

Facility:		Nine Mile Point 2 Written Exam										Date of Exam:						
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 & Plant Evolutions	1	3	4	3				3	4			3	20	3	4	7		
	2	2	1	1				1	1			1	7	2	1	3		
	Tier Totals	5	5	4				4	5			4	27	5	5	10		
2. Plant Systems	1	2	2	2	3	2	2	3	3	2	2	3	26	3	2	5		
	2	1	1	1	2	1	1	1	1	1	1	1	12	0	2	3		
	Tier Totals	3	3	3	5	3	3	4	4	3	3	4	38	5	3	8		
3. Generic Knowledge & Abilities Categories					1		2		3		4		10	1	2	3	4	7
					2		2		3		3			1	2	2	2	

- Note:
- Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
  - The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
  - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to section D.1.b of ES-401, for guidance regarding elimination of inappropriate K/A statements.
  - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
  - Absent a plant specific priority, only those KAs having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
  - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
  - \* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/A's
  - 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. If fuel handling equipment is sampled in other than Category A2 or G\* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
  - For Tier 3, select topics from Section 2 of the K/A Catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10CFR55.43

Nine Mile Point 2 Written Exam  
Written Examination Outline  
Emergency and Abnormal Plant Evolutions – Tier 1 Group 1

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295006 SCRAM / 1					X		AA2.01 - Ability to determine and/or interpret the following as they apply to SCRAM : Reactor power	4.6	76
295026 Suppression Pool High Water Temp. / 5					X		EA2.03 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Reactor pressure	4.0	77
295018 Partial or Total Loss of CCW / 8					X		AA2.04 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System flow	2.9	78
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1						X	2.4.50 - Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	4.0	79
295021 Loss of Shutdown Cooling / 4						X	2.2.37 - Equipment Control: Ability to determine operability and / or availability of safety related equipment.	4.6	80
295038 High Off-site Release Rate / 9						X	2.4.8 - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.	4.5	81
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.2.40 - Equipment Control: Ability to apply technical specifications for a system.	4.7	82
295038 High Off-site Release Rate / 9	X						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE : Protection of the general public	4.2	39
295028 High Drywell Temperature / 5	X						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE : Equipment environmental qualification	2.9	40
295024 High Drywell Pressure / 5	X						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE : Drywell integrity: Plant-Specific	4.1	41
600000 Plant Fire On-site / 8		X					AK2.01 - Knowledge of the interrelations between PLANT FIRE ON SITE and the following: Sensors, detectors and valves	2.6	42
295005 Main Turbine Generator Trip / 3		X					AK2.01 - Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: RPS	3.8	43
295004 Partial or Total Loss of DC Pwr / 6		X					AK2.02 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: Batteries	3.0	44
295006 SCRAM / 1			X				AK3.06 - Knowledge of the reasons for the following responses as they apply to SCRAM : Recirculation pump speed reduction: Plant-Specific	3.2	45
295026 Suppression Pool High Water Temp. / 5			X				EK3.02 - Knowledge of the reasons for the following responses as they apply to SUPPRESSION POOL HIGH WATER	3.9	46

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EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
							TEMPERATURE: Suppression pool cooling		
295021 Loss of Shutdown Cooling / 4			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING : Feeding and bleeding reactor vessel	3.3	47
295019 Partial or Total Loss of Inst. Air / 8				X			AA1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Instrument air system valves: Plant-Specific	3.3	48
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.01 - Ability to operate and/or monitor the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Reactor Protection System	4.6	49
295030 Low Suppression Pool Water Level / 5				X			EA1.03 - Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: HPCS: Plant-Specific	3.4	50
295016 Control Room Abandonment / 7					X		AA2.03 - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT : Reactor pressure	4.3	51
700000 Generator Voltage and Electric Grid Disturbances					X		AA2.04 - Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: VARs outside capability curve.	3.6	52
295018 Partial or Total Loss of CCW / 8					X		AA2.04 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System flow	2.9	53
295003 Partial or Complete Loss of AC / 6						X	2.4.46 - Emergency Procedures / Plan: Ability to verify that the alarms are consistent with the plant conditions.	4.2	54
295025 High Reactor Pressure / 3						X	2.4.2 - Emergency Procedures / Plan: Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	4.5	55
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.4.11 - Emergency Procedures / Plan: Knowledge of abnormal condition procedures.	4.0	56
295031 Reactor Low Water Level / 2		X					EK2.14 - Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Emergency generators	3.9	57
295023 Refueling Accidents / 8					X		AA2.02 - Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS : Fuel pool level	3.4	58
K/A Category Totals:	3	4	3	3	4/3	3/4	Group Point Total:		20/7

Nine Mile Point 2 Written Exam  
Written Examination Outline  
Emergency and Abnormal Plant Evolutions – Tier 1 Group 2

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295014 Inadvertent Reactivity Addition / 1					X		AA2.02 - Ability to determine and/or interpret the following as they apply to INADVERTENT REACTIVITY ADDITION : Reactor period	3.9	83
295017 High Off-site Release Rate / 9						X	2.1.31 - Conduct of Operations: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.3	84
295015 Incomplete SCRAM / 1					X		AA2.02 - Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM : Control rod position	4.2	85
295020 Inadvertent Cont. Isolation / 5 & 7	X						AK1.05 - Knowledge of the operational implications of the following concepts as they apply to INADVERTENT CONTAINMENT ISOLATION : Loss of drywell/containment cooling	3.3	59
295034 Secondary Containment Ventilation High Radiation / 9		X					EK2.06 - Knowledge of the interrelations between SECONDARY CONTAINMENT VENTILATION HIGH RADIATION and the following: PCIS/NSSSS: Plant-Specific	3.9	60
295014 Inadvertent Reactivity Addition / 1			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to INADVERTENT REACTIVITY ADDITION: Reactor SCRAM	4.1	61
295032 High Secondary Containment Area Temperature / 5				X			EA1.01 - Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE : Area temperature monitoring system	3.6	62
295002 Loss of Main Condenser Vac / 3					X		AA2.04 - Ability to determine and/or interpret the following as they apply to LOSS OF MAIN CONDENSER VACUUM : Offgas system flow	2.8	63
295009 Low Reactor Water Level / 2						X	2.1.31 - Conduct of Operations: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	64
295010 High Drywell Pressure / 5	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE : Temperature increases	3.2	65
K/A Category Totals:	2	1	1	1	1/2	1/1	Group Point Total:		7/3

Nine Mile Point 2 Written Exam  
 Written Examination Outline  
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
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215003 IRM								X				A2.01 - 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: Power supply degraded	3.2	86
211000 SLC								X				A2.05 - Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of SBLC tank heaters	3.4	87
400000 Component Cooling Water										X		2.2.38 - Equipment Control: Knowledge of conditions and limitations in the facility license.	4.5	88
223002 PCIS/Nuclear Steam Supply Shutoff										X		2.4.6 - Emergency Procedures / Plan: Knowledge of EOP mitigation strategies.	4.7	89
215004 Source Range Monitor								X				A2.03 - 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: Stuck detector	3.3	90
300000 Instrument Air	X											K1.02 - Knowledge of the connections and / or cause effect relationships between INSTRUMENT AIR SYSTEM and the following: Service air	2.7	1
209002 HPCS	X											K1.02 - Knowledge of the physical connections and/or cause- effect relationships between HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) and the following: Suppression Pool: BWR-5,6	3.5	2
215004 Source Range Monitor		X										K2.01 - Knowledge of electrical power supplies to the following: SRM channels/detectors	2.6	3
203000 RHR/LPCI: Injection Mode		X										K2.03 - Knowledge of electrical power supplies to the following: Initiation logic	2.7	4
209001 LPCS			X									K3 01 - Knowledge of the effect that a loss or malfunction of the LOW PRESSURE CORE SPRAY SYSTEM will have on following: Reactor water level	3.8	5

**Nine Mile Point 2 Written Exam  
Written Examination Outline  
Plant Systems – Tier 2 Group 1**

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
218000 ADS			X									4.5	6
212000 RPS				X								3.0	7
263000 DC Electrical Distribution				X								3.1	8
239002 SRVs					X							3.7	9
217000 RCIC					X							3.1	10
259002 Reactor Water Level Control						X						3.5	11
264000 EDGs						X						3.8	12
400000 Component Cooling Water							X					2.8	13
261000 SGTS							X					2.8	14

Nine Mile Point 2 Written Exam  
 Written Examination Outline  
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
223002 PCIS/Nuclear Steam Supply Shutoff								X				3.9	15
262001 AC Electrical Distribution								X				3.0	16
262002 UPS (AC/DC)									X			2.8	17
205000 Shutdown Cooling									X			3.2	18
215005 APRM / LPRM										X		3.4	19
215003 IRM										X		3.6	20
211000 SLC											X	3.7	21
262002 UPS (AC/DC)										X		4.4	22
211000 SLC											X	4.2	23

Nine Mile Point 2 Written Exam  
 Written Examination Outline  
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G	Imp	Q#
212000 RPS							X					2.8	24
264000 EDGs				X								3.8	25
209001 LPCS								X				3.3	26
K/A Category Totals:	2	2	2	3	2	2	3	3/3	2	2	3/2	Group Point Total: 26/5	

A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: RPS motor-generator output voltage

K4.08 - Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: Automatic startup

A2.05 - 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: Core spray line break



Nine Mile Point 2 Written Exam  
Written Examination Outline  
Plant Systems – Tier 2 Group 2

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp.	Q #
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226001 RHR/LPCI: CTMT Spray Mode								X					A2.10 - Ability to (a) predict the impacts of the following on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Nuclear boiler instrument failures	3.1	91
216000 Nuclear Boiler Inst.											X		2.4.20 - Emergency Procedures / Plan: Knowledge of operational implications of EOP warnings, cautions, and notes.	4.3	92
290001 Secondary CTMT								X					A2.05 - Ability to (a) predict the impacts of the following on the SECONDARY CONTAINMENT ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: High area temperature	3.3	93
245000 Main Turbine Gen. / Aux.	X												K1.05 - Knowledge of the physical connections and/or cause- effect relationships between MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS and the following: Extraction steam system	2.7	27
215002 RBM		X											K2.01 - Knowledge of electrical power supplies to the following: RBM channels: BWR-3,4,5	2.5	28
202001 Recirculation			X										K3.04 - Knowledge of the effect that a loss or malfunction of the RECIRCULATION SYSTEM will have on following: Reactor water level	3.7	29
223001 Primary CTMT and Aux.				X									K4.05 - Knowledge of PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES design feature(s) and/or interlocks which provide for the following: Maintains proper suppression pool to drywell differential pressure	2.9	30
214000 RPIS					X								K5.01 - Knowledge of the operational implications of the following concepts as they apply to ROD POSITION INFORMATION SYSTEM : Reed switches	2.7	31
233000 Fuel Pool Cooling/Cleanup						X							K6.07 - Knowledge of the effect that a loss or malfunction of the following will have on the FUEL POOL COOLING AND CLEANUP : Component cooling water systems	2.7	32

Nine Mile Point 2 Written Exam  
Written Examination Outline  
Plant Systems – Tier 2 Group 2

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp.	Q #
201002 RMCS							X					3.4	33
272000 Radiation Monitoring								X				2.9	34
239001 Main and Reheat Steam									X			4.2	35
201001 CRD Hydraulic										X		3.1	36
259001 Reactor Feedwater											X	3.6	37
234000 Fuel Handling Equipment				X								3.4	38
K/A Category Totals:	1	1	1	2	1	1	1	1/2	1	1	1/1	Group Point Total: 12/3	

A1.02 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR MANUAL CONTROL SYSTEM controls including: Control rod position

A2.08 - Ability to 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: Offgas system failure

A3.01 - Ability to monitor automatic operations of the MAIN AND REHEAT STEAM SYSTEM including: Isolation of main steam system

A4.01 - Ability to manually operate and/or monitor in the control room: CRD pumps

2.2.38 - Equipment Control: Knowledge of conditions and limitations in the facility license.

K4.03 - Knowledge of FUEL HANDLING EQUIPMENT design feature(s) and/or interlocks which provide for the following: Protection against inadvertently lifting radioactive components out of the water

Facility:		Nine Mile Point 2 Written Exam		Date:			
Category	K/A #	Topic	RO		SRO-Only		
			IR	Q#	IR	Q#	
1. Conduct of Operations	2.1.14	Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.			3.1	94	
	2.1.26	Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).	3.4	66			
	2.1.32	Ability to explain and apply all system limits and precautions.	3.8	67			
		Subtotal		2		1	
2. Equipment Control	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	95	
	2.2.39	Knowledge of less than or equal to one hour technical specification action statements for systems.			4.5	100	
	2.2.40	Ability to apply technical specifications for a system.	3.4	68			
	2.2.42	Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	69			
		Subtotal		2		2	
3. Radiation Control	2.3.11	Ability to control radiation releases.			4.3	96	
	2.3.13	Knowledge of Radiological Safety Procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high radiation areas, aligning filters, etc.			3.8	99	
	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.	3.2	70			
	2.3.14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	71			
	2.3.13	Knowledge of Radiological Safety Procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high radiation areas, aligning filters, etc.	3.4	75			
		Subtotal		3		2	
4. Emergency Procedures / Plan	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.			4.7	97	
	2.4.41	Knowledge of the emergency action level thresholds and classifications.			4.6	98	

2.4.42	Knowledge of emergency response facilities.	2.6	72		
2.4.28	Knowledge of procedures relating to a security event. (non-safeguards information)	3.2	73		
2.4.40	Knowledge of the SRO's responsibilities in emergency plan implementation.	2.7	74		
Subtotal			3		2
Tier 3 Point Total			10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
1 / 1	295030 / EA1.04 replaced by 295030 / EA1.03	RO #50, EA1.04, Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Suppression pool makeup system: Mark III, NMP 2 does not have a Mark III Containment or Suppression Pool makeup system. Randomly selected EA1.03, HPCS: Plant-Specific
1 / 2	295010 / AK1.02 replaced by 295010 / AK1.03	RO #65, AK1.02, Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE: Submergence vent control: Mark III. NMP 2 does not have a Mark III Containment. Randomly selected AK1.03, Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE : Temperature increases
2 / 1	259002 / K6.07 replaced by 259002 / K6.05	RO #11, K6.07 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR WATER LEVEL CONTROL SYSTEM: Drywell pressure input: FWCI. NMP 2 does not have a FWCI system. Randomly selected K6.05 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR WATER LEVEL CONTROL SYSTEM: Reactor water level input
2 / 1	209001 / A2.11 replaced by 209001 / A2.05	RO #26, A2.011 - 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: Loss of fire protection: BWR-1, This does not apply to NMP 2. Randomly selected A2.05 - 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: Core spray line break.
2 / 2	201005 / K3.02 replaced by 202001 / K3.04	RO #29, 201005, RCIS, K3.04 - Knowledge of the effect that a loss or malfunction of the ROD CONTROL AND INFORMATION SYSTEM will have on following: Reactor startup: BWR 6. NMP is not a BWR 6 and does not have a RCIS system. Randomly selected 202001 Recirculation, K3.04 - Knowledge of the effect that a loss or malfunction of the RECIRCULATION SYSTEM will have on following: Reactor water level
1 / 1	295038 / EK1.03 replaced by 295038 / EK1.02	RO #39, EK1.03, Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE: Protection of the general public The RO has no responsibilities regarding meteorological effects on site releases. Randomly selected EK1.02, : Protection of the general public
1 / 1	295025 / 2.4.20 replaced by 295025 / 2.4.2	RO #55, 2.4.20, Emergency Procedures / Plan: Knowledge of operational implications of EOP warnings, cautions, and notes. There are no EOP warnings, cautions, and notes associated with Reactor High Pressure Randomly selected 2.4.2, Emergency Procedures / Plan: Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
1 / 1	295001 / 2.4.34 replaced by 295001 / 2.4.11	RO #56, 2.4.34 - Emergency Procedures / Plan: Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. There are no RO duties outside the control room on a loss of core flow. Randomly selected 2.4.11 - Emergency Procedures / Plan: Knowledge of abnormal condition procedures.
1 / 1	295019 / AA1.04 replaced by 295019 / AA1.02	RO #48, AA1.04 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Service air isolations valves: Plant-Specific Question 48 and question both cover the interrelationship between Instrument air and service air. To avoid a double jeopardy situation randomly selected AA1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Instrument air system valves: Plant-Specific
2 / 1	212000 / K4.06 replaced by 212000 / K4.03	RO #7, K4.06 - Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Select rod insertion: Plant-Specific. NMP 2 does not have a select rod insert bus. Randomly selected K4.03 - Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: The prevention of supplying power to a given RPS bus from multiple sources simultaneously
2 / 1	215003 / A4.02 replaced by 215003 / A4.07	A4.02 - Ability to manually operate and/or monitor in the control room: CRT display indications: Plant-Specific. NMP 2 does not have IRM CRT display indicators for the IRMs. Randomly selected A4.07 - Ability to manually operate and/or monitor in the control room: Verification of proper functioning/ operability.
2 / 1	211000 / 2.2.36 replaced by 211000 / 2.2.12	RO #21, 2.2.36 - Equipment Control: Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations. RO questions 21 and 23 both concern the operational status of SLC. To avoid overcoverage and possible double jeopardy randomly selected 2.2.12 - Equipment Control: Knowledge of surveillance procedures.



Facility:     NMP2-NRC      
 Examination Level: **RO**

Date of Examination:     8/09      
 Operating Test Number:     1    

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	<p><b>Complete a portion of the Control Room Daily Logs</b></p> <p>A portion of the control room daily logs will be completed with any abnormal readings identified.</p> <p>K/A 2.1.18 (3.6) Ability to make accurate, clear, and concise logs, records, status boards, and reports.</p>
Conduct of Operations	N, S	<p><b>Perform an APRM Gain Adjustment</b></p> <p>Determine that APRM 2 requires a gain adjustment and perform the task IAW OSP-NMS-@004</p> <p>K/A 2.1.19 (3.9) Ability to use plant computers to evaluate system or component status.</p>
Equipment Control	M, S	<p><b>Perform Jet Pump ΔP Comparison</b></p> <p>The Jet Pump ΔP Comparison will be performed IAW N2-OSP-LOD-D001. One jet pump will not be within limits.</p> <p>K/A 2.2.12 (3.7) Knowledge of surveillance procedures</p>
Emergency Plan	D, R	<p><b>Fire Fighting Response For a Fire in the Protected Area</b></p> <p>Given conditions related to a fire in the protected area, the RO will be required to perform the appropriate response actions.</p> <p>2.4.39 (3.9) Knowledge of ROs responsibilities in emergency plan implementation.</p> <p>EPIP-EPP-28; 3.2, Attachment 1</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 (≤3 for ROs; ≤ 4 for SROs & RO retakes)
- (N)ew or (M)odified from bank (≥1)
- (P)revious 2 exams (≤1; randomly selected)

Facility: <u>NMP2-NRC</u>		Date of Examination: <u>8/09</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>1</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	<p><b>Determine Core Thermal Power</b></p> <p>Determine core thermal power using N2-REP-11, Attachment 3</p> <p>K/A 2.1.25 (4.2) Ability to interpret reference materials, such as graphs, curves, tables, etc.</p>
Conduct of Operations	M, R	<p><b>Determine the Severity of a Reactivity Event and Actions Required.</b></p> <p>Determination of Reactivity Event Severity Level, Reportability and Take Corrective Action for a mispositioned control rod.</p> <p>2.1.7 (4.7) Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation.</p> <p>CNG-OP-3.01-1000, REACTIVITY MANAGEMENT</p>
Equipment Control	N, R	<p><b>Review Jet Pump Surveillance data</b></p> <p>Review a Two Loop Jet Pump Operability Verification and take appropriate actions IAW N2 -OSP-LOD-D001 and Technical Specifications.</p> <p>K/A: 2.2.12 (4.1) Knowledge of surveillance procedures.</p>
Radiation Control	P, R NRC 3/2008	<p><b>Evaluate the requirement for an Emergency Exposure Authorization</b></p> <p>Given a task and personnel available to perform the job, estimate the expected radiation exposure. Document your authorization for an Emergency Exposure and state the reason why that worker was chosen.</p> <p>K/A 2.3.4 (3.7) Knowledge of radiation exposure limits under normal or emergency conditions.</p>



Emergency Plan	M, R NRC 10/2008	<p><b>Event Classification, Notifications and Reclassification</b></p> <p>Given a plant event, determine classification and notification requirements and reclassify the event given changing conditions. (Time Critical)</p> <p>K/A 2.4.41 (4.6) Knowledge of the emergency action level thresholds and classifications.</p>
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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 2	NRC	Date of Examination:	8/24/2009
Exam Level:	RO / SRO(I) / SRO (U)		Operating Test No.:	1
Control Room Systems® (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U, including 1 ESF)				
System / JPM Title			Type Code*	Safety Function
S-1 <b>SRO Upgrade</b>	<p>Transfer Operating RCS HPU Subloops. Modified to include a motion inhibit condition. The candidate will transfer HPU "A" operational Subloop from Subloop 2 to Subloop 1 per N2-OP-29, Section F.2.0. Task: 2029070101 K/A 202002, A4.02, 2.8/2.8 N2-OP-29, Sect. F 2.0</p>		M, A, S	1
S-2 <b>SRO Upgrade</b>	<p>Suppression Pool Fill Utilizing CSH Pump O2-OPS-SJE-206-2-07 The candidate will maintain Suppression Pool water level above 192 feet using CSH*P1 IAW N2-OP-33 section H.3.0. Task Number: 20690701012 K/A 223001: A2.11, 3.6/3.8 N2-OP-33, Sect H.3.0</p>		M, S	5
S-3 <b>SRO Upgrade</b>	<p>Manual Stopping LPCS After an inadvertent Initiation and Injection (Alternate Path) O2-OPS-SJE-209-2-02 The candidate will shutdown the LPCS pump and 2CSL*MOV104 closed when LPCI A/LPCS fails to reset. Task Number: 2090050101 K/A 209001 A4.01 3.8/3.6 N2-OP-32, Section F.2.4</p>		D, A, EN, L, S	2
S-4	<p>Isolate Main Steamlines (Alternate Path) O2-OPS-SJE-239-2-04 The candidate will isolate the Main Steam lines using the control switches and the PCIS isolation pushbuttons. Task Number: 2390010201 K/A 239001 A4.01 4.2/4.0 EOP-HC Attachment 1, N2-SOP-83</p>		D, A, EN, L, S	3

S-5	<p>Unload and Secure 2EGS*EG1 O2-OPS-SJE-264-2-54</p> <p>The candidate will unload and place the Division I Diesel Generator in the cooldown mode.</p> <p>Task Number: 2649060101</p> <p>K/A 264000, A4.02, 3.4/3.4 and A4.04 3.7/3.7</p> <p>N2-OSP-EGS-M@001, Section 8.2</p>	D, S	6
S-6	<p>Shift RBCLC Pumps</p> <p>New</p> <p>The candidate will shift RBCLC pumps and during the shift the RB Nonessential header will isolate requiring a plant scram.</p> <p>Task Number: 200-011-05-01-2</p> <p>K/A 400000, A2.03, 2.9/3.0, N2-OP-13, SOP-11</p>	N, A, S	8
S-7	<p>Overriding the Control Room Envelope ACU Cross-Divisional Operating Interlock</p> <p>O2-OPS-SJE-288-2-01</p> <p>The candidate will override the Division I Control Room Envelope ACU Cross-Divisional Operating Interlocks (simulated).</p> <p>Task Number: 2889410401</p> <p>K/A 290003 K3.01 3.5/3.8 N2-OP-53A, H.15.0</p>	D, EN, S	9
S-8 RO ONLY	<p>Manual Initiation of RCIC</p> <p>O2-OPS-SJE-217-2-08</p> <p>The candidate will be required to manually initiate RCIC and inject to the RPV following a failure of the Arm-and-Depress initiation pushbutton</p> <p>Task Number: 2179150101</p> <p>K/A 217000 A4.04, 3.6/3.6 N2-EOP-HC, Att. 5</p>	P, L, A, S,	4
P-1 SRO Upgrade	<p>Vent the Scram Air Header</p> <p>O2-OPS-PJE-200-2-04</p> <p>The candidate will vent the CRD Scram Air Header by locally isolating instrument air makeup and venting the air header.</p> <p>Task Number: 2009600501</p> <p>212000, A2.04 3.5/3.7 EOP-6, Attachment 14</p>	D, E, R	7

<p>P-2</p>	<p>Disarm a Control Rod at the HCU Electrically                  O2-OPS-PJE-201-2-10                  The candidate will electrically disarm HCU 34-15 in accordance with N2-OP-30                  Task Number: 2019110104                  K/A 201001 A3.01 3.0/3.0                  N2-OP-30 Section F.13.2</p>	<p>D, R</p>	<p>1</p>
<p>P-3                  SRO                  Upgrade</p>	<p>RCIC Reactor Operator actions during Control Room Evacuation                  02-OPS-PJE-296-2-07                  The candidate will perform the <u>SOP</u> actions of the RCIC Reactor Operator for the Control Room Evacuation.                  Task Number: 2969020101                  K/A 295037, EA1.05, 3.9/4.0      N2-SOP-78</p>	<p>D, E, R</p>	<p>4</p>
<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>			
<p>* Type Codes</p>		<p>Criteria for RO / SRO-I / SRO-U</p>	
<p>(A)lternate path                  (C)ontrol room                  (D)irect from bank                  (E)mergency or abnormal in-plant                  (EN)gineering Safeguards Feature                  (L)ow-Power / Shutdown                  (N)ew or (M)odified from bank including 1(A)                  (P)revious 2 exams                  (R)CA                  (S)imulator</p>		<p>4-6 / 4-6 / 2-3  <math>\leq 9 / \leq 8 / \leq 4</math>  <math>\geq 1 / \geq 1 / \geq 1</math>                  - / - / <math>\geq 1</math> (control room system)  <math>\geq 1 / \geq 1 / \geq 1</math>  <math>\geq 2 / \geq 2 / \geq 1</math>  <math>\leq 3 / \leq 3 / \leq 2</math> (randomly selected)  <math>\geq 1 / \geq 1 / \geq 1</math></p>	

Facility: **Nine Mile Point 2** Scenario No.: **NRC-ALT (Low Power)** Op-Test No.: **August 2009**  
 Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_

**Initial Conditions:** Simulator IC-199

1. Plant startup is in progress IAW N2-OP101A @ Step E.2.49
2. Startup Sequence A2 in progress
3. Control Rod 18-19 in RSCS Group 7, RWM Step 16 has just been pulled to Position 08
4. Reactor Pressure is at approximately ~920 psig.
5. Other operators will be performing SJAE startup later today.
6. Service Water Pump "E" is out of service for maintenance and the maintenance work is complete.
7. Div I Diesel Generator is in service in anticipation of the power swap of SWG 101.

**Turnover:**

1. Continue Pulling Control Rods until completion of RSCS Group 5 RWM Step 19.
2. Transfer 2ENS\*SWG101 From 2NNS-SWG016 To 2NNS-SWG018 per sections H.1.0 and H.2.0 of N2-OP-72
3. After shifting the bus power supply continue the plant startup IAW N2-OP-101A

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP) N (SRO)	Transfer 2ENS*SWG101 From 2NNS-SWG016 To 2NNS-SWG018 per sections H.1.0 and H.2.0 of <b>N2-OP-72</b>
2	DG05A	C (BOP) C (SRO) TS (SRO)	Div 1 Diesel Generator trips as it's being secured  <b>T.S. 3.8.1.B</b>
3	N/A	R (RO) R (SRO)	Continue startup See N2-OP-101A complete thru step E.3.8 add cues  <b>N2-OP-101A</b>
4	NM09A	I (RO) I (SRO)	IRM "A" Upscale/Inop UPSCTR/Inop on the panel indication  <b>N2-OP-92 Neutron Monitoring, N2-OP-97 RPS Off Normal Section H.2.0.</b>
5	PC31A(B)	I (BOP) I (SRO) TS (SRO)	Refuel Floor Gas Monitor RM01-014 Failure – secondary Containment fails to isolate.  <b>EOP-HC Att.4 - HARD CARD for SGBT EOP-SC</b>
6	MS04	M (ALL)	Steam Leak in Drywell. Mode Switch Failure, RRCS/ARI will insert rods (CT)  <b>EOP-RPV, EOP-PC, EOP-Failure to Scram (C5)</b>
7	RH01B RH14A	I (ALL)	DIV1 LPCS and RHR A fail to initiate and RHR B trips when Drywell pressure exceeds 1.68 psig; Both LPCS and RHR A can be started manually.

8	RH09A	C (BOP) C (SRO)	RHS*MOV15A will not open, Alternate Drywell Spray required (CT)  <b>EOP-6-Att.5 &amp; Att.22</b>

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

Facility: <b>Nine Mile Point 2</b>		Scenario No.: <b>NRC-02</b>		Op-Test No.: <b>August 2009</b>	
Examiners: _____		Operators: _____			
<b>Initial Conditions:</b> Simulator IC-20					
1. Reactor Power 100%					
<b>Turnover:</b>					
1. All equipment operable.					
2. lower power to 95% and perform N2-OSP-RMC-W@001 Control Rod Movement and Position Verification.					
Event No.	Malf. No.	Event Type*	Event Description		
1	N/A	R (RO) R (SRO)	Lower power to 95%		
2	N/A	N (RO) N (SRO)	Perform N2-OSP-RMC-W@001 Control Rod Movement and Position Verification.		
3	RD08	C (RO) C (SRO)	Control Rod fails overtravel check and will not recouple  <b>N2-OP-30, H.2.0</b>		
4	RR36A FW15	I (RO) I (SRO) TS (SRO)	RPS Pressure transmitter fails upscale causing RPS B trip system trip. FWLC Master controller fails as-is and level slowly rises. Requires manual FWLC control  <b>T.S. 3.3.1.1, N2-SOP-6</b>		
5	MS03 0.05%	C(SRO) TS (SRO)	High Drywell Leakage, indicated by annunciators and alarms.  <b>T.S. 3.4.5</b>		
6	RD17A RD20 10%	M (ALL)	Drywell pressure will slowly continue to rise and the crew will scram prior to DW pressure exceeding 1.68 psig. Several groups of rods do not insert, the crew will execute EOP-C5 to stabilize the plan. <i>and pressure will rise</i>  <b>N2-EOP-C5, N2-EOP-PC, RPV</b>		
7	RR14A & B	C (RO) C (SRO)	SLS will fail to auto initiate and must be manually initiated		
	N/A		Control rods will be manually driven per EOP-6 Attachment 14.  <b>N2-EOP-06</b>		

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

Facility: **Nine Mile Point 2** Scenario No.: **NRC-03** Op-Test No.: **August 2009**  
 Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_

**Initial Conditions:** Simulator IC-

1. Reactor Power 100%
2. 5 SW pumps in service

**Turnover:**

1. All equipment operable.
2. Perform RCIC Surveillance Test N2-OSP-ICS-Q@002

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (SRO) N (BOP)	Line up Service Water to the RHR HX and start RHR in preparation to perform RCIC Surveillance Test N2-OSP-ICS-Q@002  <b>N2-OP-31 F.4.0 to start 5.0 to secure</b>
2	OVRDs	C (BOP) C (SRO) TS (SRO)	RHR MOV 4A fails while placing pump in Suppression Pool Cooling  TS 3.5.1.A.1. – 7 day LCO
3	RD04 22-11	C (RO) C (SRO) TS (SRO)	Control Rod 22-11 drift  TS 3.1.3 – Control rod inoperable <b>N2-SOP-08</b>
4	TC12D	R (RO) R (SRO)	TCV #4 Fails Closed, Rapid Power Reduction  <b>SOP-101D</b>
5	CU07	C (BOP) C (SRO) TS (SRO)	RWCU Leak causes RWCU isolation valves fail to automatically isolate. TS-3.3.6.1  <b>SOP-83, EOP-SC, N2-OP-37</b>
6	ED02B	C (ALL)	Loss of Condenser vacuum, Rx Scram, Reserve XFRMR "A" fault  <b>SOP-9 – Loss of Condenser Vacuum</b>
7	RR20	M (ALL)	RECIRC Loop Break  <b>EOP-RPV, EOP-PC</b>
8	CS02	I (BOP) I (SRO)	HPCS Fails to auto start on an initiation signal

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



Facility: **Nine Mile Point 2**      Scenario No.: **NRC-04**      Op-Test No.: **August 2009**  
 Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
**Initial Conditions:** Simulator IC-20  
 1. Reactor Power 100%  
**Turnover:**  
 1. All equipment operable.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (RO) N (SRO)	Swap Control Rod Drive Pumps to RDS-P1B in-service.  <b>N2-OP-30</b>
2	RR16A @.25 1 min ramp RR16A @.75 1 min ramp	C (RO) C (SRO) TS (SRO)	Recirc Pump (RCS) "A" loss of cooling water. Requires RCS Pump A shutdown and isolation. (TS 3.4.1)  <b>N2-SOP-29.1, N2-SOP-29, Tech Spec 3.4.1</b>
3		R (SRO) R (RO)	Cram Rod insertion to reduce rod line below 100%.
4	RD18 RD063419 RD062227	C (ALL) TS (SRO)	RDS-P1B trips due to clogged suction strainer with 2 HCU Accumulator Trouble Alarms. Requires RWCU shutdown.  <b>N2-SOP-30, Tech Spec 3.1.5</b>
5	RR10B	C (RO) C (SRO)	Recirc Pump (RCS) "B" trips on high breaker current. Requires a reactor scram.  <b>N2-SOP-29, N3-SOP-101C</b>
6	RC11 RC12	M (All)	RCIC line breaks in the Secondary containment and cannot be isolated. (2005 NRC 3)  <b>N2-EOP-SC, N2-EOP-RPV</b>
7	PC04	C (BOP) C (SRO)	SBGT will not automatically start.
8	N/A		Two areas will exceed max safe requiring a blowdown.  <b>N2-EOP-C2</b>

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

Facility: **Nine Mile Point 2** Scenario No.: **NRC-01** Op-Test No.: **August 2009**

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_

**Initial Conditions:** Simulator IC-194

1. Reactor Power ~50%
2. All equipment is operable

**Turnover:**

1. Reactor Power is approx. 50% and a power ascension is in progress
2. All equipment is operable
3. Currently in N2-OP-101A at step E.5.16.2
4. The second feedwater pump (B) must be placed in service IAW N2-OP-3 Section E.5.0. The third Condensate and Condensate Booster pumps are in service. The Heater Drain pumps are in recirc. The field actions are complete and the "B" feedwater pump is warmed up.
5. Once the feedwater pump is in service, continue the startup IAW N2-OP-101A and N2-OP-101D
6. After Reactor power reaches 55%, balance feedwater pump flows, then continue the power ascension

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP) N (SRO)	Place the Second Feedwater Pump (B) in service <b>N2-OP-3 Condensate and Feedwater Sys, Sect. E.5.0</b>
2	N/A	R (SRO) R (RO)	Continue startup by pulling control rods <b>N2-OP-101A, Plant Startup</b>
3	RR10A RR12A	I (RO) I (SRO) TS (SRO)	"A" Recirc pump flow control valve drifts open (TS) <b>N2-SOP-08, Unplanned Power Changes</b>
4	RC10A	C (BOP) C (SRO) TS (SRO)	RCIC spuriously starts and injects (TS) <b>N2-OP-35, RCIC</b>
5	ED04A	C (BOP) C (SRO)	4 KV SWGR 11 trips which causes Condensate Pumps A and C to loose power. The B Condensate Pump will trip on over-current which results in a total loss of feedwater and reactor scram. <b>N2-SOP-101C, Reactor Scram EOP-RPV</b>
6	MS04	M (ALL)	Steam Leak in Drywell , HPCS injection valve 2CSH-MOV107 fails closed, Loss of High pressure Feed <b>(EOP-RPV, EOP-PC)</b>
7		C (BOP) C (RO) C (SRO)	4 ADS SRVs fail to open Low Pressure Core Spray pump trips

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