

# UNIT 1 NRC (RO)

ES-401

BWR Examination Outline

Form ES-401-1

Facility: <b>Nine Mile Point Unit 1</b>														Date of Exam: <b>March 12, 2007</b>							
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 Evolution	1	3	5	3	N/A			5	3	N/A		1	20			7					
	2	1	1	2				1	1			1	7			3					
	Tier Totals	4	6	5				6	4			2	27			10					
2. Plant Systems	1	2	2	4	2	1	4	2	2	3	2	2	26			5					
	2	2	0	0	0	1	0	3	4	1	0	1	12			3					
	Tier Totals	4	2	4	2	2	4	5	6	4	2	3	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  $\pm 1$  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.

# UNIT 1 NRC (RO)

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 49					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 50	0 2						AK1.02 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Load shedding		3.1	1
295004 Partial or Total Loss of DC Pwr / 6 RO 51				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 52					0 6		AA2.06 Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP: Feedwater temperature		2.6	1
295006 SCRAM / 1 RO 53		0 4					AK2.04 Knowledge of the interrelations between SCRAM and the following: Turbine Trip Logic		3.6	1
295016 Control Room Abandonment / 7 RO 54						X	2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls		4.0	1
295018 Partial or Total Loss of CCW / 8 RO 55		0 2					AK2.02 Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following: Plant operations		3.4	1
295019 Partial or Total Loss of Inst. Air / 8 RO 56		0 1					AK2.01 Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: CRD hydraulics		3.8	1
295021 Loss of Shutdown Cooling / 4 RO 57					0 2		AA2.02 Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING: RHR/shutdown cooling system flow		3.4	1
295023 Refueling Acc Cooling Mode / 8 RO 58				0 7			AA1.07 Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: Standby gas treatment/FRVS		3.6	1
295024 High Drywell Pressure / 5 RO 59		0 3					EK2.03 Knowledge of the interrelations between HIGH DRYWELL PRESSURE and the following: LPCS		3.8	1
295025 High Reactor Pressure / 3 RO 60			0 2				EK3.02 Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE: Recirculation pump trip		3.9	1
295026 Suppression Pool High Water Temp. / 5 RO 61				0 1			EA1.01 Ability to operate and/or monitor the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool cooling		4.1	1
295028 High Drywell Temperature / 5 RO 62	0 2						EK1.02 Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE: Equipment environmental qualification		2.9	1
295030 Low Suppression Pool Wtr Lvl / 5 RO 63			0 1				EK3.01 Knowledge of the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: Emergency depressurization		3.8	1

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295031 Reactor Low Water Level / 2 RO 64				0 7			EA1.07 Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL: Safety/relief valves	3.7	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 RO 65	0 1						EK1.01 Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor pressure effects on reactor power	4.1	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 RO 66				0 7			EK3.07 Knowledge of the reasons for the following responses as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Various alternate methods of control rod insertion	4.2	1
295038 High Off-site Release Rate / 9 RO 67				0 6			EA1.06 Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Plant ventilation	3.5	1
600000 Plant Fire On Site / 8 RO 68		0 1					AK2.01 Knowledge of the interrelations between PLANT FIRE ON SITE and the following: Sensors / detectors and valves	2.6	1
K/A Category Totals:	3	5	3	5	3	1	Group Point Total:		20

# UNIT 1 NRC (RO)

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	#
295008 High Reactor Water Level RO 69			0 4				AK3.04 Knowledge of the reasons for the following responses as they apply to HIGH REACTOR WATER LEVEL: Reactor feed pump trip	3.3	1
295012 High Drywell Temperature/5 RO 70		0 2					AK2.02 Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell cooling	3.6	1
295013 High Suppression Pool Temperature/5 RO 71						X	2.1.30 Ability to locate and operate components / including local controls	3.9	1
295014 Inadvertent Reactivity Addition/1 RO 72				0 5			AA1.05 Ability to operate and / or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: Neutron monitoring system	3.9	1
295015 Incomplete SCRAM/1 RO 73	0 3						AK1.03 Knowledge of the operational implications of the following concepts as they apply to INCOMPLETE SCRAM: Reactivity effects	3.8	1
295029 High Suppression Pool Water Level/5 RO 74			0 1				EK3.01 Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Emergency depressurization	3.5	1
295033 High Secondary Containment Area Radiation Levels/9 RO 75					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
K/A Category Point Totals:	1	1	2	1	1	1	Group Point Total:		7

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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	#
205000 Shutdown Cooling RO 11						0 3						K6.03 Knowledge of the effect that a loss or malfunction of the following will have on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): Recirculation system	3.1	1
206000 HPCI RO 12			0 1									K3.01 Knowledge of the effect that a loss or malfunction of HIGH PRESSURE COOLANT INJECTION SYSTEM will have the following: Reactor water level control	4.0	1
206000 HPCI RO 13										0 4		A4.04 Ability to manually operate and/or monitor in the control room: Major system valves	3.7	1
207000 Isolation (Emergency) Condenser RO 14						0 7						K6.07 Knowledge of the effect that a loss or malfunction of the following will have on the ISOLATION (EMERGENCY) CONDENSER: A.C. power	3.0	1
207000 Isolation (Emergency) Condenser RO 15										0 7		A4.07 Ability to manually operate and/or monitor in the control room: Manually initiate the isolation condenser	4.2	1
209001 LPCS RO 16						0 5						K5.05 Knowledge of the operational implications of the following concepts as they apply to LOW PRESSURE CORE SPRAY SYSTEM: System venting	2.5	1
211000 SLC RO 17		0 2										K2.02 Knowledge of electrical power supplies to the following: Explosive valves	3.1	1
212000 RPS RO 18						0 3						K6.03 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR PROTECTION SYSTEM: Nuclear boiler instrumentation	3.5	1
215003 IRM RO 19							0 3					A1.03 Ability to predict and/or monitor changes in parameters associated with operating the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM controls including: RPS status	3.6	1
215003 IRM RO 20											X	2.1.32 Ability to explain and apply system limits and precautions	3.4	1
215004 SRM RO 21						0 2						K6.02 Knowledge of the effect that a loss or malfunction of the following will have on the SOURCE RANGE MONITOR (SRM) SYSTEM: 24/48 volt DC power	3.1	1
215005 APRM/LPRM RO 22				0 7								K4.07 Knowledge of AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM design feature(s) and/or interlocks which provide for the following: Flow biased trip setpoints	3.7	1
218000 ADS RO 23										0 8		A3.08 Ability to monitor automatic operations of the AUTOMATIC DEPRESSURIZATION SYSTEM including: Reactor pressure	4.2	1

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223002 PCIS/Nuclear Steam Supply Shutoff RO 24			1 1											K3.11 Knowledge of the effect that a loss or malfunction of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF will have on following: Plant ventilation	2.8	1
223002 PCIS/Nuclear Steam Supply Shutoff RO 25								0 9						A2.09 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: System initiation	3.6	1
239002 SRVs RO 26			0 1											K2.01 Knowledge of electrical power supplies to the following: SRV solenoids	2.8	1
239002 SRVs RO 27			0 2											K3.02 Knowledge of effect that a loss or malfunction of the RELIEF/SAFETY VALVES will have on the following: Reactor over pressurization	4.2	1
259002 Reactor Water Level Control RO 28	0 4													K1.04 Knowledge of the physical connections and/or cause-effect relationships between REACTOR WATER LEVEL CONTROL SYSTEM and the following: Reactor feedwater flow	3.5	1
261000 SGTS RO 29								0 1						A1.01 Ability to predict and/or monitor changes in parameters associated with operating the STANDBY GAS TREATMENT SYSTEM controls including: System flow	2.9	1
262001 AC Electrical Distribution RO 30								0 3						A2.03 Ability to (a) predict the impacts of the following 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 offsite power	3.9	1
262002 UPS (AC/DC) RO 31			1 4											K3.14 Knowledge of the effect that a loss or malfunction of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) will have on following: Rx power	2.8	1
263000 DC Electrical Distribution RO 32								0 1						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 33			0 5											K4.05 Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: Load shedding and sequencing	3.2	1
264000 EDGs RO 34													X	2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.3	1
300000 Instrument Air RO 35								0 2						A3.02 Ability to monitor automatic operations of the INSTRUMENT AIR SYSTEM including: Air temperature	2.9	1
400000 Component Cooling Water RO 36	0 1													K1.01 Knowledge of the physical connections and / or cause-effect relationships between CCWS and the following: Service water system	3.2	1
K/A Category Point Totals:	2	2	4	2	1	4	2	2	3	2	2			Group Point Total:		26

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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	#
201002 RMCS RO 37	0 5											K1.05 Knowledge of the physical connections and/or cause-effect relationships between REACTOR MANUAL CONTROL SYSTEM and the following: Rod worth minimizer	3.4	1
201003 Control Rod Drive Mechanism RO 38								0 6				A2.06 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of CRD cooling water flow	3.0	1
202002 Recirculation Flow Control RO 39							0 1					A1.01 Ability to predict and/or monitor changes in parameters associated with operating the RECIRCULATION FLOW CONTROL SYSTEM controls including: Recirculation pump speed	3.2	1
215001 Traversing In-core Probe RO 40											x	2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls	4.0	1
219000 RHR/LPCI: Torus/Pool Cooling Mode RO 41							0 3					A1.03 Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE controls including: System pressure	2.9	1
226001 RHR/LPCI: CTMT Spray Mode RO 42							1 0					A1.10 Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE controls including: Emergency generator loading	3.0	1
233000 Fuel Pool Cooling/Cleanup RO 43								0 5				A2.05 Ability to (a) predict the impacts of the following on the FUEL POOL COOLING AND CLEAN-UP; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve closures	2.5	1
256000 Reactor Condensate RO 44									0 7			A3.07 Ability to monitor automatic operations of the REACTOR CONDENSATE SYSTEM including: Feedwater heater level	2.9	1
259001 Reactor Feedwater RO 45	0 7											K1.07 Knowledge of the physical connections and/or cause-effect relationships between REACTOR FEEDWATER SYSTEM and the following: A.C. electrical power	2.9	1
271000 Offgas RO 46					0 6							K5.06 Knowledge of the operational implications of the following concepts as they apply to OFFGAS SYSTEM: Catalytic recombination	2.7	1

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272000 Radiation Monitoring RO 47								0 9				A2.09 Ability to (d) predict the impacts of the following on the RADIATION MONITORING SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low fuel pool level	3.1	1
288000 Plant Ventilation RO 48								0 3				A2.03 Ability to (a) predict the impacts of the following on the PLANT VENTILATION SYSTEMS ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of coolant accident	3.5	1
K/A Category Point Totals:	2	0	0	0	1	0	3	4	1	0	1	Group Point Total:	12	



UNIT 1 NRC (RO)

ES-401		Generic Knowledge and Abilities Outline (Tier 3) (RO)		Form ES-401-3		
Facility: <b>Nine Mile Point Unit 1</b>				Date of Exam: <b>March 12, 2007</b>		
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.2 RO 1	Knowledge of operator responsibilities during all modes of plant operation.	3.0	1		
	2.1.29 RO 2	Knowledge of how to conduct and verify valve lineups.	3.4	1		
	2.1.33 RO 3	Ability to recognize and indications for system operating parameters which are entry level conditions for technical specifications.	3.4	1		
				3		
2. Equipment Control	2.2.1 RO 4	Ability to perform pre-startup procedures for the facility/ including operating those controls associated with plant equipment that could affect reactivity.	3.7	1		
	2.2.11 RO 5	Knowledge of process for controlling temporary changes.	2.5	1		
	2.2.25 RO 6	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1		
				3		
3. Radiation Control	2.3.1 RO 7	Knowledge of 10CFR20 and related facility radiation control requirements.	2.6	1		
	2.3.11 RO 8	Ability to control radiation releases.	2.7	1		
				2		
4. Emergency Procedures / Plan	2.4.13 RO 9	Knowledge of crew roles and responsibilities during EOP flowchart use.	3.3	1		
	2.4.48 RO 10	Ability to interpret control room indications to verify status and operation of system/ and understand how operator actions and directives affect plant and system conditions.	3.5	1		
				2		
<b>Tier 3 Point Total</b>				10		

Facility: **Nine Mile Point Unit 1**

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Date of Exam: **March 12, 2007**

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Record of Rejected K/As (RO)

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 (Mark III Containment Only). Not applicable to facility.
T1G2	NA	295011 High Containment Temperature (Mark III Containment Only). Not applicable to facility.
T2G1	NA	203000 RHR/LPCI: Injection Mode (Plant Specific). Not applicable to facility design.
T2G1	NA	209002 High Pressure Core Spray System (HPCS). Not applicable to facility design.
T2G1	NA	217000 Reactor Core Isolation Cooling System (RCIC). Not applicable to facility design.
T2G2	NA	201004 Rod Sequence Control System (Plant Specific). Not applicable to facility design.
T2G2	NA	201005 Rod Control and Information System (RCIS). Not applicable to facility design.
T2G2	NA	215002 Rod Block Monitor System. Not applicable to facility design.
T2G2	NA	230000 RHR/LPCI: Torus/Suppression Pool Spray Mode. 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	295019 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295019 A1 to become G. (7/5/06)
T1G1	295024 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295024 A1 to become G. (7/5/06)
T1G2	295013 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295013 A1 to become G. (7/5/06)
T2G1	223002 K2	Excessive numbers of K2 knowledge of power supply topics initially selected for T2 (5 total). Randomly deselected 223002 K2 and randomly selected A2 topic. (7/5/06)
T2G1	262001 K2	Excessive numbers of K2 knowledge of power supply topics initially selected for T2 (5 total). Randomly deselected 262001 K2 and randomly selected A2 topic. (7/5/06)
T3	2.1.21	Randomly selected then rejected due to inability to develop discriminating written question. 2.1.17 randomly selected. (7/5/06)
T3	2.1.17	Randomly selected then rejected due to inability to develop discriminating written question. 2.1.2 randomly selected. (7/5/06)
T3	2.1.20	Randomly selected then rejected due to inability to develop discriminating written question. Topic not appropriately tested on a written exam. 2.1.29 randomly selected. (7/5/06)
T3	2.4.7	Randomly selected then rejected as not applicable to the facility. EOPs are symptom based procedures, not event based. 2.4.48 randomly selected. (7/5/06)
T1G1	295016 K1	Randomly selected then rejected because there are no K1 topics. Randomly selected G 2.4.49 (generic) topic. (7/6/06)
T1G1	295019 2.1.28	Randomly selected then rejected because the statement is not applicable to the emergency event. Randomly selected G 2.2.22. (7/6/06)
T1G2	295033 2.2.22	Randomly selected then rejected because the KA statement is not applicable to this topic (ie Secondary containment radiation levels does not have an LCO or safety limit. Randomly selected G 2.4.49. (7/6/06)
T2G1	262002 K3.04	Randomly selected then rejected because of low importance and inability to develop a discriminating question at the RO level. Randomly selected K3.14. (7/6/06)
T2G2	201002 K2	Randomly selected then rejected because both statements are below 2.5. Randomly selected K1 and statement K1.05 (7/6/06)
T2G2	215001 K3	Randomly selected then rejected because statements are below 2.5. Randomly selected, then rejected G 2.1.2 because statement is not applicable to system. Randomly selected G 2.4.49 (7/6/06)
T2/G1	209001 K5.04	Rejected during overall outline review due to inability to develop an operationally oriented discriminating question. Randomly selected K5.05 (8/10/06)
T2/G1	218000 K1.05	Rejected during outline review because it is not applicable to the unit. There is no relationship between ADS valves and remote shutdown system. Randomly selected A3.08 (8/10/06)
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
Facility Outline Review		

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Facility: **Nine Mile Point Unit 1**Date of Exam: **March 12, 2007**

T1/G1	295001 AA2.01	Rejected during overall outline review due to overlap with Operating Test events in Scenario 1. Randomly selected AA2.06 (8/28/06)
T1/G1	295006 AK2.06	Rejected during overall outline review due to overlap with other topic area (RO 22) and inability to develop an operationally oriented discriminating question. Randomly selected AK2.04 (8/28/06)
Changes made during draft development after outline submittal and NRC review. (9/27/06- 10/25/06)		
T2/G2	259001 A1.01 (RO 45)	Rejected during question development due to overlap (double jeopardy) with RO 28. Randomly selected 259001 K1.07. (9/28/06)
T1/G1	295023 AA1.04 (RO 58)	Rejected during question development due to overlap (double jeopardy) with RO 47. Randomly selected 295023 AA1.07. (9/28/06)
T1/G1	295019 G2.2.22 (RO 56)	Rejected during question development due to KA statement is not applicable to topic area. No LCO or safety limit associated with loss of air. Randomly selected AK2.01. (9/28/06)
T1/G1	295024 G2.2.25 (RO59)	Rejected during question development due to overlap (double jeopardy) with RO 6. Both are tech spec bases topics. Randomly selected EK2.03 (10/3/06)
T1/G2	295033 G2.4.49 (RO 75)	Rejected during question development. Any acceptable question that could be developed to address the statement would be related to reactor building ventilation. This would result in over-sampling of the secondary ventilation system, as this is tested in other parts of the exam. Randomly selected EA2.01. (10/6/06)
T3	G2.4.23 (RO 9)	Rejected during question development due to inability to develop an acceptable RO job related question that matches the statement. Statement is primarily an SRO topic. Randomly selected G2.4.13 (10/7/06)
Changes made after draft submittal and NRC review. (10/27/06-)		
T2/G1	264000 K4.03 (RO33)	Rejected after draft exam submittal. Comment by Chief Examiner for the original question submitted was that topic is "simplistic" and "GFE knowledge level". In order to develop an acceptable question a new KA had to be selected. Randomly selected K4.05 (12/19/06)
T2/G2	201003 K4.08 (RO38)	Rejected after draft exam submittal. Comment by Chief Examiner for the original question submitted was that topic is "simplistic". In order to develop an acceptable question a new KA had to be selected. Randomly selected A2.06 (1/29/07)

Facility: <b>Nine Mile Point Unit 1</b>														Date of Exam: <b>March 12, 2007</b>				
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 Evolution	1												20	5	2	7		
	2												7	1	2	3		
	Tier Totals												27	6	4	10		
2. Plant Systems	1												26	3	2	5		
	2												12	1	2	3		
	Tier Totals												38	4	4	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  $\pm 1$  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.

UNIT 1 NRC (SRO)

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 SRO 16					0 3		AA2.03 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Actual core flow		3.3	1
295003 Partial or Complete Loss of AC/6 SRO 17					0 4		AA2.04 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: System lineups		3.7	1
295016 Control Room Abandonment/7 SRO 18					0 4		AA2.04 Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: Suppression pool temperature		4.1	1
295023 Refueling Acc/8 SRO 19						G	2.2.28 Knowledge of new and spent fuel movement procedures		3.5	1
295026 Suppression Pool High Water Temperature/5 SRO 20					0 2		EA2.02 Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool level		3.9	1
295028 High Drywell Temperature/5 SRO 21					0 3		EA2.03 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Reactor water level		3.9	1
295031 Reactor Low Water Level/2 SRO 22						G	2.4.6 Knowledge of symptom based EOP mitigation strategies.		4.0	1
K/A Category Totals:					5	2	Group Point Total:			7

# UNIT 1 NRC (SRO)

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	#
295022 Loss of CRD Pumps/1 SRO 23						G	2.2.17 Knowledge of the process for managing maintenance activities during power operations	3.5	
295020 Inadvertent Containment Isolation /5 & 7 SRO 24					0 6		AA2.06 Ability to determine and/or interpret the following as they apply to INADVERTENT CONTAINMENT ISOLATION: Cause of isolation	3.8	
295036 Secondary Containment High Sump/Area Water Level/5 SRO 25						G	2.1.25 Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data	3.8	
K/A Category Point Totals:					1	2	Group Point Total:		3

UNIT 1 NRC (SRO)

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)										Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
209001 LPCS SRO 8								1 0				A2.10 Ability to (a) predict the impacts of the following on the LOW PRESSURE CORE SPRAY SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: High suppression pool temperature	3.4	
212000 RPS SRO 9								0 2				A2.02 Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: RPS bus power supply failure	3.7	
218000 ADS SRO 10											G	2.4.11 Knowledge of abnormal conditions procedures	3.6	
259002 Reactor Water Level Control SRO 11											G	2.2.24 Ability to analyze the affect of maintenance activities on LCO status	3.8	
215003 IRM SRO 12								0 5				A2.05 Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Faulty or erratic operation of detectors/system	3.4	
K/A Category Point Totals:								3			2	Group Point Total:		5

UNIT 1 NRC (SRO)

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)										Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
216000 Nuclear Boiler Instrumentation SRO 13								1 2				A2.12 Ability to (a) predict the impacts of the following on the NUCLEAR BOILER INSTRUMENTATION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Instrument isolation valve closures	2.9	1
223001 Primary CTMT and Aux. SRO 14											G	2.4.6 Knowledge of symptom based EOP mitigation strategies.	4.0	1
226001 RHR/LPCI: Containment Spray System Mode SRO 15											G	G2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
K/A Category Point Totals:								1			2	Group Point Total:		3



UNIT 1 NRC (SRO)

ES-401		Generic Knowledge and Abilities Outline (Tier 3) (SRO)		Form ES-401-3		
Facility: <b>Nine Mile Point Unit 1</b>		Date of Exam: <b>March 12, 2007</b>				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.6 SRO 1	Ability to supervise and assume a management role during plant transients and upset conditions			4.3	1
	2.1.7 SRO 2	Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation			4.4	1
	Subtotal					2
2. Equipment Control	2.2.25 SRO 3	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits			3.7	1
	2.2.27 SRO 4	Knowledge of the refueling process			3.5	1
	Subtotal					2
3. Radiation Control	2.3.9 SRO 5	Knowledge of the process for performing a containment purge			3.4	1
	Subtotal					1
4. Emergency Procedures / Plan	2.4.4 SRO 6	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures			4.3	1
	2.4.16 SRO 7	Knowledge of EOP implementation hierarchy and coordination with other support procedures			4.0	1
	Subtotal					2
<b>Tier 3 Point Total</b>						7

Facility: **Nine Mile Point Unit 1**

UNIT 1 NRC (SRO)  
Date of Exam: **March 12, 2007**

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 (Mark III Containment Only). Not applicable to facility.
T1G2	NA	295011 High Containment Temperature (Mark III Containment Only). Not applicable to facility.
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	295019 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295019 A1 to become G. (7/5/06)
T1G1	295024 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295024 A1 to become G. (7/5/06)
T1G2	295013 A1	Insufficient number of generic topics selected and excessive number of A1 topics selected. Randomly deselected 295013 A1 to become G. (7/5/06)
T2G1	218000 G 2.1.21	Randomly selected, then rejected because it is not linked to 10CFR55.43(b). Randomly selected G 2.4.11. (7/6/06)
T1G1	295023 G 2.1.24, 2.4.42	Randomly selected, then rejected because they are not linked to 10CFR55.43(b). Randomly selected 2.2.28. (7/6/06)
T1G1	295031 G 2.3.5	Randomly selected, then rejected because the statement is not applicable to this topic. Randomly selected 2.4.49 (7/6/06)
T1G2	295022 G 2.4.36, 2.3.9	Randomly selected, then rejected because the statements are not applicable to this topic. Randomly selected 2.2.17 (7/6/06)
T1G2	295036 G 2.2.27, 2.4.3	Randomly selected, then rejected. 2.2.27 statement is not applicable to this topic. 2.4.3 is not linked to 10CFR55.43(b). Randomly selected 2.1.25 (7/6/06)
T2G1	218000 G 2.1.21	Randomly selected, then rejected because the statement is not applicable to this topic. Randomly selected 2.4.11. (7/6/06)
T2G2	223001 G2.1.24	Randomly selected, then rejected because it is not linked to 10CFR55.43(b). Randomly selected G 2.2.26. (7/6/06)
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.		
T2/G1	261000 A2.12	Rejected during question development because when considering the RO written exam and other portions of the exam, Standby Gas Treatment (RBEVS) is over-sampled. RO written exam has (RO 24 29 48 58) currently testing RBEVS related knowledge. Randomly selected 215003 A2.05 (SRO 12) 10/10/06
T2/G2	223001 G2.2.26	Rejected during question development because the statement regarding refuel administrative requirements does not apply to the topic area of Primary Containment. Question matching the KA statement cannot be developed. Randomly selected 223001 2.4.6 (SRO 14) 10/13/06
T1/G2	295035 EA2.02	Rejected during question development because when considering the RO written, SRO Admin test and the simulator operating test, the topics related to SECONDARY CONTAINMENT will be over-sampled. Randomly selected 295020 AA2.06 (SRO 24) 10/13/06.
Changes made after exam submittal for NRC review and approval		
T1/G1	295031 G2.4.49	Rejected after initial exam submittal. Question developed could not be developed to SRO level. Original question rejected by NRC as not an SRO level question. Randomly selected 295031 G2.4.6 (SRO 22) and developed new question (2/19/07).
T2/G2	234000 A2.02	Rejected after initial exam submittal. Question developed could not be raised to SRO level. Chief Examiner determined the topic to be "simplistic". Original question rejected by NRC as not an SRO level question. Refuel topics in this category were also simplistic. Randomly selected 226001 G2.2.25 (SRO 15) and developed new question (2/19/07).
T2/G1	211000 G2.2.25	Rejected after initial exam submittal. Question difficulty could not be raised to a level acceptable by the Chief Examiner because it only tested a single tech spec. Original question rejected by NRC as low level of difficulty. Randomly selected 212000 A2.02 (SRO 9) and developed new question (2/20/07).

Facility: Nine Mile Point 1Date of Examination: December 11, 2006Examination Level: ROOperating Test Number: NA

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations Plant parameter Verification RO ADMIN 1	D	<p><b>Perform RPV Level Instrument Checks per N1-ST-D0, Daily Checks</b></p> <p>Given control room reactor water level instrument readings for various daily checks required by Technical Specifications (<i>readings may be taken in the simulator</i>), enter the instrument readings into the applicable sections of the Daily Checks and take appropriate actions based on those checks.</p> <p>2.1.18 (2.9) Ability to make accurate / clear and concise logs / records / status boards / and reports.</p> <p>GAP-OPS-01; 3.10, N1-ST-DO; 7.0</p>
Conduct of Operations Shift Turnover RO ADMIN 2	N	<p><b>Perform Control Room System Lineup Verification</b></p> <p>Evaluate conditions provided in S-PM-D001 Control Room System Lineup Verification for Control Room Ventilation System and determine the required actions for out of position components. (<i>Panel walkdown is performed in simulator</i>).</p> <p>2.1.31 (4.2) Ability to locate control room switches /controls and indications and to determine that they are correctly reflecting the desired plant lineup.</p> <p>S-PM-D001 Attachment 2 2.24</p>
Equipment Control Use of Electrical Prints RO ADMIN 3	N	<p><b>RPS Logic Operation with EOP-3.1 RPS Jumpers Installed</b></p> <p>Identify and locate electrical drawings related to RPS circuits. Use the drawings to describe the effect of installing RPS jumpers on how scram signal is reset prior to initiating another manual scram, with the jumpers installed under failure to scram conditions. (<i>Perform in simulator and supply with copies for candidate to mark-up</i>).</p> <p>2.1.24 (2.8) Ability to obtain and interpret station electrical and mechanical drawings.</p> <p>N1-EOP-3.1; Drawing C-19859-C SH 4 and 7</p>
Radiation Control Radiation Hazards RO ADMIN 4	D, P NRC 2004	<p><b>Radiological Requirements Related To Operator Inspection Of Rad And High Rad Areas.</b></p> <p>Given radiological conditions and a survey map related to an area to be inspected, ensure the appropriate radiological aspects of the job are met prior to performance of the inspection.</p> <p>2.3.10 (2.9) Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.</p> <p>GAP-RPP-01; 3.5, 3.6, 3.7, GAP-RPP-02; 3.1, 3.3, GAP-RPP-08; 3.2, 3.3, N1-PM-M5; 6.0, 8.0</p>

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

\* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank ( $\leq 3$  for ROs;  $\leq 4$  for SROs & RO retakes)

(N)ew or (M)odified from bank ( $\geq 1$ )

(P)revious 2 exams ( $\leq 1$ ; randomly selected)

Facility: <u>Nine Mile Point 1</u>		Date of Examination: <u>December 11, 2006</u>
Examination Level: <u>SRO</u>		Operating Test Number: <u>NA</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations SRO ADMIN 1	N	<b>Assess Reportability Requirements For Maintenance Activity</b> Given inaccurate log entries stating 10CFR50.72 and 73 requirements for a given maintenance activity, assess the log entries for accuracy and correctness and identify the correct reporting requirements. (CR NM-2006-4134) 2.1.18 (3.0) Ability to make accurate/ clear and concise logs/ records/ status boards/ and reports. 10CFR50.72 and 73, NUREG 1022 REV 2
Conduct of Operations SRO ADMIN 2	D	<b>Determine Reactivity Event Severity Level And Supporting Actions In Response To The Event</b> Given plant conditions determine the reactivity event severity level and the appropriate compensatory actions and notifications. 2.1.7 (4.4) Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation. GAP-OPS-05; 3.13
Equipment Control SRO ADMIN 3	N	<b>Review Reactor Engineering Thermal Limit Surveillance</b> Given daily surveillance procedure with thermal limits exceeded, identify the Tech Spec required compensatory actions. 2.2.22 (4.1) Knowledge of limiting conditions for operations and safety limits. N1-RESP-1A and Tech Specs
Radiation Control SRO ADMIN 4	D	<b>Determine Actions Required For an Inoperable Effluent Radiation Monitor</b> Given plant conditions, determine operability of an effluent radiation monitor and apply action statements contained in the station ODCM. (CR NM-2004-976) 2.3.11 (3.2) Ability to control radiation releases. ODCM
Emergency Plan SRO ADMIN 5	D, P	<b>Classify Emergency Event and Perform PARs</b> Given plant conditions at an existing Site Area Emergency, determine the plant conditions now meet General Emergency conditions. Reclassify the event and determine PARs, based on conditions provided. (Time Critical) NRC 2002 SRO JPM A4 2.4.44 (4.0) Knowledge of emergency plan protective action recommendations. EAL Matrix
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
• Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ ; randomly selected)		

Facility: Nine Mile Point Unit 1Date of Examination: March 12, 2007

Exam Level: RO SRO-I

Operating Test No.: NRC EXAMINATIONControl Room Systems<sup>@</sup> (8 for RO); (7 for SRQ-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
<b>JPM 1 Recirc/ Start a Recirc Pump At Power</b> Proc N1-OP-1 H.4.0 KA 202001 A4.01 3.7/3.7 Bank O1-OPS-SJE-202-1-01 (originally a low power task)	S, M	1 REACTIVITY CONTROL
<b>JPM 2 RB Vent/ Restore Reactor Building Ventilation Following Automatic Isolation</b> Proc N1-OP-10 G.2.0 and E.1.0 KA 288000 A4.01 3.1/2.9	S, N	9 RADIOACTIVITY RELEASE
<b>JPM 3 Shutdown Cooling/ Place Shutdown Cooling Loop In Service</b> Proc N1-OP-4 E.3.0 KA 205000 A4.01 3.7/3.7 Bank O1-OPS-SJE-205-1-01	S, D, L	4 HEAT REMOVAL
<b>JPM 4 AC Elec/ Loss of Offsite Power With EDG Failures ( While implementing SOP, an EDG trips and alternate SOP actions are taken to crosstie PB 17B with 17A).</b> Proc N1-SOP-33A.1 KA 262001 A2.03 3.9/4.3 Bank O1-OPS-SJE-200-1-52	S, M, A	6 ELECTRICAL
<b>JPM 5 FWLC/ Exercise RPV Level Column Switches (After returning FWLC to automatic control, level transmitter fails downscale, requiring manual level control).</b> Proc N1-PM-Q8, N1-OP-16 KA 259002 A4.03 3.8/3.6	S, N, A	2 REACTOR WATER INVENTORY CONTROL
<b>JPM 6 Primary Containment/Vent the Drywell During Power Operation</b> Proc N1-OP-9 H.1.0 KA 223001 A4.03 3.4/3.4	S, N	5 CONTAINMENT INTEGRITY
<b>JPM 7 RPS/ Reset RPS Scram and ARI After High Drywell Pressure Scram</b> <b>RO Only. This JPM is not performed by SRO-I</b> Proc N1-SOP-1 KA 212000 A4.14 3.8/3.8	S, N, L	7 INSTRUMENTATION
<b>JPM 8 Main Steam/ Perform N1-ST-Q26 Partial Stroke Test of Two MSIVs at Power</b> Proc N1-ST-Q26, Sections 8.2 and 8.3 KA 239001 A4.01 4.2/4.0	S, M	3 REACTOR PRESSURE CONTROL

In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

**JPM 9 Liquid Poison/ RPV Injection From LP Test Tank**

Proc N1-EOP-1 Attachment 12

KA 295031 EA1.08 3.8/3.9

Bank/Previous O1-OPS-PJE-1-21/NRC 2002 JPM 9

R, P, D,  
E, L

1

REACTIVITY  
CONTROL

**JPM 10 UPS/ Transfer RPS Bus 11 from UPS162A to 162B** (*RPS Bus 11 load will fail to transfer to UPS162B, resulting in Loss of RPS Bus 11. SOP-40.1 is entered which directs entry into N1-OP-40 to transfer RPS Bus 11 to alternate supply, I&C Bus 130*)

Proc N1-OP-40 F.1.0 and H.1.0 and N1-SOP-40.1

KA 212000 A2.02 3.7/3.9

Bank O1-OPS-PJE-212-1-08 (Modified)

R, M, A

7

INSTRUMENTATION

**JPM 11 EDG/ Perform Control Room E (RO) Actions for Control Room Evacuation** (*During local EDG operation a HOT ENGINE condition occurs, requiring local engine shutdown*).

Proc N1-SOP-21.2 Control Room E Actions

KA 295016 AA1.04 3.1/3.2

Bank O1-OPS-PJE-200-1-78

R, D, A

6

ELECTRICAL

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

* Type Codes	Criteria	RO	Criteria	SRO-I	Criteria	SRO-U
(A)lternate path	4-6	4	4-6	4	2-3	NA
(C)ontrol room						
(D)irect from bank	≤9	3	≤8	3	≤4	NA
(E)mergency or abnormal in-plant	≥1	1	≥1	1	≥1	NA
(L)ow-Power/ Shutdown	≥1	3	≥1	2	≥1	NA
(N)ew or (M)odified from bank including 1(A)	≥2	8	≥2	7	≥1	NA
(P)revious two exams (randomly selected <sup>#</sup> )	≤3	1	≤3	1	≤2	NA
(R)CA	≥1	3	≥1	3	≥1	NA
(S)imulator		8		7		

**Planned Simulator JPM Combinations**

JPM 1 and 4

JPM 2 and 3 (May run with 7)

JPM 5 and 6

JPM 7 standalone (RO Only)

JPM 8 standalone

Facility: NMP1		Scenario No.: <u>NRC 1</u>		Op-Test No.: NRC	
Initial Conditions: IC236 Reactor Power is 90% with MPR in service.					
Turnover: MPR is in service. EPR is ready to be placed in service, following maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1	FW02C	C (TS SRO)	Feedwater Booster Pump 13 auto trips. The pump is a HPCI component and must be declared inoperable. SRO enters TS 3.1.8 and the pump must be restored within 15 days.		
2		N	Transfer pressure control from MPR to EPR per N1-OP-31, F.3.0.		
3	RP20B	I (TS SRO)	Drywell High Pressure Transmitter 201.2-476A fails downscale. Transmitter supplies input to RPS, Core Spray and Containment Spray Systems. SRO Tech Spec Entry into LCO 3.6.2 is required.		
4	RR09C	C (BOP)	Recirc Pump 13 Motor Generator Slot temperatures rise. Removal of the pump from service is required, which also requires a power reduction. Actions are taken for the Recirc Pump Trip per SOP-1.3		
5	MS05	C (RO)	Steam Seal Regulator Failure. Power reduction reveals a pre-existing failure in the Steam Seal Regulator and results in degraded steam seal header pressure and increased condenser air in-leakage. Regulator Bypass must be manually opened to restore seal pressure.		
6	RR27	C (ALL) R (SRO RO)	Recirc Master Controller fails low resulting in Restricted Zone entry. Entry into SOP-1.5. Flow drops to 21Mlbm/hr and power is 45-50% on APRMs. Cram Rods must be inserted to exit the restricted zone. Power must be reduced to about 30% power to exit region.		
7	Override	M	Loss of Condenser Vacuum due to Steam Seal Regulator Bypass Valve Failure. Enter SOP-25.1. A turbine trip is required when condenser backpressure exceeds 5 inches with generator load <190 MWe. Reactor scrams either manually or automatically.		
8	MS04	C	Steam Leak in Drywell 20% ramp time 10:00 minutes. After the scram and initial actions are complete, the steam leak develops. Drywell pressure exceeds 3.5 psig and EOP entry is required. Drywell parameters will reach values that require use of Containment Spray.		
9	RP26B	C	Drywell High Pressure Transmitter 201.2-476C fails downscale. With the "A" transmitter previously failed the high drywell pressure RPS scram signal, Core Spray and Containment Spray automatic initiation signals are prevented. Crew must take manual actions to initiate these functions.		
10	RR99A RR87	I	RPV level instrument readings become erratic. Crew is required to perform RPV Flooding. Event is classified as SAE 2.1.2		
*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Facility: <b>Nine Mile Point 1</b>		Scenario No.: <b>NRC-01</b>	Op-Test No.: <b>NRC</b>
<b>TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)</b>		<b>ACTUAL ATTRIBUTES</b>	<b><u>Total Malfunction Count:</u></b> Major not included in this count. Didn't count Event 1 and 3, because these only require SRO tech spec use.  <b><u>Abnormal Events Count:</u></b> Does not include the SRO TS related events. These are considered separately.  <b><u>SRO TS Events</u></b> Event 1 and 3 are SRO Tech Spec evaluation events.
1. Total malfunctions (5-8) <b>Events 4,5,6,8,9,10</b>		6	
2. Malfunctions after EOP entry (1-2) <b>Events 9 and 10</b>		2	
3. Abnormal events (2-4) <b>Event 6 SOP-1.5 and Event 7 SOP-25.1</b>		2	
4. Major transients (1-2) <b>Event 7 Loss of Vacuum</b>		1	
5. EOPs entered/requiring substantive actions (1-2) <b>Event 6 EOP-2 RPV; EOP-4 Pri Containment</b>		2	
6. EOP contingencies requiring substantive actions (0-2) <b>Event 9 EOP-7 RPV Flooding</b>		1	
7. Critical tasks (2-3)		2	

Operators

SRO		SRO 2 Driscoll	
ATC RO	R2 Hibbert	R4 Revelle	R5 DeGroot
BOP RO	R1 French	R3 O'Brien	SRO 1 Minnick



Facility: NMP1		Scenario No.: <u>NRC 2</u>		Op-Test No.: NRC	
Initial Conditions: IC20 100% Reactor Power Turnover: Complete N1-ST-Q4 Section 8.2. 39-13R, 39-14R, 05-04R, and 05-12 testing is done. Test Steam IVs 39-10R and 39-08R. LP Pump 12 is out of service since 0600 today. TS LCO 3.1.2 specification b was entered and those requirements are currently met. Cont. Spray 122 is inoperable.					
Event No.	Malfunction No.	Event Type*	Event Description		
1		N	Crew performs N1-ST-Q4, Reactor Coolant System Isolation Valve Operability Test for EC Loop 12 IV's per Section 8.2.		
2	EC09B	C (TS SRO)	Steam IV 39-08R fails to fully close during testing. Valve must be declared inoperable and isolated per Tech Spec 3.2.7. EC Loop 12 now remains inop and unavailable when the steam line is isolated (TS 3.1.3.b, 7 day)		
3	AD05	C (BOP) (TS SRO)	ERV111 inadvertently opens. The crew enters SOP-1.4. An emergency power reduction to 85% is performed. The ERV will close after the fuses are pulled. Tech Spec 3.1.5 must be entered because the valve is now inoperable. TS 3.2.9 may also require entry.		
4	RR28	C/R (RO)	Recirc Flow Master Controller fails as-is, preventing the power reduction by normal methods. The crew will operate individual Recirc Flow controls at F panel or insert cram rods to complete the emergency power reduction.		
5	EC06A	C (BOP)	EC 11 tube leak (50% with 5 minute ramp time). EC 11 isolation is required. Both EC loops are now inoperable. Tech Spec 3.1.3 specification e now applies and an orderly shutdown is required.		
6	MS12 TU02	M (ALL)	A steam leak develops in the turbine building condenser area with severity at 15%. Turbine Vibration rises following the load reduction. The crew will initiate a manual scram due to degraded plant conditions or when turbine bearing vibration exceeds 12 mils.		
7	RD33 MS01 LP01A	C (ALL)	ATWS. Following the scram control rods will not fully insert and power will remain within turbine bypass valve capability, at about 25%. The MSIV's will close on high temperature and heat will be rejected to the torus. Liquid Poison Pump 11 trips. Alternate Boron Injection is directed.		
8	RD35B	C (RO)	Control Rod Drive Pump 12 trips during the scram transient. Starting CRD Pump 11 is necessary for driving control rods.		
9	CT01A	C (BOP)	Containment Spray Pump 111 trips, after control rods are fully inserted. Pump is initially running in the Torus Cooling mode. Since Torus temperature is still high due to heat added during the event, the system must be realigned to start an alternate Containment Spray Pump.		
10			Event is classified as SAE 2.2.2		
*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Facility: <b>Nine Mile Point 1</b>		Scenario No.: <b>NRC-02</b>	Op-Test No.: <b>NRC</b>
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)		ACTUAL ATTRIBUTES	<b>Total Malfunction Count:</b> Major is not included in this count.  <b>Abnormal Events Count:</b> Does not include the SRO TS related events. These are considered separately.  <b>SRO TS Events</b> Event 2, 3 and 5 are SRO Tech Spec evaluation events.
1. Total malfunctions (5-8) <b>Events 3,4,5,7,8,9</b>		6	
2. Malfunctions after EOP entry (1-2) <b>Event 8 CRD Pump Trip Event 9 Containment Spray Pump Trip</b>		2	
3. Abnormal events (2-4) <b>Event 3 SOP-1.4 Event 5 EC Tube Leak</b>		2	
4. Major transients (1-2) <b>Event 6 Turbine High Vibration and Steam Leak into the Turbine building</b>		1	
5. EOPs entered/requiring substantive actions (1-2) <b>EOP-4 Primary Containment</b>		1	
6. EOP contingencies requiring substantive actions (0-2) <b>EOP-3 Failure To Scram</b>		1	
7. Critical tasks (2-3)		3	

Operators

SRO	SRO 1 Minnick		
ATC RO	R1 French	R3 O'Brien	SRO 2 Driscoll
BOP RO	R2 Hibbert	R4 Revelle	R5 DeGroot

Facility: <b>Nine Mile Point 1</b>		Scenario No.: <b>NRC-03</b>	Op-Test No.: <b>NRC</b>
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)	ACTUAL ATTRIBUTES	<p>2 and 3 AND 4 and 5 events can be run simultaneously, to improve efficiency.</p> <p><b>Total Malfunction Count:</b> Major not included in this count.</p> <p><b>Abnormal Events Count:</b> Does not include the SRO TS related events. These are considered separately.</p> <p><b>SRO TS Events</b> Event 3 and 5 are SRO Tech Spec evaluation events.</p>	
1. Total malfunctions (5-8) <b>Events 3,4,6,7,9,10,11</b>	7		
2. Malfunctions after EOP entry (1-2) <b>Event 9 RPS failure Event 10 RB Ventilation failure and Event 11 Loss of FW</b>	3		
3. Abnormal events (2-4) <b>Event 6 Rod Drift Event 7 FWLC</b>	2		
4. Major transients (1-2) <b>Event 8 EC Steam Leak with Isolation Failure</b>	1		
5. EOPs entered/requiring substantive actions (1-2) <b>EOP-2 RPV and EOP-5 Sec Cont</b>	2		
6. EOP contingencies requiring substantive actions (0-2) <b>EOP-3 Failure To Scram; EOP-8 RPV Blowdown</b>	2		
7. Critical tasks (2-3)	4		

Facility: NMP1		Scenario No.: <u>NRC 4</u>		Op-Test No.: NRC	
Initial Conditions IC20 Reduce Power to 95% with RCS Flow. Turnover: Feedwater Pump 11 is out of service for repairs. Red Clearance applied. HPCI LCO in effect.					
Event No.	Malf. No.	Event Type*	Event Description		
1		R	Return power to 100% by raising Recirc Flow.		
2		N (BOP)	Switch CRD Stabilizing Valves from A and B to E and F per N1-OP-5, Section F.4.1		
3	NM19C	I (BOP) TS (SRO)	APRM 13 fails upscale resulting in half scram and Tech Spec entry. Bypassing channel and resetting half scram is required.		
4	RR06A RR07A Overrides	C (BOP) TS (SRO)	Recirc Pump 11 seal leakage requires pump removal from service. Pump suction valves fail to fully close resulting in partial loop isolation. Tech Spec 3.1.7.e is entered for 4 loop operation.		
5	TC06	C (RO)	Electrical Pressure Regulator Failure Oscillations. The EPR is removed from service and the Mechanical Pressure Regulator (MPR) is placed in service		
6	TC08	M (ALL)	Mechanical Pressure Regulator Failure Low. The MPR fails low resulting in rapid pressure and power rise. An automatic reactor scram occurs.		
7	ED07	C (RO)	Electric Fault on Emergency AC Powerboard PB102. Diesel Generator 102 automatically starts, but does not close in on the bus due to the fault. DG102 must be manually shutdown due to loss of power to the diesel auxiliaries. Downstream 600 VAC Powerboard PB16B must be re-energized from an alternate source.		
8	FW03B	C (BOP)	Motor Driven Feedwater Pump 12 trips resulting in a loss of high pressure feed. Additional high pressure injection sources (CRD and Liquid Poison) must be started as directed from EOP.		
9	RR29	C (RO)	A small LOCA (approximately 14%) occurs which reduces vessel inventory and level lowers to top of active fuel. Containment Spray system operation is required due to elevated Drywell pressure.		
10	CS01B CS05D	C (BOP)	Core Spray Pump 112 trips and Core Spray Pump 122 suction strainer becomes plugged. Injection can be restored using Feedwater Booster Pumps, after depressurizing the RPV.		
11			SRO Classify event as ALERT 3.1.1		
*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Facility: <b>Nine Mile Point 1</b>		Scenario No.: <b>NRC 4</b>	Op-Test No.: <b>NRC</b>
<b>TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)</b>		<b>ACTUAL ATTRIBUTES</b>	<b>Total Malfunction Count:</b> Major not included in this count.  <b>Abnormal Events Count:</b> Does not include the SRO TS related events. These are considered separately.  <b>SRO TS Events</b> Event 3 and 4
1. Total malfunctions (5-8) <b>Events 3,4,5,7,8,10</b>		6	
2. Malfunctions after EOP entry (1-2) <b>Event 7,8,9,10</b>		4	
3. Abnormal events (2-4) <b>Event 4,5</b>		2	
4. Major transients (1-2) <b>Event 6</b>		1	
5. EOPs entered/requiring substantive actions (1-2) <b>EOP-2 RPV and EOP-4 Pri Cont</b>		2	
6. EOP contingencies requiring substantive actions (0-2) <b>Alternate Level Control of EOP-2 EOP-8 RPV Blsdown</b>		2	
7. Critical tasks (2-3)		2	

Operators

SRO	
ATC RO	SRO 1 Minnick
BOP RO	SRO 2 Driscoll