1
295022 Loss of CRD Pumps / 1 RO 25						X	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
295033 High Secondary Containment Area Radiation Levels / 9 RO 26					0 1		EA2.01 Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Area radiation levels.	3.8	1
295029 High Suppression Pool Water Level / 5 RO 27				0 3			EA1.03 Ability to operate and/or monitor the following as they apply to HIGH SUPPRESSION POOL WATER LEVEL: RHR/LPCI.	2.9	1
K/A Category Point Totals:	1	1	1	1	2	1	Group Point Total:		7

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)											Form ES-401-1		
System # / Name	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 RO 28												X	2.4.31 Knowledge of annunciators alarms and indications / and use of the response instructions.	3.3	1
205000 Shutdown Cooling RO 29					0 2								K5.02 Knowledge of the operational implications of the following concepts as they apply to SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): Valve operation.	2.8	1
209001 LPCS RO 30				0 7									K4.07 Knowledge of LOW PRESSURE CORE SPRAY SYSTEM design feature(s) and/or interlocks which provide for the following: Pump operability testing	2.8	1
209002 HPCS RO 31	1 1												K1.11 Knowledge of the physical connections and/or cause effect relationships between HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) and the following: Adequate core cooling.	3.8	1
209002 HPCS RO 32										1 1			A4.11 Ability to manually operate and/or monitor in the control room: System flow.	3.8	1
211000 SLC RO 33									0 6				A3.06 Ability to monitor automatic operations of the STANDBY LIQUID CONTROL SYSTEM including: RWCU system isolation: Plant-Specific.	4.0	1
212000 RPS RO 34					0 2								K5.02 Knowledge of the operational implications of the following concepts as they apply to REACTOR PROTECTION SYSTEM: Specific logic arrangements.	3.3	1
215003 IRM RO 35			0 1										K3.01 Knowledge of the effect that a loss or malfunction of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM will have on following: RPS.	3.9	1
215004 Source Range Monitor RO 36												X	2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
215005 APRM / LPRM RO 37							0 4						A1.04 Ability to predict and/or monitor changes in parameters associated with operating the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM controls including: SCRAM and rod block trip setpoints.	4.1	1
217000 RCIC RO 38		0 1											K2.01 Knowledge of electrical power supplies to the following: Motor operated valves.	2.8	1
217000 RCIC RO 39												X	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
218000 ADS RO 40										0 2			A4.02 Ability to manually operate and/or monitor in the control room: ADS logic initiation	4.2	1

223002 PCIS/Nuclear Steam Supply Shutoff RO 41										08								K4.08 Knowledge of PRIMARY CONTAINMENT ISOLATION SYSTEM /NUCLEAR STEAM SUPPLY SHUT-OFF design feature(s) and/or interlocks which provide for the following: †Manual defeating of selected isolations during specified emergency conditions.	3.3	1
239002 SRVs RO 42																		K1.03 Knowledge of the physical connections and/or cause effect relationships between RELIEF/SAFETY VALVES and the following: Nuclear boiler instrument system	3.5	1
259002 Reactor Water Level Control RO 43																		A1.04 Ability to predict and/or monitor changes in parameters associated with operating the REACTOR WATER LEVEL CONTROL SYSTEM controls including: Reactor water level control controller indications	3.6	1
259002 Reactor Water Level Control RO 44																		K6.02 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR WATER LEVEL CONTROL SYSTEM: AC power.	3.3	1
261000 SGTS RO 45																		A2.05 Ability to (a) predict the impacts of the following on the STANDBY GAS TREATMENT SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Fan trips.	3.0	1
262001 AC Electrical Distribution RO 46																		A2.03 Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of off-site power. (Repeat K/A, 2000 NRC RO Written exam).	3.9	1
262002 UPS (AC/DC) RO 47																		A3.01 Ability to monitor automatic operations of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) including: Transfer from preferred to alternate source. (Repeat K/A, 2002 NRC RO Written exam).	2.8	1
263000 DC Electrical Distribution RO 48																		A3.01 Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including: Meters, dials, recorders, alarms, and indicating Lights.	3.2	1
264000 EDGs RO 49																		K4.02 Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: Emergency generator trips (emergency/LOCA).	4.0	1
264000 EDGs RO 50																		A1.01 Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including: Lube Oil Temperature.	3.0	1

300000 Instrument Air RO 51			0 2										K3.02 Knowledge of the effect that a loss or malfunction of the INSTRUMENT AIR SYSTEM will have on the following: Systems having pneumatic valves and controls.	3.3	1
400000 Component Cooling Water RO 52						0 5							K6.05 Knowledge of the effect that a loss or malfunction of the following will have on the CCWS: Pumps.	3.0	1
400000 Component Cooling Water RO 53							0 4						A1.04 Ability to predict and / or monitor changes in parameters associated with operating the CCWS controls including: Surge Tank Level	2.8	1
K/A Category Point Totals:	2	1	2	3	2	2	4	2	3	2	3		Group Point Total:		26

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)											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	#
201001 CRD Hydraulic RO 54								0 7				A2.07 Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Flow control valve failure.	3.2	1
201002 RMCS RO 55	0 1											K1.01 Knowledge of the physical connections and/or cause-effect relationships REACTOR MANUAL CONTROL SYSTEM and the following: Control rod hydraulic system	3.2	1
201006 RWM RO 56	0 4											K1.04 Knowledge of the physical connections and/or cause effect relationships between ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) and the following: Steam Flow/Reactor Power	3.1	1
202001 Recirculation RO 57						0 7						K6.07 Knowledge of the effect that a loss or malfunction of the following will have on the RECIRCULATION SYSTEM: Feedwater flow.	3.3	1
215001 TIP RO 58						0 4						K6.04 Knowledge of the effect that a loss or malfunction of the following will have on the TRAVERSING IN-CORE PROBE: Primary containment isolation system.	3.1	1
219000 RHR/LPCI: Torus/Pool Cooling Mode RO 59					0 4							K5.04 Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE: Heat exchanger operation.	2.9	1
234000 Fuel Handling Equipment RO 60				0 2								K4.02 Knowledge of FUEL HANDLING EQUIPMENT design feature(s) and/or interlocks which provide for the following: Prevention of control rod movement during core alterations.	3.3	1
241000 Reactor/Turbine Pressure Regulator RO 61										1 8		A4.18 Ability to manually operate and/or monitor in the control room: Turbine shell warming	2.9	1
271000 Offgas RO 62											X	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
272000 Radiation Monitoring RO 63	0 3											K2.03 Knowledge of electrical power supplies to the following: Stack gas radiation monitoring system.	2.5	1

290001 Secondary Containment RO 64			0 1											K3.01 Knowledge of the effect that a loss or malfunction of SECONDARY CONTAINMENT will have on the following: Off-site radioactive release rates	4.0	1
290003 Control Room HVAC RO 65							0 4							A1.04 Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROOM HVAC controls including: Control Room Pressure.	2.5	1
K/A Category Point Totals:	2	1	1	1	1	2	1	1	0	1	1			Group Point Total:		12

ES-401 Generic Knowledge and Abilities Outline (Tier 3) (RO) Form ES-401-3						
Facility: Nine Mile Point Unit 2 Date of Exam: May 9, 2005						
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	*
1. Conduct of Operations	2.1.1	Knowledge of conduct of operations requirements. RO 66	3.7	1		
	2.1.29	Knowledge of how to conduct and verify valve lineups. RO 67	3.4	1		
	2.1.25	Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data. RO 68	2.8	1		
	Subtotal				3	
2. Equipment Control	2.2.12	Knowledge of surveillance procedures. (Repeat K/A, 2002 NRC RO Written Exam) RO 69	3.0	1		
	2.2.13	Knowledge of tagging and clearance procedures. RO 70	3.6	1		
	2.2.22	Knowledge of limiting conditions for operation and safety limits. RO 71	3.4	1		
	Subtotal				3	
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized. RO 72	2.5	1		
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. RO 73	2.9	1		
	Subtotal				2	
4. Emergency Procedures / Plan	2.4.20	Knowledge of operational implications of EOP warnings / cautions / and notes. RO 74	3.3	1		
	2.4.39	Knowledge of the RO's responsibilities in emergency plan implementation. RO 75	3.3	1		
	Subtotal				2	
Tier 3 Point Total				10		

Facility: Nine Mile Point Unit 2											Date of Exam: May 9, 2005						
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												20	4	3	7	
	2				N/A					N/A			7	1	2	3	
	Tier Totals												27	5	5	10	
2. Plant Systems	1												26	3	2	5	
	2												12	2	1	3	
	Tier Totals												38	5	3	8	
3. Generic Knowledge and Abilities Categories				1	2	3	4					10	1	2	3	4	7
													2	2	1	2	

- Note: 1. Ensure that at least two topics from every 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 (IR) 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. 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		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295003 Partial or Total Loss of AC / 6 SRO 01						X	2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
295016 Control Room Abandonment / 7 SRO 02					0 2		AA2.02 Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: Reactor water level.	4.3	1
295020 Inadvertent Containment Isolation SRO 03					0 2		AA2.02 Ability to determine and/or interpret the following as they apply to INADVERTENT CONTAINMENT ISOLATION: Drywell/containment temperature.	3.4	1
295031 Reactor Low Water Level / 2 SRO 04						X	2.4.6 Knowledge symptom based EOP mitigation strategies.	4.0	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 SRO 05					0 1		EA2.01 Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor power.	4.3	1
295038 High Off-site Release Rate / 9 SRO 06					0 3		EA2.03 Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: †Radiation levels.	4.3	1
600000 Plant Fire On Site / 8 SRO 07						X	2.1.14 Knowledge of system status criteria which require the notification of plant personnel.	3.3	1
K/A Category Totals:	0	0	0	0	4	3	Group Point Total:		7

ES-401		BWR Examination Outline						Form ES-401-1	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)									
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	IR	#
295007 High Reactor Pressure / 3 SRO 08						X	2.2.22 Knowledge of limiting conditions for operation and safety limits.	4.1	1
295014 Inadvertent Reactivity Addition / 1 SRO 09						X	2.1.32 Ability to explain and apply system limits and precautions.	3.8	1
295033 High Secondary Containment Area Radiation Levels / 5 SRO 10					0	1	EA2.01 Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Area radiation levels.	3.9	1
K/A Category Point Totals:	0	0	0	0	1	2	Group Point Total:		3

ES-401		BWR Examination Outline										Form ES-401-1			
Plant Systems - Tier 2/Group 1 (SRO)															
System # / Name	K	K	K	K	K	K	A	A	A	A	G	K/A Topic(s)	IR	#	
	1	2	3	4	5	6	1	2	3	4					
209002 HPCS SRO 11												X	2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	1
212000 RPS SRO 12												X	2.2.22 Knowledge of limiting conditions for operations and safety limits.	4.1	1
215004 Source Range Monitor SRO 13								0	2				A2.02 Ability to (a) predict the impacts of the following on the SOURCE RANGE MONITOR (SRM) SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: SRM inop condition.	3.7	1
223002 PCIS/Nuclear Steam Supply Shutoff SRO 14								0	8				A2.08 Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: †Surveillance testing.	3.1	1
262001 AC Electrical Distribution SRO 15								1	1				A2.11 Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Degraded system voltages.	3.6	1
K/A Category Point Totals:	0	0	0	0	0	0	0	0	3	0	0	2	Group Point Total:		5

ES-401		BWR Examination Outline										Form ES-401-1		
Plant Systems - Tier 2/Group 2 (SRO)														
System # / Name	K	K	K	K	K	K	A	A	A	A	G	K/A Topic(s)	IR	#
	1	2	3	4	5	6	1	2	3	4				
201006 RWM SRO 16								0	5			A2.05 Ability to (a) predict the impacts of the following on the ROD WORTH MINIMIZER SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Out of sequence rod movement.	3.5	1
216000 Nuclear Boiler Inst. SRO 17											X	2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
234000 Fuel Handling Equipment SRO 18								0	1			A2.01 Ability to (a) predict the impacts of the following on the FUEL HANGLING EQUIPMENT; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Interlock failure.	3.7	1
K/A Category Point Totals:	0	0	0	0	0	0	0	2	0	0	1	Group Point Total:		3

ES-401		Generic Knowledge and Abilities Outline (Tier 3)			Form ES-401-3	
Facility:		Nine Mile Point Unit 2			Date of Exam: May 9, 2005	
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.11	Knowledge of less than one hour technical specification action statements for systems. (Evaluate LCO 3.0.3) SRO 19			3.8	1
	2.1.34	Ability to maintain primary and secondary plant chemistry within allowable limits. SRO 20			2.9	1
	Subtotal					2
2. Equipment Control	2.2.24	Ability to analyze the affect of maintenance activities on LCO status. SRO21			3.8	1
	2.2.29	Knowledge of SRO fuel handling responsibilities. SRO 22			3.8	1
	Subtotal					2
3. Radiation Control	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. SRO 23			3.3	1
	Subtotal					1
4. Emergency Procedures / Plan	2.4.38	Ability to take actions called for in the facility emergency plan / including (if required) supporting or acting as emergency coordinator. SRO 24			4.0	1
	2.4.41	Knowledge of action level thresholds and classifications. SRO 25			4.1	1
	Subtotal					2
Tier 3 Point Total						7

Facility: **Nine Mile Point Unit 2**Date of Exam: **May 9, 2005**

ES-401

Record of Rejected K/As (SRO)

Form ES-401-4

Tier / Group	Randomly Selected K/A	Reason for Rejection
Per ES-401, Attachment 1, #1: Review each group and delete those items [Emergency/Abnormal Plant Evolutions (E/APEs) for Tier 1 and systems for Tier 2] that clearly do not apply to the facility for which the examination is being written. They are:		
T1G1	NA	295027 High Containment Temperature. Not applicable to facility.
T1G2	NA	295011 High Containment Temperature. Not applicable to facility.
T2G1	NA	206000 High Pressure Coolant Injection (HPCI). Not applicable to facility design.
T2G1	NA	207000 Isolation (Emergency Condenser). Not applicable to facility design.
T2G2	NA	201005 Rod Control and Information System (RCIS). Not applicable to facility design.
T2G2	NA	239003 MSIV Leakage Control System. Not applicable to facility design.
Per ES-401, Attachment 2 #5: Except as noted in ES-401, Attachment 2, Item 1, all KA statements that are eliminated after they have been randomly selected to fill an examination outline shall be documented on Form ES-401-4, "Record of Rejected KAs," or equivalent. They are:		
T1G1	600000 2.4.31	Rejected based on this K/A not linked to 10CFR55.43.
T1G1	60000 2.1.23	Rejected based on this K/A not linked to 10CFR55.43.
T1G2	295014 2.1.2	Rejected based on this K/A not linked to 10CFR55.43.
T1G2	295014 2.4.50	Rejected based on this K/A not linked to 10CFR55.43.
T3	2.4.31	Rejected based on this K/A not linked to 10CFR55.43.
T3	2.4.25	Rejected based on avoiding possible double jeopardy and over sampling with 600000 2.1.23. Rejected based on this K/A not linked to 10CFR55.43.
T3	2.4.40	Rejected based on this K/A not linked to 10CFR55.43.
T3	2.4.44	Replaced KA for SRO 25 because of double jeopardy and over-sampling. This topic is covered in SRO Admin JPM topics. Randomly selected 2.4.41
Per ES-401 D.1.d: After completing the outline, check the selected K/As for balance of coverage within and across the three tiers. Ensure that every applicable K/A category is sampled at least twice within each of the three tiers.		
NONE	NONE	NONE
Changes made during draft development after outline submittal and NRC review. (2/18/05- 3/18/05)		
T1G1	295024 AA2.02	Replaced KA, unable to write an acceptable discriminating question at SRO level. Randomly selected new KA 295020 AA2.02 (SRO 3)
T3	2.3.4	Replaced KA based on overlap with RO 72. Randomly selected from generic 2.3s new KA 2.3.10 (SRO 23)

Facility: NINE MILE POINT 2		Date of Examination: May 2, 2005
Examination Level (circle one): RO		Operating Test Number: NRC-01
Administrative Topic	Type Code*	Describe activity to be performed
Conduct of Operations Logs RO ADMIN 1	N	EVALUATE SHIFT LOG READING DATA. Given control room instrument readings for various daily checks required by Technical Specifications enter the instrument readings into the applicable sections of the control room log sheet(s) and take appropriate actions based on those checks. <i>2.1.18 (2.9) Ability to make accurate / clear and concise logs / records / status boards / and reports.</i> GAP-OPS-01; 3.10, N2-OSP-LOG-D001
Conduct of Operations Shift Turnover RO ADMIN 2	N	REVIEW SHIFT TURNOVER DOCUMENTS. Evaluate conditions provided in S-PM-D001 Control Room System Lineup Verification and determine the required corrective actions. <i>2.1.3 (3.0) Knowledge of shift turnover practices.</i> OPERATIONS MANUAL, Section OM 2.2 S-PM-D001 Control Room System Lineup Verification
Equipment Control Use of Piping and Instrument Drawings RO ADMIN3	N	DEFEAT RCIC/MAIN TURBINE TRIP PER EOP-6. ELECTRICAL PRINT READING. Determine appropriate EOP support procedure to be used, then trace through various station electrical drawings (GE prints and ESK's) to identify components and describe how and why procedure implementation defeats the main turbine trip with RCIC initiation signal present. <i>2.1.24 (2.8) Ability to obtain and interpret station electrical and mechanical drawings.</i> N2-EOP-C5; N2-EOP-6 Attachment 2 GE DWG 807E173TY SHEET 3 and 9 ESK 8SPU02; ESK 11ICS05
Radiation Control RO ADMIN 4	N	RADIOLOGICAL REQUIREMENTS RELATED TO OPERATOR INSPECTION OF HIGH RAD AREAS. Given radiological conditions related to an area to be inspected as shown on a survey map, and other applicable conditions such as the RWP, ensure the appropriate radiological aspects of the job are met prior to performance of the inspection. <i>2.3.10 (2.9) Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.</i> GAP-RPP-01; 3.5, 3.6, 3.7, GAP-RPP-02; 3.1, 3.3, GAP-RPP-08; 3.2, 3.3, U2 HIGH RAD AREA INSPECTIONS
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 & retakes)		
(N)ew or (M)odified from bank (≥ 1)		
(P)revious 2 exams (≤ 1; randomly selected)		
(S)imulator		

Facility: NINE MILE POINT 2		Date of Examination: May 2, 2005
Examination Level (circle one): SRO		Operating Test Number: NRC-01
Administrative Topic	Type Code*	Describe activity to be performed
Conduct of Operations SRO ADMIN 1	N	DETERMINE REQUIRED ACTIONS FOR RCIC ROOM UNIT COOLERS OUT OF SERVICE DURING PLANT STARTUP. Given plant conditions during startup and failure of RCIC Room Unit Coolers HVR*UC412A and B, determine required compensatory actions per Operating Procedures and Tech Specs, including systems required to be declared inoperable and the effect on continuing the reactor startup and heatup. <i>2.1.23 (4.0) Ability to perform specific system and integrated plant procedures during different modes of plant operation.</i> N2-OP-52; N2-OP-78; TECH SPEC 3.5.3. and 3.6.4.3
Conduct of Operations SRO ADMIN 2	N	DETERMINATION OF REACTIVITY EVENT SEVERITY LEVEL AND SUPPORTING ACTIONS IN RESPONSE TO THE EVENT. Given plant conditions related to a reactivity event, determine the event severity level and the appropriate compensatory actions and notifications in response to the event. <i>2.1.7 (4.4) Ability to evaluate plant performance and make operational judgements based on operating characteristics / reactor behavior / and instrument interpretation.</i> GAP-OPS-05; 3.13, Tech Specs
Equipment Control SRO ADMIN 3	N	REVIEW SURVEILLANCE DATA INCLUDING ACTIONS FOR UNSATISFACTORY CONDITIONS. Given a completed surveillance with out of specification parameters, transfer the data from the surveillance procedure to the acceptance test work sheet, evaluate the data, and take action including the surveillance paperwork for an unsatisfactory test and determining the TS implication for unsatisfactory conditions. <i>2.2.12 (3.4) Knowledge of surveillance procedures.</i> <i>2.2.24 (3.8) Ability to analyze the effect of maintenance activities on LCO status. (3.8)</i> <i>2.2.22(4.1) Knowledge of limiting conditions for operations ans safety limits.</i> N2-OSP-ICS-Q@002, Technical Specifications
Radiation Control SRO ADMIN 4	N	OFFSITE DOSE CALCULATON MANUAL (ODCM) ASSESSMENT AND REPORTABILITY FOR RADIOLOGICAL EFFLUENTS. Given conditions related to requirements within the ODCM and must determine the applicable actions and reporting requirements. <i>2.3.1 (3.0) Knowledge of 10CFR20 and related facility radiation control requirements.</i> EPIP-EPP-15, ODCM
Emergency Plan SRO ADMIN 5	N	EMERGENCY EAL CLASSIFICATION (POST SCENARIO). Based on events that occurred within SRO Simulator Scenario as SRO, classify the emergency event. May be performed post scenario or as table top discussion. <i>2.4.40 (4.0) Knowledge of the SROs responsibilities in emergency plan implementation.</i>

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 & retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected) (S)imulator
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SRO Admin 2: Removed reference to KA 2.1.12 due to being not applicable to this test item.

Facility: Nine Mile Point 2 Examination Level (circle one): RO		Date of Examination: May 2, 2005 Operating Test Number: NRC-01	
Control Room Systems® (8 for RO; 7 for SRO-I; 3 for SRO-U shaded)			
System / JPM Title		Type Code*	Safety Function
a. JPM 1 DOWNSHIFT REACTOR RECIRC PUMPS System: RCS Procedure N2-OP-29 G.1.0 KA: 202001 A4.01 3.7/3.7 Task: 202-915-01-01		S, N	1 REACTIVITY CONTROL
b. JPM 2 RCIC INJECTION WITH OSCILLATIONS After manually starting RCIC, malfunctioning flow controller requires placing controller in manual to establish rated system flow. System: RCIC Procedure: N2-OP-35 F.2.0 KA: 217000 A2.10 2.9/3.0 Task: 217-003-01-01 JPM Bank: 02-OPS-SJE-217-2-05		S, D, A, P Randomly selected from previous 2 exams (2002)	2 REACTOR WATER INVENTORY CONTROL
c. JPM 3 RESTORE SHUTDOWN COOLING FOLLOWING PLANNED SHUTDOWN After starting RHS pump, failure of throttle valve results in inability to establish proper system flow, requires pump trip. System: SDC/RHS Procedure: N2-OP-31 H.4.0 KA: 205000 A2.12 2.9/3.0 Task: 205-003-01-01 JPM Bank: 02-OPS-SJE-205-2-11		S, D, A, (SD)*	4 HEAT REMOVAL FROM REACTOR CORE
d. JPM 4 INITIATE CONTAINMENT VENTING TO SBTG UNDER ACCIDENT CONDITIONS System: GTS Procedure N2-OP-61A H.1.0 KA: 223001 A2.07 4.2/4.1 Task: 200-942-05-01 (PRA) JPM Bank: 02-OPS-SJE-261-2-02		S, D, E, ESF	5 CONTAINMENT INTEGRITY
e. JPM 5 ENERGIZE RESERVE STATION TRANSFORMER FROM LINE 6 and ENERGIZE NPS-SWG003 FROM RESERVE STATION TRANSFORMER 1B System: NPS Procedure N2-SOP3 Attachments 6 & 7 KA: 262001 A4.01 3.4/3.7 Task: 200-035-05-01 (PRA)		S, N	6 ELECTRICAL

Facility: Nine Mile Point 2		Date of Examination: May 2, 2005
Examination Level (circle one): RO		Operating Test Number: NRC-01
Control Room Systems [®] (8 for RO; 7 for SRO-I; 3 for SRO-U shaded)		
System / JPM Title	Type Code*	Safety Function
f. JPM 6 PERFORM TURBINE CONTROL VALVE (CV1) SURVEILLANCE During testing CV1 will fail to generate the required RPS channel trip, requires inserting a ½ scram signal in associated trip system. System: EHC/RPS Procedure: N2-OSP-RPS-Q001; N2-SOP-97 KA: 212000 A2.03 3.5/3.5 Task: 212-905-02-01	S, N, A	7 INSTRUMENTS
g. JPM 7 SHIFT INSTRUMENT AIR COMPRESSORS Compressor trip during swap requires entry into N2-SOP-19 and manual start of another air compressor. System: IAS Procedure: N2-OP-19 F.2.0; N2-SOP-19 KA: 295019 AA2.01 3.5/3.6 Task: 278-004-01-01	S, N, A	8 PLANT SERVICE SYSTEMS
h. JPM 8 MANUAL INITIATION OF CONTROL BUILDING SPECIAL FILTER TRAIN System: HVC Procedure: N2-OP-53A Task: 288-004-01-01 KA: 295038 EA1.07 3.6/3.8 JPM Bank NRC 2000 JPM J1-1	D, S, P Randomly selected from previous 2 exams (2000)	9 RADIOACTIVITY RELEASE

JPM Setup Plan A

JPM 3 then JPM 7 single for each candidate (Short), if performing plant JPMs with 2 evaluators

JPM 2 and 5 Post Line Loss and shutdown

JPM 4 and 6 Power operations

JPM 1 and 8 40% Power

JPM Setup Plan B

JPM 1 and 7 40% power

JPM 2 and 5 Post Line Loss and shutdown

JPM 3 and 8 Plant shutdown

JPM 4 and 6 Power operations

Facility: **Nine Mile Point 2** Date of Examination: **May 2, 2005**
 Examination Level (circle one): **RO** Operating Test Number: **NRC-01**

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

System / JPM Title	Type Code*	Safety Function
i. JPM 9 VENT CONTROL ROD OVERPISTON VOLUME. System: RDS Procedure: N2-EOP-6 Attachment 14 Task: 200-962-05-01 KA: 295015 AA1.01 3.8/3.9 JPM Bank: 02-OPS-PJE-200-2-69	D, E, R, P Randomly selected from previous 2 exams (1999)	1 REACTIVITY CONTROL
j. JPM 10 ALIGN FIRE WATER SYSTEM TO INJECT TO RHR A(B). System: RHS Procedure: N2-EOP-6 Attachment 6 Task: 200-930-05-01 KA: 295031 EA1.08 3.8/3.9 JPM Bank: 02-NLO-PJE-205-2-02(04)	D, E, R,	2 RX WATER INVENTORY CONTROL
k. JPM 11 PERFORM LOWER CONTROL BUILDING OPERATOR IMMEDIATE ACTION PER N2-SOP-78, CONTROL ROOM EVACUATION. System: ENS Procedure: N2-SOP-78 Task: 296-904-01-04 KA: 295016 AA1.04 3.1/3.2	N, A, E	6 ELECTRICAL

[@] 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	RO	Criteria	SROI	Criteria	SROU
(A)lternate path	4-6	5	4-6	5	2-3	2
(C)ontrol room		0		0		0
(D)irect from bank	≤9	6	≤8	5	≤4	3
(E)mergency or abnormal in-plant	≥1	4	≥1	4	≥1	3
(L)ow-Power or (SD)* Shutdown	≥1	1	≥1	1	≥1	1
(N)ew or (M)odified from bank including 1(A)	≥2	5	≥2	5	≥1	2
(P)revious two exams (randomly selected [#])	≤3	3	≤3	2	≤2	0
(R)CA	≥1	2	≥1	2	≥1	1
(S)imulator		8		7		3

SRO-U performs Simulator JPMs 1, 3, 4 and Plant JPMs 10, 11 (Safety Functions 1, 2, 4, 5, 6)
 SRO-I performs all JPMs except Simulator JPM 8

* (SD) Shutdown (JPM 3) per ES 301 4.b page 14, "...one of the tasks shall be related to a SHUTDOWN OR low power condition..." JPM 3 is related to SHUTDOWN condition.

Facility: Nine Mile Point 2		Date of Examination: May 2, 2005
Examination Level (circle one): SRO-Instants		Operating Test Number: NRC-01
Control Room Systems [®] (8 for RO; 7 for SRO-I; 3 for SRO-U shaded)		
System / JPM Title	Type Code*	Safety Function
a. JPM 1 DOWNSHIFT REACTOR RECIRC PUMPS System: RCS Procedure N2-OP-29 G.1.0 KA: 202001 A4.01 3.7/3.7 Task: 202-915-01-01	S, N	1 REACTIVITY CONTROL
b. JPM 2 RCIC INJECTION WITH OSCILLATIONS After manually starting RCIC, malfunctioning flow controller requires placing controller in manual to establish rated system flow. System: RCIC Procedure: N2-OP-35 F.2.0 KA: 217000 A2.10 2.9/3.0 Task: 217-003-01-01 JPM Bank: 02-OPS-SJE-217-2-05	S, D, A, P Randomly selected from previous 2 exams (2002)	2 REACTOR WATER INVENTORY CONTROL
c. JPM 3 RESTORE SHUTDOWN COOLING FOLLOWING PLANNED SHUTDOWN After starting RHS pump, failure of throttle valve results in inability to establish proper system flow, requires pump trip. System: SDC/RHS Procedure: N2-OP-31 H.4.0 KA: 205000 A2.12 2.9/3.0 Task: 205-003-01-01 JPM Bank: 02-OPS-SJE-205-2-11	S, D, A, (SD)*	4 HEAT REMOVAL FROM REACTOR CORE
d. JPM 4 INITIATE CONTAINMENT VENTING TO SBTG UNDER ACCIDENT CONDITIONS System: GTS Procedure N2-OP-61A H.1.0 KA: 223001 A2.07 4.2/4.1 Task: 200-942-05-01 (PRA) JPM Bank: 02-OPS-SJE-261-2-02	S, D, E, ESF	5 CONTAINMENT INTEGRITY
e. JPM 5 ENERGIZE RESERVE STATION TRANSFORMER FROM LINE 6 and ENERGIZE NPS-SWG003 FROM RESERVE STATION TRANSFORMER 1B System: NPS Procedure N2-SOP3 Attachments 6 & 7 KA: 262001 A4.01 3.4/3.7 Task: 200-035-05-01 (PRA)	S, N	6 ELECTRICAL

Facility: Nine Mile Point 2		Date of Examination: May 2, 2005
Examination Level (circle one): SRO-Instants		Operating Test Number: NRC-01
Control Room Systems [@] (8 for RO; 7 for SRO-I; 3 for SRO-U shaded)		
System / JPM Title	Type Code*	Safety Function
f. JPM 6 PERFORM TURBINE CONTROL VALVE (CV1) SURVEILLANCE During testing CV1 will fail to generate the required RPS channel trip, requires inserting a 1/2 scram signal in associated trip system. System: EHC/RPS Procedure: N2-OSP-RPS-Q001; N2-SOP-97 KA: 212000 A2.03 3.5/3.5 Task: 212-905-02-01	S, N, A	7 INSTRUMENTS
g. JPM 7 SHIFT INSTRUMENT AIR COMPRESSORS Compressor trip during swap requires entry into N2-SOP-19 and manual start of another air compressor. System: IAS Procedure: N2-OP-19 F.2.0; N2-SOP-19 KA: 295019 AA2.01 3.5/3.6 Task: 278-004-01-01	S, N, A	8 PLANT SERVICE SYSTEMS

JPM Setup Plan A

JPM 3 then JPM 7 single for each candidate (Short), if performing plant JPMs with 2 evaluators

JPM 2 and 5 Post Line Loss and shutdown

JPM 4 and 6 Power operations

JPM 1 and 8 40% Power

JPM Setup Plan B

JPM 1 and 7 40% power

JPM 2 and 5 Post Line Loss and shutdown

JPM 3 and 8 Plant shutdown

JPM 4 and 6 Power operations

Facility: **Nine Mile Point 2** Date of Examination: **May 2, 2005**
 Examination Level (circle one): **SRO-Instants** Operating Test Number: **NRC-01**

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

System / JPM Title	Type Code*	Safety Function
h. JPM 9 VENT CONTROL ROD OVERPISTON VOLUME. System: RDS Procedure: N2-EOP-6 Attachment 14 Task: 200-962-05-01 KA: 295015 AA1.01 3.8/3.9 JPM Bank: 02-OPS-PJE-200-2-69	D, E, R, P Randomly selected from previous 2 exams (1999)	1 REACTIVITY CONTROL
i. JPM 10 ALIGN FIRE WATER SYSTEM TO INJECT TO RHR A(B). System: RHS Procedure: N2-EOP-6 Attachment 6 Task: 200-930-05-01 KA: 295031 EA1.08 3.8/3.9 JPM Bank: 02-NLO-PJE-205-2-02(04)	D, E, R,	2 RX WATER INVENTORY CONTROL
j. JPM 11 PERFORM LOWER CONTROL BUILDING OPERATOR IMMEDIATE ACTION PER N2-SOP-78, CONTROL ROOM EVACUATION. System: ENS Procedure: N2-SOP-78 Task: 296-904-01-04 KA: 295016 AA1.04 3.1/3.2	N, A, E	6 ELECTRICAL

[@] 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	RO	Criteria	SROI	Criteria	SROU
(A)lternate path	4-6	5	4-6	5	2-3	2
(C)ontrol room		0		0		0
(D)irect from bank	≤9	6	≤8	5	≤4	3
(E)mergency or abnormal in-plant	≥1	4	≥1	4	≥1	3
(L)ow-Power or (SD)* Shutdown	≥1	1	≥1	1	≥1	1
(N)ew or (M)odified from bank including 1(A)	≥2	5	≥2	5	≥1	2
(P)revious two exams (randomly selected [#])	≤3	3	≤3	2	≤2	0
(R)CA	≥1	2	≥1	2	≥1	1
(S)imulator		8		7		3

SRO-U performs Simulator JPMs 1, 3, 4 and Plant JPMs 10, 11 (Safety Functions 1, 2, 4, 5, 6)

SRO-I performs all JPMs except Simulator JPM 8

* (SD) Shutdown (JPM 3) per ES 301 4.b page 14, "...one of the tasks shall be related to a SHUTDOWN OR low power condition..." JPM 3 is related to SHUTDOWN condition.

Facility: Nine Mile Point 2		Date of Examination: May 2, 2005
Examination Level (circle one): SRO-Upgrades		Operating Test Number: NRC-01
Control Room Systems® (8 for RO; 7 for SRO-I; 3 for SRO-U shaded)		
System / JPM Title	Type Code*	Safety Function
a. JPM 1 DOWNSHIFT REACTOR RECIRC PUMPS System: RCS Procedure N2-OP-29 G.1.0 KA: 202001 A4.01 3.7/3.7 Task: 202-915-01-01	S, N	1 REACTIVITY CONTROL
b. JPM 3 RESTORE SHUTDOWN COOLING FOLLOWING PLANNED SHUTDOWN After starting RHS pump, failure of throttle valve results in inability to establish proper system flow, requires pump trip. System: SDC/RHS Procedure: N2-OP-31 H.4.0 KA: 205000 A2.12 2.9/3.0 Task: 205-003-01-01 JPM Bank: 02-OPS-SJE-205-2-11	S, D, A, (SD)*	4 HEAT REMOVAL FROM REACTOR CORE
c. JPM 4 INITIATE CONTAINMENT VENTING TO SBTG UNDER ACCIDENT CONDITIONS System: GTS Procedure N2-OP-61A H.1.0 KA: 223001 A2.07 4.2/4.1 Task: 200-942-05-01 (PRA) JPM Bank: 02-OPS-SJE-261-2-02	S, D, E, ESF	5 CONTAINMENT INTEGRITY
d. JPM 10 ALIGN FIRE WATER SYSTEM TO INJECT TO RHR A. System: RHS Procedure: N2-EOP-6 Attachment 6 Task: 200-930-05-01 KA: 295031 EA1.08 3.8/3.9 JPM Bank: 02-NLO-PJE-205-2-02(04)	D, E, R,	2 RX WATER INVENTORY CONTROL
e. JPM 11 PERFORM LOWER CONTROL BUILDING OPERATOR IMMEDIATE ACTION PER N2-SOP-78, CONTROL ROOM EVACUATION. System: ENS Procedure: N2-SOP-78 Task: 296-904-01-04 KA: 295016 AA1.04 3.1/3.2	N, A, E	6 ELECTRICAL

@ 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	RO	Criteria	SROI	Criteria	SROU
(A)lternate path	4-6	5	4-6	5	2-3	2
(C)ontrol room		0		0		0
(D)irect from bank	≤9	6	≤8	5	≤4	3
(E)mergency or abnormal in-plant	≥1	4	≥1	4	≥1	3
(L)ow-Power or (SD)* Shutdown	≥1	1	≥1	1	≥1	1
(N)ew or (M)odified from bank including 1(A)	≥2	5	≥2	5	≥1	2
(P)revious two exams (randomly selected [#])	≤3	3	≤3	2	≤2	0
(R)CA	≥1	2	≥1	2	≥1	1
(S)imulator		8		7		3

SRO-U performs Simulator JPMs 1, 3, 4 and Plant JPMs 10, 11 (Safety Functions 1, 2, 4, 5, 6)

SRO-I performs all JPMs except Simulator JPM 8

* (SD) Shutdown (JPM 3) per ES 301 4.b page 14, "...one of the tasks shall be related to a SHUTDOWN OR low power condition..." JPM 3 is related to SHUTDOWN condition.

Facility: Nine Mile Point 2		Scenario No.: NRC-01		Op-Test No.: NRC-01	
Examiners: _____		Operators: _____			
Initial Conditions: Simulator IC-20					
1. All OPRMs are inoperable					
2. 100% Power Rod Line >100% (103%)					
Turnover:					
1. Raise Suppression Pool water level to 200 feet using CSH Pump per N2-OP-33					
Event No.	Malf. No.	Event Type*	Event Description		
1		N (BOP) N (SRO)	Suppression Pool Fill Utilizing CSH Pump. The crew will lineup the High Pressure Core Spray System and add makeup water to the Suppression Pool from the Condensate Storage Tanks per normal operating procedure N2-OP-33 High Pressure Core Spray H.3.0		
2	RR08B	I (ATC) I, TS (SRO)	Recirc Flow Unit B Failed Downscale. Results in failure diagnosis, instrument bypass and SRO Tech Spec implementation. N2-ARP-01 N2-OP-92 Tech Spec 3.1.3		
3	FW03A RR31 RR30	C (BOP) R (SRO) R (ATC)	Feedwater Pump A spurious trip with Reactor Recirculation FCV B runback failure due to trip of hydraulics (TS 3.4.1). FCV lockup results in failure to automatically reduce power to within single Feedwater pump capacity. Rapid Power Reduction with Cram Rods is required to prevent automatic scram on Low RPV Water Level N2-SOP-6 Feedwater Failures, SOP-29 Sudden Reduction In Core Flow SOP-101D Rapid Power Reduction		
4	FW35	I (ATC)	Steam flow signal to Feedwater Level Control operates erratically resulting in water level transient. Require taking manual control of Feedwater to stabilize level. N2-SOP-6 Feedwater Failures		
5	Override Switch P628-B22C- S4A-A	C (BOP) C,TS (SRO)	ADS/SRV 121 fails opens due to ADS Division I control switch failure. Valve closes when fuses pulled. (TS 3.5.1.E, F, and H / TS 3.0.3) N2-SOP-34 Stuck Open SRV		
6	TU02 9% and MC01 15%, Ramp Time 3 minutes	M (ALL)	The main turbine vibration degrades and a small amount of Main Condenser air in-leakage results in a slight drop in vacuum. Because of the rising turbine vibration, the crew will insert a manual reactor scram and trip the main turbine. N2-ARP-01 N2-SOP-9 N2-EOP-RPV		

7	MC01@ 100% Ramp Time % minutes	M (Major event continued but not counted)	Loss of main condenser vacuum. The degrading vibration causes a main condenser vacuum leak that degrades rapidly once the reactor is scrammed and results in automatic closure of MSIVs. The loss of the main condenser as a heat sink requires manual operation of SRVs for pressure control and contributes to challenging the Heat Capacity Temperature Limit. Rising Suppression Pool temperature requires entry into N2-EOP-PC. N2-EOP-PC
8	RD17Z @17 (Insert to position 17) RP12A RP12B	C (ATC) C (BOP) C (SRO)	Incomplete Scram. When the crew scrams the reactor control rods fail to insert due to hydraulic lock. Reactor power will lower to about 20%. The crew will be able to manually insert control rods using RMCS. Additional manual scrams will be successful in inserting control rods. N2-EOP-C5 N2-EOP-6 Attachment 14
9	CU08	C (BOP)	The crew will be required to respond to a failure of RRCS to initiate and WCS to isolate when SLC is manually initiated.
10	FW02A FW02B FW02C	C (ALL)	Trip of all Condensate Booster Pumps results in loss of all Feedwater capability after terminate and prevent injection is performed. The crew will be required to perform RPV Blowdown when RPV water level cannot be maintained above MSCWL. The use of Alternate Injection systems such as low pressure ECCS systems is then required to maintain adequate core cooling. EOP-C2
11			SRO ADMIN JPM 5-1 SRO classifies the event as Site Area Emergency 2.2.2

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

Facility: Nine Mile Point 2		Scenario No.: NRC-01	Op-Test No.: NRC-01
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)		ACTUAL ATTRIBUTES	
1. Total malfunctions (5-8) Events 2,3,4,5,8,9		6	
2. Malfunctions after EOP entry (1-2) Events 9,10		2	
3. Abnormal events (2-4) Event 4 SOP-6, Event 5 SOP-34		2	
4. Major transients (1-2) Event 6 (and 7 only counted once)		1	
5. EOPs entered/requiring substantive actions (1-2) Event 6 and 7 EOP-RPV, EOP-PC		2	
6. EOP contingencies requiring substantive actions (0-2) Event 8 EOP-C5, Event 10 EOP-C2		2	
7. Critical tasks (2-3)		4	
CRITICAL TASK DESCRIPTIONS: CT-1.0 Close ADS valve prior to SPT reaching 110°F CT-2.0 Avoid exceeding HCTL CT-3.0 Restore and maintain RPV water level above MSCRWL (-39 inches) CT-4.0 Fully insert control rods			

Facility: Nine Mile Point 2		Scenario No.: NRC-02		Op-Test No.: NRC-01	
Examiners: _____			Operators: _____		
Initial Conditions: Simulator IC-20					
1. Division I Low Pressure ECCS systems CSL and RHS are inoperable for maintenance.					
2. 100% Power Rod Line >100% (103%)					
Turnover:					
1. Place RDS-P1B in service					
Event No.	Malf. No.	Event Type*	Event Description		
1		N (BOP) N (SRO)	Swap Control Rod Drive Pumps to RDS-P1B in-service. N2-OP-30		
2	RR16A @.25 1 min ramp RR16A @ .75 1 min ramp	C (BOP) C, R, TS (SRO) R (ATC)	Recirc Pump (RCS) A outer seal degradation and leakage. The leakage requires removal from service and isolation of RCS Pump A to stop the leak. (TS 3.4.1) Cram Rod insertion is required to reduce rod line below 100%. With inoperable OPRMs additional actions are required to monitor for power oscillations while in the Heightened Awareness Zone. N2-SOP-29.1, Reactor Recirc Pump Seal Failure N2-SOP-29, Sudden Reduction In Core Flow Tech Spec 3.4.1		
3	RD18 RD063419 RD062227	C (ATC) C, TS (SRO)	Control Rod Drive Pump RDS-P1B trips due to clogged suction strainer with 2 HCU Accumulator Trouble Alarms. The crew will trip Reactor Water Cleanup pumps if warranted and restart an RDS pump after dispatching operators to changeover pump suction filters N2-SOP-30, Control Rod Drive Failures Tech Spec 3.1.5		
4	ED02A DG04A CS03	C (ALL) TS (SRO)	Loss of line 5 and Division I and III Diesel Generators (DG) fails to start on bus undervoltage. Division I DG manual start is performed to avoid the requirement to initiate a manual scram. Crew will restore Service Water system to allow continued plant operation per SOP 3. SRO enters Tech Specs and with both High and Low Pressure Core Spray systems inoperable, enters LCO 3.0.3 which requires plant shutdown. High Pressure Core Spray is also unavailable as an injection source later in scenario. N2-SOP-3, Loss of AC Power Tech Specs 3.5.1 LCO 3.0.3 3.7.1, 3.8.1, 3.8.8 PRA Tasks		
5	RR20 @1.5% RR20@10% 10 min ramp after scram	M (ALL)	Reactor coolant leak. Rising Drywell Pressure will require a manual scram. RPV Water level lowers but can be restored and maintained above TAF by manually starting failed ECCS systems. Containment Spray is required. N2-EOP-RPV, N2-EOP-PC		

6	EG15B	C (BOP)	A failure of NPS-SWG003 to transfer to Line 6 results in Loss of all feedwater and loss of all normal station power except Emergency Bus supplied by the operating DGs.
7	RH14B	C (BOP)	Division II Low Pressure ECCS systems fail to autostart. Manual Start and injection is required to restore RPV water level above TAF. Failure also complicates ability for the crew to initiate Drywell Sprays PRA Tasks.
8		C (BOP)	Division I Low Pressure ECCS systems (Low Pressure Core Spray and RHR A) inoperable results in unavailability for injection and Containment Spray. This reduces available injection and containment spray to RHR B system.
9			Perform RPV Blowdown to allow Low Pressure ECCS injection. N2-EOP-C2
10			SRO ADMIN JPM 5-2 SRO classifies the event as Alert 3.1.1

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

Facility: Nine Mile Point 2		Scenario No.: NRC-02	Op-Test No.: NRC-01
1	TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)	ACTUAL ATTRIBUTES	
1.	Total malfunctions (5-8) Events 2,3,4,5,7	5	
2.	Malfunctions after EOP entry (1-2) Events 7,8*	2	
3.	Abnormal events (2-4) Event 2 SOP-29.1 and SOP-29, Event 3 SOP-30 Event 4 SOP-3	3	
4.	Major transients (1-2) Event 5	1	
5.	EOPs entered/requiring substantive actions (1-2) Event 5 EOP-RPV, EOP-PC	2	
6.	EOP contingencies requiring substantive actions (0-2) Event 9 EOP-C2	1	
7.	Critical tasks (2-3)	2	
CRITICAL TASK DESCRIPTIONS: CT-1.0: Restart CRD pump within 20 minutes with inoperable control rod accumulators. CT-2.0: Restore and maintain RPV water level above TAF with LP ECCS systems			

Event 8* Not counted in Total Malfunctions but counted as Malfunction After EOP entry per Appendix D C.2.c page 9. System out of service influences the mitigation strategy by reducing the number of available injection and containment spray systems to one. Crew must now prioritize use of remaining system to inject to restore water level before using RHR B for containment spray.

Facility: Nine Mile Point 2		Scenario No.: NRC-03		Op-Test No.: NRC-01	
Examiners: _____		Operators: _____			
Initial Conditions: Simulator IC-10 with additional rods withdrawn to raise power to about 4%. Low Power Scenario					
Reactor startup in progress per N2-OP-101A.					
Reactor power approximately 4%.					
Turnover: Continue power ascension; N2-OP-101A; Section E.3.0, Step 3.3.					
Continue the startup, transfer the reactor mode switch to run after APRM downscale condition is cleared (above 4%). EHC Pump B is out of service for motor repairs.					
Event No.	Malf. No.	Event Type*	Event Description		
1	NM09A	I (ATC) I (SRO)	IRM A Failure – Inop Trip. The crew will bypass the failed instrument and reset the resulting RPS channel trip. (TS determination for SRO). Tech Spec 3.3.1.1		
2	FW30A FW16A	I (ATC) I (SRO)	Feedwater Pump A minimum flow valve fails open with RPV Narrow Range level input to FWLC failed as-is. RPV water level transient results requiring crew to take manual control of level control valve to prevent an automatic protective function then transfer to redundant Narrow Range transmitter before returning FWLC to automatic control. N2-SOP-6 N2-OP-3		
3		R (ATC) R (SRO)	Withdraw control rods raise reactor power to above 5%. Several control rods must be withdrawn to raise power to clear the APRM downscale condition. N2-OP-101A		
4		N (ALL)	Transfer Reactor Mode Switch in RUN. N2-OP-101A		
5	RD05 34-27	C (ATC) C (SRO)	Control Rod 34-27 Drift Out. N2-SOP-8 will be executed to fully insert and isolate the control rod. With power level below RWM setpoint the RWM must be bypassed to insert the drifting rod. N2-SOP-8 Tech Spec 3.1.5		
6	CW01A	C (BOP) C (SRO)	Service Water Pump A trip occurs requiring a standby pump to be placed in service. N2-OP-11		
7	Override	TS (SRO)	(SRO) MCC 302 Feeder Breaker to ICS*MOV128 RCIC Steam Line Containment Isolation Valve trips open. Prevents isolation valve from closing on subsequent steam leak. Tech Spec 3.6.1.3		

8	RC12 25% 10 min ramp RC11 TC15A TC15B	M (ALL)	RCIC Steam Leak into Reactor Building with Failure to isolate. Automatic and manual attempts to isolate the RCIC steam line will be unsuccessful. Entry in EOP-SC is required and the reactor will be manually scrammed. EHC Pump trip results in loss of Bypass Valve capability, if used to anticipate RPV Blowdown. N2-EOP-RPV N2-EOP-SC
9	PC06	C (BOP)	Reactor Building Ventilation System failure to isolate on high radiation level. Requires action to close Secondary Containment Isolation Dampers and manually start Standby Gas Treatment systems to terminate a potential ground level release pathway. N2-OP-52
10	AD08C	C (BOP)	When Reactor Building temperatures exceed 212°F an RPV Blowdown is required. ADS/SRV PSV 126 fails to open during RPV Blowdown due to Loss of N ₂ supply. Requires operator action to open an additional SRV to obtain the number directed by EOP-C2 N2-EOP-C2

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

Facility: Nine Mile Point 2		Scenario No.: NRC-03	Op-Test No.: NRC-01
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)		ACTUAL ATTRIBUTES	
1. Total malfunctions (5-8) Events 1,2,5,6,9,10		6	
2. Malfunctions after EOP entry (1-2) Events 9,10		2	
3. Abnormal events (2-4) Event 2 SOP-6 Event 5 SOP-8		2	
4. Major transients (1-2) Event 8		1	
5. EOPs entered/requiring substantive actions (1-2) Event 8 EOP-RPV, EOP-SC		2	
6. EOP contingencies requiring substantive actions (0-2) Event 10 EOP-C2		1	
7. Critical tasks (2-3)		2	
CRITICAL TASK DESCRIPTIONS: CT-1.0: Scram and Blowdown with Primary System discharging to Secondary Containment CT-2.0: Given unisolable steam leak into the Secondary Containment and failure of Reactor Building to isolate, the crew will manually isolate RB ventilation and start GTS.			

Facility: Nine Mile Point 2		Scenario No.: NRC-04 (ALTERNATE) Op-Test No.: NRC-01	
Examiners: _____		Operators: _____	
Initial Conditions: 100% power (IC-20)			
Turnover: Division II Diesel Generator is inoperable for pre-planned maintenance.			
Event No.	Malf. No.	Event Type*	Event Description
1	-	N (BOP)	Perform Drywell to Suppression Chamber Vacuum Breaker Surveillance Test, N2-OSP-ISC-M@002.
2	Overrides	C, TS (SRO)	Drywell to Suppression Chamber Vacuum Breaker 2ISC*RV34A sticks open during testing. Requires entry into Tech Spec 3.6.1.7 Tech Spec 3.6.1.7
3	CS01A	C (BOP) TS(SRO)	Spurious High Pressure Core Spray (CSH) injection to RPV. CSH system declared inoperable and then returned standby. N2-SOP-6, Feedwater Failures
4	FW22A6 FW15	C (ATC) R(BOP)	Feedwater Heater Tube Leak 6th Point A Heater results in Loss of Feedwater Heating and Feedwater Level Controller failed as-is. Requires FWLC to be placed in manual, and requires power reduction with Recirc Flow. N2-SOP-8, Unplanned Power Change
5	MS03 @ 5% MS04 @ 30% ramp to 75%	M (ALL)	Steam leakage inside Drywell requires manual scram and subsequent entry into EOP-PC on High Drywell Pressure. N2-EOP-PC
6	RP03	C (ATC) (SRO)	Failure of RPS trip systems to trip when Mode Switch is placed in Shutdown. Crew is required to scram using manual scram pushbuttons which also does not trip RPS. After entering N2-EOP-C5 and manually initiating RRCS/ARI, all control rods will fully insert by the ARI function of RRCS. N2-SOP-101C N2-EOP-RPV N2-EOP-C5
7	ED02B	C (BOP)	Loss of Line 6 with Division II Diesel Generator out of service results in loss of 4160 VAC Emergency Switchgear 2ENS*SWG103 and loss of Division II Low Pressure ECCS systems, complicating subsequent RPV Flooding and Containment Spray evolutions.
8	RR50	I (ALL)	RPV water level instrument reference leg flashing. Requires crew to determine RPV Blowdown and RPV Flooding is required. N2-EOP-C4

9	CS06	C (BOP)	RHS Injection Valve 2RHS*MOV24A fails to open and CSL Pump results in reduced number of systems available to flood RPV. Injection from RHS Loop A can be restored after dispatching operators for local valve operation.
10			SRO ADMIN JPM 5-4 SRO classifies the event as Site Area Emergency 2.1.2

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

Facility: Nine Mile Point 2		Scenario No.: NRC-04 (Alternate)		Op-Test No.: NRC-01	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)	ACTUAL ATTRIBUTES	EXAM DEVELOPER	OPS REVIEW	FACILITY REVIEW	
1. Total malfunctions (5-8) Events 3,4,6,8,9	5				
2. Malfunctions after EOP entry (1-2) Events 6,8,9	3				
3. Abnormal events (2-4) Events 3 N2-SOP-6 ; Event 4 N2-SOP-8	2				
4. Major transients (1-2) Event 5	1				
5. EOPs entered/requiring substantive actions (1-2) Event 5 and 6 EOP-RPV and EOP-PC	2				
6. EOP contingencies requiring substantive actions (0-2) Event 6 EOP-C5; Event 8 EOP-C4	2				
7. Critical tasks (2-3)	3				
CRITICAL TASK DESCRIPTIONS:					
CT-1.0: Insert control rods using RRCS/ARI					
CT-2.0: Flood RPV to Steam Lines					
CT-3.0: Spray Drywell					