Niagara Mohawk®

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NMP-95710

September 21, 1999

Mr. Hubert J. Miller
Regional Administrator
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Subject: Examination Outline Submittal for Nine Mile Point Unit 2 Initial Operator Examinations

In response to the Nuclear Regulatory Commission Corporate Notification letter dated July 30, 1999, Niagara Mohawk Power Corporation is required to submit examination outlines for review and approval by September 22, 1999.

Enclosed are the following examination outline documents:

- ES-201-2, Examination Outline Quality Checklist
- ES-401-1 and 401-5, BWR SRO Examination Outline and Generic Knowledge and Abilities Outline
- ES-401-2 and 401-5, BWR RO Examination Outline and Generic Knowledge and Abilities Outline
- ES-301-1, Administrative Topics Outline (4 total)
- ES-301-2, Control Room Systems and Facility Walkthrough Test Outline (4 total)
- ES-D-1, Scenario Outline (4 total)

Please withhold these examination materials from public disclosure until after the examinations have been completed.

If you have any questions regarding the examination outline submittal, please contact Mr. Jerry Bobka (Facility contact) at 315-349-2569 or Mr. Jim Reid (General Supervisor Operations Training) at 315-349-2155.

Sincerely,

Carl Terry
Vice President Nuclear Safety Assessment
and Support

Enc.

Mr. Herb Williams
US Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, Pa 19406

September 30, 1999

Subject: Unit 2 NRC Exam Outlines

Enclosed are the additional forms, as requested.
New scenario outlines are also enclosed with the additional information. I also gave you a proposed exam schedule to aid you in your review.

Please call if you have any questions me. You have the number.

Sincerely,

Jerry Bobka, Facility Contact

Facility: Nine Mile Point 2 Date of Exam: ~~12/06/99~~ 2/11/00 Exam Level: SRO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G *	
1. Emergency & Abnormal Plant Evolutions	1	4	5	4				5	3			5	26
	2	3	3	3				2	3			3	17
	Tier Totals	7	8	7				7	6			8	43
2. Plant Systems	1	3	1	2	2	1	2	3	2	2	2	3	23
	2	1	1	1	1	2	1	0	2	1	1	2	13
	3	0	1	0	0	0	1	0	1	0	0	1	4
	Tier Totals	4	3	3	3	3	4	3	5	3	3	6	40

3. Generic Knowledge and Abilities	Cat 1	Cat 2	Cat 3	Cat 4	17
	5	4	4	4	

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic 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.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

ES-401	BWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-1
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295003 Partial or Complete Loss of AC Pwr / 6 *LER 99-010 PRA (IPE: AC Power Recovery)*		X					AK2.03 – Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF A.C. POWER and the following: A.C. electrical distribution system.	3.9	1
295003 Partial or Complete Loss of AC Pwr / 6 *PRA (IPE: Divisional AC Failure)*						X	2.2.22 – Knowledge of limiting conditions for operations and safety limits.	4.1	1
295006 SCRAM / 1					X		AA2.06 – Ability to determine and/or interpret the following as they apply to SCRAM: Cause of Reactor Scram.	3.8	1
295006 SCRAM / 1		X					AK2.07 – Knowledge of the interrelations between SCRAM and the following: Reactor pressure control.	4.1	1
295007 High Reactor Pressure / 3			X				AK3.03 – Knowledge of the reasons for the following responses as they apply to High Reactor Pressure: RCIC operation; Plant Specific	3.5	1
295007 High Reactor Pressure / 3				X			AA1.04 – Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: Safety/relief valve operation: Plant-Specific.	4.1	1
295009 Low Reactor Water Level / 2						X	2.4.4 – Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
295010 High Drywell Pressure / 5				X			AA1.02 – Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Drywell floor and equipment drain sumps	3.6	1
295013 High Suppression Pool Temperature / 5			X				AK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression pool cooling operation.	3.8	1
295014 Inadvertent Reactivity Addition / 1				X			AA1.02 – Ability to operate and/or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: Recirculation flow control system	3.8	1
295015 Incomplete SCRAM / 1		X					AK2.11 – Knowledge of the interrelations between INCOMPLETE SCRAM and the following: Instrument Air	3.7	1
295015 Incomplete SCRAM / 1				X			AA1.02 – Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: RPS	4.2	1
295016 Control Room Abandonment / 7						X	2.4.11 – Knowledge of abnormal condition procedure.	3.6	1
295017 High Off-Site Release Rate / 9					X		AA2.01 – † Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: Off-site release rate: Plant-Specific	4.2	1

ES-401	BWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-1
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295023 Refueling Accidents / 8				X			AA1.07 – Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: Standby gas treatment/RFVS	3.6	1
295024 High Drywell Pressure / 5			X				EK3.04 – † Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Emergency depressurization	4.1	1
295025 High Reactor Pressure / 3	X						EK1.05 – † Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Exceeding Safety Limits	4.7	1
295025 High Reactor Pressure / 3					X		EA2.04 – Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Suppression chamber pressure: Plant-Specific.	3.9	1
295026 Suppression Pool High Water Temperature / 5						X	2.2.12 – Knowledge of surveillance procedures.	3.4	1
295026 Suppression Pool High Water Temperature / 5	X						EK1.01 – Knowledge of the operational implications of he following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE and the following: Pump NPSH.	3.4	1
295030 Low Suppression Pool Water Level / 5			X				EK3.06 – Knowledge of the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: Reactor SCRAM.	3.8	1
295031 Reactor Low Water Level / 2		X					EK2.08 – Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Automatic depressurization system	4.3	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1						X	2.4.8 – Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-bases EOPs.	3.7	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	X						EK1.02 – 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 water level effects on reactor power	4.3	1
295038 High Off-Site Release Rate / 9		X					EK2.05 - † Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Site emergency plan.	4.7	1
500000 High Containment Hydrogen Conc. / 5 *PRA (IPE: Containment Venting)*	X						EK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Containment integrity	3.9	1
K/A Category Totals:	4	5	4	5	3	5	Group Point Total:		26

ES-401	BWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1					X		AA2.01 – Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Power/flow map	3.8	1
295002 Loss of Main Condenser Vacuum / 3				X			AA1.07 – Ability to operate and/or monitor the following as they apply to a LOSS OF MAIN CONDENSER VACUUM: Condenser circulating water system	2.9	1
295004 Partial or Complete Loss of DC Pwr / 6 *PRA (IPE: Divisional DC/ Emergency DC Power)*	X						AK1.02 – Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Redundant D.C. power supplies: Plant –Specific	3.4	1
295005 Main Turbine Generator Trip / 3						X	2.1.33 – Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
295008 High Reactor Water Level / 2	X						AK1.03 – Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR WATER LEVEL: Feed flow/steam flow mismatch	3.2	1
295012 High Drywell Temperature / 5		X					AK2.01 – Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell ventilation	3.5	1
295018 Partial or Complete Loss of CCW / 8			X				AK3.07 – Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Cross-connecting with backup systems	3.2	1
295019 Part. Or Comp. Loss of Inst. Air / 8 *PRA (IPE: Loss of Inst. Air)*						X	2.4.48 – Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.8	1
295020 Inadvertent Cont. Isolation / 5					X		AA2.02 – Ability to determine and/or interpret the following as they apply to INADVERTENT CONTAINMENT ISOLATION: Drywell containment temperature	3.4	1
295021 Loss of Shutdown Cooling / 4		X					AK2.04 – Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: Component cooling water systems: Plant-Specific	3.1	1
295028 High Drywell Temperature / 5	X						EK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE: Reactor water level measurement	3.7	1
295029 High Suppression Pool Water Level / 5			X				EK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Emergency depressurization	3.9	1
295033 High Sec. Cont. Area Rad. Levels / 9				X			EA1.01 – Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATIONS LEVELS: Area radiation monitoring system	4.0	1

ES-401	BWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-1	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295034 Sec. Cont. Ventilation High Rad. / 9						X	2.4.17 – Knowledge of EOP terms and definitions.	3.8	1
295035 Secondary Containment High Differential Pressure / 5			X				EK3.02 – Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment ventilation response	3.5	1
295036 Secondary Containment High Sump/Area Water Level / 5					X		EA2.03 – Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Cause of the high water level	3.8	1
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	2.7	1
K/A Category Point Totals:	3	3	3	2	3	3	Group Point Total:		17

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 1											Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
202002 Recirculation Flow Control *DER 2-98-3370*									X			A3.01 – Ability to monitor automatic operations of the RECIRCULATION FLOW CONTROL SYSTEM including: flow control valve operation: BWR-5,6	3.4	1
203000 RHR/LPCI: Injection Mode					X							K5.01 – Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: INJECTION MODE (PLANT SPECIFIC): Testable check valve operation	2.9	1
209001 LPCS	X											K1.01 – Knowledge of the physical connections and/or cause-effect relationships between LOW PRESSURE CORE SPRAY SYSTEM and the following: Condensate storage tank: Plant-Specific	3.1	1
209001 LPCS	X											K1.09 – Knowledge of the physical connections and/or cause-effect relationships between LOW PRESSURE CORE SPRAY SYSTEM and the following: Nuclear boiler instrumentation	3.4	1
209002 HPCS *PRA (IPE: HPCS)*							X					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) controls including: Reactor water level: BWR-5,6	3.7	1
211000 SLC				X								K4.03 – knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: Keeping sodium pentaborate in solution	3.9	1
212000 RPS				X								K4.07 – Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Manual system activation (trip)	4.1	1
215004 SRM			X									K3.02 – Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITOR (SRM) SYSTEM will have on following: Reactor manual control: Plant-Specific	3.4	1

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 1											Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
215005 APRM/LPRM	X											K1.14 – Knowledge of the physical connections and/or cause-effect relationships between AVERAGE POWER RANGE MONITOR/ LOCAL POWER RANGE MONITOR SYSTEM and the following: Reactor vessel	2.9	1
216000 Nuclear Boiler Instrumentation			X									K3.01 – Knowledge of the effect that a loss of malfunction of the NUCLEAR BOILER Instrumentation will have on following: Reactor Protection System	4.3	1
217000 RCIC *LER 99-010 PRA (IPE: RCIC)*						X						K6.03 – Knowledge of the effect that a loss of malfunction of the following will have on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): Suppression pool water supply	3.5	1
218000 ADS		X										K2.01 – Knowledge of electrical power supplies to the following: ADS logic	3.3	1
223001 Primary CTMT and Auxiliaries											X	2.4.45 – Ability to prioritize and interpret the significance of each annunciator or alarm.	3.6	1
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.01 – 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: A.C. electrical distributions failures	3.5	1
226001 RHR/LPCI: Containment Spray System Mode *PRA (IPE: RHR)*							X					A1.05 – Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE controls including: System lineup	3.4	1
239002 Relief/Safety Valves										X		A4.06 – Ability to manually operate and/or monitor in the control room: Reactor water level	4.1	1
241000 Reactor/Turbine Pressure Regulator						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR REGULATING SYSTEM: A.C. electrical power	2.9	1

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 1												Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
259002 Reactor Water Level Control											X	2.1.6 – Ability to supervise and assume a management role during plant transients and upset conditions.	4.3	1
261000 SGTS										X		A4.07 – Ability to manually operate and/or monitor in the control room: System flow	3.2	1
262001 A.C. Electrical Distribution *PRA (IPE: LOSP-Blackout/ AC Power Recovery)*								X				A2.03 – Ability to (a) predict the impacts of the following on the A.C. ELECTRCIAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Loss of off-site power	4.3	1
264000 EDGs *PRA (IPE: Emerg AC Power/ Divisional AC Failures)*							X					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including: Operating voltages, currents, and temperatures	2.9	1
264000 EDGs									X			A3.06 – Ability to monitor automatic operations of the EMERGENCY GENERATORS (DIESEL/JET) including: Cooling water system operations	3.2	1
290001 Secondary Containment											X	2.4.16 – Knowledge of EOP implementation hierarchy and coordination with other support procedures.	4.0	1
K/A Category Point Totals:	3	1	2	2	1	2	3	2	2	2	3	Group Point Total:		23

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 2											Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201001 CRD Hydraulic		X										K2.05 – Knowledge of electrical power supplies to the following: Alternate rod insertion valve solenoids: Plant-Specific	4.5	1
201002 RMCS								X				A2.04 – Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Control rod block	3.1	1
204000 RWCS											X	2.4.48 – Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.8	1
205000 Shutdown Cooling										X		A4.07 – Ability to manually operate and/or monitor in the control room: Reactor temperatures (moderator, vessel, flange)	3.7	1
214000 RPIS				X								K4.01 – Knowledge of ROD POSITION INFORMATION SYSTEM design feature(s) and/or interlocks which provide for the following: Reed switch locations	3.1	1
245000 Main Turbine Gen. And Auxiliaries					X							K5.02 – Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS: Turbine operation and limitations	3.1	1
259001 Reactor Feedwater *LER 99-010*											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
262002 UPS (AC/DC)						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (AC/DC): A.C. electrical power	2.9	1
263000 DC Electrical Distribution			X									K3.03 – Knowledge of the effect that a loss or malfunction of the D.C. ELECTRICAL DISTRIBUTION will have on following: Systems with D.C. components (i.e. valves, motors, solenoids, etc.)	3.8	1

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 2											Form ES-401-1	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
271000 Offgas									X			A3.02 – Ability to monitor automatic operations of the OFFGAS SYSTEM including: System flows	2.8	1
286000 Fire Protection								X				A2.06 – Ability to (a) predict the impacts of the following on the FIRE PROTECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low fire main pressure: Plant-Specific	3.2	1
290003 Control Room HVAC	X											K1.04 – Knowledge of the physical connections and/or cause-effect relationships between CONTROL ROOM HVAC and the following: Nuclear steam supply shut off system (NSSSS/PCIS): Plant-Specific	3.3	1
300000 Instrument Air					X							K5.13 – Knowledge of the operational implications of the following concepts as they apply to the INSTRUMENT AIR SYSTEM: Filters	2.9	1
K/A Category Point Totals:	1	1	1	1	2	1	0	2	1	1	2	Group Point Total:		13

ES-401	BWR SRO Examination Outline Plant Systems - Tier 2/Group 3	Form ES-401-1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201003 Control Rod and Drive Mechanism						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROD AND DRIVE MECHANISM: Control rod drive hydraulic system	3.3	1
233000 Fuel Pool Cooling and Cleanup											X	2.1.14 – Knowledge of system status criteria which require the notification of plant personnel.	3.3	1
239001 Main and Reheat Steam *PRA (IPE: MSIV Closure)*		X										K2.01 – Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids	3.3	1
290002 Reactor Vessel Internals								X				A2.04 - Ability to (a) predict the impacts of the following on the REACTOR VESSEL INTERNALS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive heatup/cooldown rate	4.1	1
K/A Category Point Totals:	0	1	0	0	0	1	0	1	0	0	1	Group Point Total:		4

Plant-Specific Priorities

System / Topic	Recommended Replacement for...	Reason	Points
Plant Specific Priorities coincided with randomly selected K/As.			
Plant-Specific Priority Total (limit 10):			

Category	K/A#	Topic	Imp.	Points
Conduct of Operations	2.1.4	Knowledge of shift staffing requirements.	3.4	1
	2.1.17	Ability to make accurate, clear and concise verbal reports	3.6	1
	2.1.16	Ability to operate plant phone, paging system, and two-way radio.	2.8	1
	2.1.20	Ability to execute procedure steps.	4.2	1
	2.1.12	Ability to apply technical specifications for a system. *PRA (IPE: Service Water)*	4.0	1
	Total			5
Equipment Control	2.2.26	Knowledge of refueling administrative requirements.	3.7	1
	2.2.17	Knowledge of the process for managing maintenance activities during power operations. *LER 99-010/ SOER 98-01*	3.5	1
	2.2.6	Knowledge of the process for making changes in procedures as described in the safety analysis report.	3.3	1
	2.2.23	Ability to track limiting conditions for operations.	3.8	1
	Total			4
Radiation Control	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	3.1	1
	2.3.11	Ability to control radiation releases.	3.2	1
	2.3.9	Knowledge of the process for performing a containment purge. *PRA (IPE: Cont. Vent.)*	3.4	1
	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements.	3.0	1
	Total			4

Category	K/A#	Topic	Imp.	Points
Emergency Procedures/Plan	2.4.1	Knowledge of EOP entry conditions and immediate action steps.	4.6	1
	2.4.32	Knowledge of operator response to a loss of all annunciators.	3.5	1
	2.4.19	Knowledge of EOP layout, symbols, and icons	3.7	1
	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control 2. Core cooling and heat removal 3. Reactor coolant system integrity 4. Containment conditions 5. Radioactivity release control.	4.3	1
	Total			4
Tier 3 Point Total (RO/SRO)				17

ES-401	BWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-2
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295005 Main Turbine Generator Trip / 3						X	2.1.33 – Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	1
295006 SCRAM / 1					X		AA2.06 – Ability to determine and/or interpret the following as they apply to SCRAM: Cause of Reactor Scram.	3.5	1
295007 High Reactor Pressure / 3			X				AK3.03 – Knowledge of the reasons for the following responses as they apply to High Reactor Pressure: RCIC operation; Plant Specific	3.4	1
295009 Low Reactor Water Level / 2						X	2.4.4 – Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.0	1
295010 High Drywell Pressure / 5				X			AA1.02 – Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Drywell floor and equipment drain sumps	3.6	1
295014 Inadvertent Reactivity Addition / 1				X			AA1.02 – Ability to operate and/or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: Recirculation flow control system	3.6	1
295015 Incomplete SCRAM / 1		X					AK2.11 – Knowledge of the interrelations between INCOMPLETE SCRAM and the following: Instrument Air	3.5	1
295015 Incomplete SCRAM / 1				X			AA1.02 – Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: RPS	4.0	1
295024 High Drywell Pressure / 5			X				EK3.04 – † Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Emergency depressurization	3.7	1
295025 High Reactor Pressure / 3	X						EK1.05 – † Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Exceeding Safety Limits	4.4	1
295031 Reactor Low Water Level / 2		X					EK2.08 – Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Automatic depressurization system.	4.2	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	X						EK1.02 – Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSALE OR UNKNOWN: Reactor water level effects on reactor power	4.1	1
500000 High Containment Hydrogen Conc. / 5 *PRA (IPE: Containment Venting)*	X						EK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Containment integrity	3.3	1
K/A Category Totals:	3	2	2	3	1	2	Group Point Total:		13

ES-401	BWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-2	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4					X		AA2.01 – Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Power/flow map	3.5	1
295002 Loss of Main Condenser Vacuum / 3				X			AA1.07 – Ability to operate and/or monitor the following as they apply to a LOSS OF MAIN CONDENSER VACUUM: Condenser circulating water system	3.1	1
295003 Partial or Complete Loss of AC Pwr / 6 *LER 99-010; PRA (IPE: AC Power Recovery)*		X					AK2.03 – Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF A.C. POWER and the following: A.C. electrical distribution system	3.7	1
295004 Partial or Complete Loss of DC Pwr / 6 *PRA (IPE: Divisional D.C.)*	X						AK1.02 – Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Redundant D.C. power supplies: Plant –Specific	3.2	1
295008 High Reactor Water Level / 2	X						AK1.03 – Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR WATER LEVEL: Feed flow/steam flow mismatch	3.2	1
295012 High Drywell Temperature / 5		X					AK2.01 – Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell ventilation	3.4	1
295013 High Suppression Pool Temp. / 5			X				AK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression pool cooling operation	3.6	1
295016 Control Room Abandonment / 7				X			AA1.03 – Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: RPIS	3.0	1
295017 High Off-site Release Rate / 9					X		AA2.01 – † Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: Off-site release rate: Plant Specific	2.9	1
295018 Partial or Complete Loss of CCW / 8			X				AK3.07 – Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Cross-connecting with backup systems	3.1	1
295019 Part. Or Comp. Loss of Inst. Air / 8 *PRA (IPE: Loss of Inst. Air)*						X	2.4.48 – Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.5	1
295020 Inadvertent Cont. Isolation / 5 & 7						X	2.4.11 – Knowledge of abnormal condition procedures.	3.4	1
295022 Loss of CRD Pumps / 1					X		AA2.02 – Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS: CRD system status.	3.3	1
295028 High Drywell Temperature / 5	X						EK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE: Reactor water level measurement	3.5	1

ES-401	BWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-2	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295030 Low Suppression Pool Water Level / 5			X				EK3.06 – Knowledge of the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: Reactor SCRAM	3.6	1
295033 High Sec. Cont. Area Rad. Levels / 9			X				EK3.04 – Knowledge of the reasons for the following responses as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Personnel evacuation	4.0	1
295034 Sec. Cont. Ventilation High Rad. / 9						X	2.4.17 – Knowledge of EOP terms and definitions.	3.1	1
295038 High Off-site Release Rate / 9		X					EK2.05 – † Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE: Site emergency plan	3.7	1
600000 Plant Fire On Site / 8				X			AA1.08 – Ability to operate and/or monitor the following as they apply to PLANT FIRE ON SITE: Fire fighting equipment used on each class of fire	2.6	1
K/A Category Point Totals:	3	3	4	3	3	3	Group Point Total:		19

ES-401	BWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 3							Form ES-401-2	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295021 Loss of Shutdown Cooling / 4		X					AK2.04 – Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: Component cooling water systems: Plant Specific	3.0	1
295023 Refueling Accidents / 8				X			AA1.07 – Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: Standby gas treatment/FRVS	3.6	1
295035 Secondary Containment High Differential Pressure / 5			X				EK3.02 – Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment ventilation response.	3.3	1
295036 Secondary Containment High Sump/Area Water Level / 5					X		EA2.03 – Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Cause of the high water level	3.4	1
K/A Category Point Totals:	0	1	1	1	1	0	Group Point Total:		4

ES-401	BWR RO Examination Outline Plant Systems – Tier 2/Group 1												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201001 CRD Hydraulic System		X										K2.05 – Knowledge of electrical power supplies to the following: Alternate rod insertion valve solenoids: Plant-Specific	4.5	1
201001 CRD Hydraulic System							X					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROD DRIVE HYDRAULIC SYSTEM controls including: CRD system flow	2.9	1
201002 RMCS								X				A2.04 – Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Control rod block.	3.2	1
202002 Recirculation Flow Control *DER 2-98-3370*									X			A3.01 – Ability to monitor automatic operations of the RECIRCULATION FLOW CONTROL SYSTEM including: flow control valve operation: BWR-5,6	3.6	1
203000 RHR/LPCI: Injection Mode					X							K5.01 – Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: INJECTION MODE (PLANT SPECIFIC): Testable check valve operation	2.7	1
209001 LPCS	X											K1.01 – Knowledge of the physical connections and/or cause-effect relationships between LOW PRESSURE CORE SPRAY SYSTEM and the following: Condensate storage tank: Plant-Specific	3.1	1
209001 LPCS	X											K1.09 – Knowledge of the physical connections and/or cause-effect relationships between LOW PRESSURE CORE SPRAY SYSTEM and the following: Nuclear boiler instrumentation	3.2	1
209002 HPCS *PRA (IPE: HPCS)*							X					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) controls including: Reactor water level: BWR-5,6	3.7	1
211000 SLC				X								K4.03 – knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: Keeping sodium pentaborate in solution	3.8	1

ES-401	BWR RO Examination Outline Plant Systems – Tier 2/Group 1												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
212000 RPS				X								K4.07 – Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Manual system activation (trip)	4.1	1
215003 IRM					X							K5.03 – Knowledge of the operational implications of the following concepts as they apply to INTERMEDIATE RANGE MONITOR (IRM) SYSTEM: Changing detector position	3.0	1
215004 SRM			X									K3.02 – Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITOR (SRM) SYSTEM will have on following: Reactor manual control: Plant-Specific	3.4	1
215004 SRM		X										K2.01 – Knowledge of electrical power supplies to the following: SRM channels/detectors	2.6	1
215005 APRM/LPRM	X											K1.14 – Knowledge of the physical connections and/or cause-effect relationships between AVERAGE POWER RANGE MONITOR/ LOCAL POWER RANGE MONITOR SYSTEM and the following: Reactor vessel	2.8	1
216000 Nuclear Boiler Instrumentation									X			A3.01 – Ability to monitor automatic operations of the NUCLEAR BOILER Instrumentation including: Relationship between meter/recorder readings and actual parameter values: Plant-Specific	3.4	1
216000 Nuclear Boiler Instrumentation			X									K3.01 – Knowledge of the effect that a loss of malfunction of the NUCLEAR BOILER Instrumentation will have on following: Reactor Protection System	4.0	1
217000 RCIC *LER 99-010 PRA (IPE: RCIC)*						X						K6.03 – Knowledge of the effect that a loss of malfunction of the following will have on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): Suppression pool water supply	3.5	1
217000 RCIC *LER 99-010 PRA (IPE: RCIC)*										X		A4.09 – Ability to manually operate and/or monitor in the control room: System pressure	3.7	1
218000 ADS		X										K2.01 – Knowledge of electrical power supplies to the following: ADS logic	3.1	1

ES-401	BWR RO Examination Outline Plant Systems – Tier 2/Group 1												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
223001 Primary CTMT and Auxiliaries						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES: Drywell cooling	3.6	1
223001 Primary CTMT and Auxiliaries											X	2.4.45 – Ability to prioritize and interpret the significance of each annunciator or alarm.	3.3	1
223002 PCIS/Nuclear Steam Supply Shutoff											X	2.1.32 – Ability to explain and apply system limits and precautions.	3.4	1
241000 Reactor/Turbine Pressure Regulator						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR REGULATING SYSTEM: A.C. electrical power	2.8	1
259001 Reactor Feedwater *LER 99-010*											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
259002 Reactor Water Level Control			X									K3.05 – Knowledge of the effect that a loss of malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: Recirculation flow control system	2.8	1
261000 SGTS										X		A4.07 – Ability to manually operate and/or monitor in the control room: System flow	3.1	1
264000 EDGs *PRA (IPE: Emergency AC Power)*							X					A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including: Operating voltages, currents, and temperatures	2.8	1
264000 EDGs									X			A3.06 – Ability to monitor automatic operations of the EMERGENCY GENERATORS (DIESEL/JET) including: Cooling water system operations	3.1	1
K/A Category Point Totals:	3	3	3	2	2	3	3	1	3	2	3	Group Point Total:		28

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201003 Control Rod and Drive Mechanism						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROD AND DRIVE MECHANISM: Control rod drive hydraulic system	3.3	1
202001 Recirculation										X		A4.11 – Ability to manually operate and/or monitor in the control room: Seal pressures: Plant-Specific	3.2	1
204000 RWCS	X											K1.05 – Knowledge of the physical connections and/or cause-effect relationships between REACTOR WATER CLEANUP SYSTEM and the following: Plant air systems	2.7	1
214000 RPIS				X								K4.01 – Knowledge of ROD POSITION INFORMATION SYSTEM design feature(s) and/or interlocks which provide for the following: Reed switch locations	3.0	1
215002 RBM									X			A3.05 – Ability to monitor automatic operations of the ROD BLOCK MONITOR SYSTEM including: Back panel meters and indicating lights: BWR-3. 4. 5	3.2	1
219000 RHR/LPCI: Torus/Pool Cooling Mode *PRA (IPE: RHR)*			X									K3.01 – Knowledge of the effect that a loss or malfunction of the RHR/LPCI: TORUS/ SUPPRESSION POOL COOLING will have the following: Suppression pool temperature control	3.9	1
239001 Main and Reheat Steam *PRA (IPE: MSIV Closure)*		X										K2.01 – Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids	3.2	1
239001 Main and Reheat Steam											X	2.2.2 – Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.0	1
245000 Main Turbine Gen. And Auxiliaries					X							K5.02 – Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS: Turbine operation and limitations	2.8	1
256000 Reactor Condensate										X		A4.10 – Ability to manually operate and/or monitor in the control room: Feedwater temperature	3.2	1

ES-401	BWR RO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
262001 AC Electrical Distribution *PRA (IPE: LOSP-Blackout/ AC Power Recovery)*								X				A2.03 – Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of offsite power	3.9	1
262002 UPS (AC/DC)						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (AC/DC): A.C. electrical power	2.7	1
263000 DC Electrical Distribution			X									K3.03 – Knowledge of the effect that a loss or malfunction of the D.C. ELECTRICAL DISTRIBUTION will have on following: Systems with D.C. components (i.e. valves, motors, solenoids, etc.)	3.4	1
271000 Offgas									X			A3.02 – Ability to monitor automatic operations of the OFFGAS SYSTEM including: System flows	2.9	1
272000 Radiation Monitoring											X	2.4.46 – Ability to verify that the alarms are consistent with the plant conditions.	3.5	1
286000 Fire Protection								X				A2.06 – Ability to (a) predict the impacts of the following on the FIRE PROTECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low fire main pressure: Plant-Specific	3.1	1
290001 Secondary CTMT	X											K1.02 – Knowledge of the physical connections and/or cause-effect relationships between SECONDARY CONTAINMENT and the following: Primary containment system: Plant-Specific	3.4	1
290003 Control Room HVAC							X					A1.05 – Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROOM HVAC controls including: Radiation monitoring (control room)	3.2	1

ES-401	BWR RO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
300000 Instrument Air					X							K5.13 – Knowledge of the operational implications of the following concepts as they apply to the INSTRUMENT AIR SYSTEM: Filters	2.9	1
K/A Category Point Totals:	2	1	2	1	2	2	1	2	2	2	2	Group Point Total:		19

ES-401	BWR RO Examination Outline Plant Systems - Tier 2/Group 3												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
215001 Traversing In-Core Probe				X								K4.01 – Knowledge of TRAVERSING IN-CORE PROBE design feature(s) and/or interlocks which provide for the following: Primary containment isolation: Mark I&II (Not-BWR1)	3.4	1
233000 Fuel Pool Cooling and Cleanup	X											K1.15 – Knowledge of the physical connections and/or cause-effect relationships between FUEL POOL COOLING AND CLEAN-UP and the following: Storage pools	2.9	1
234000 Fuel Handling Equipment							X					A1.01 – Ability to predict and/or monitor changes in parameters associated with operating the FUEL HANDLING EQUIPMENT controls including: Spent fuel pool level	3.1	1
290002 Reactor Vessel Internals								X				A2.04 – Ability to (a) predict the impacts of the following on the REACTOR VESSEL INTERNALS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive heatup/cooldown rate	3.7	1
K/A Category Point Totals:	1	0	0	1	0	0	1	1	0	0	0	Group Point Total:		4

Plant-Specific Priorities			
System / Topic	Recommended Replacement for...	Reason	Points
Plant-Specific Priorities coincided with randomly selected KA's.			
Plant-Specific Priority Total: (limit 10)			

Category	K/A#	Topic	Imp.	Points
Conduct of Operations	2.1.17	Ability to make accurate, clear and concise verbal reports	3.5	1
	2.1.16	Ability to operate plant phone, paging system, and two-way radio.	2.9	1
	2.1.20	Ability to execute procedure steps.	4.3	1
	Total			3
Equipment Control	2.2.30	Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area/ communication with fuel storage facility/ systems operated from the control room in support of fueling operations/ and supporting instrumentation.	3.5	1
	2.2.23	Ability to track limiting conditions for operations.	2.6.	1
	2.2.1	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.	3.7	1
	Total			3
Radiation Control	2.3.2	Knowledge of facility ALARA program.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
	2.3.9	Knowledge of the process for performing a containment purge. *PRA (IPE: Cont. Vent)*	2.5	1
	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements.	2.6	1
	Total			4
Emergency Procedures/Plan	2.4.32	Knowledge of operator response to a loss of all annunciators.	3.3	1
	2.4.19	Knowledge of EOP layout, symbols, and icons	2.7	1
	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control 2. Core cooling and heat removal 3. Reactor coolant system integrity 4. Containment conditions 5. Radioactivity release control.	37	1
	Total			3
Tier 3 Point Total (RO/SRO)				13

Facility: Nine Mile Point # 2		Date of Examination: 12/06/99
Examination Level (circle one): **SRO**		Operating Test Number: Cat A Test 1
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM: (New) Water Chemistry Operating Limits Determination (SRO ONLY). K/A 2.1.33, 2.1.34
	Shift Turnover	Question: 1. What are the requirements for maintaining an active license (Fill a Technical Specification required on-shift position)? K/A 2.1.1, 2.1.4
		Question: 2. After assuming the shift as the ASSS, what are the elements to be discussed at the shift brief? K/A 2.1.1, 2.1.3
A.2	Piping and Instrument Drawings	Question: 1. Using the PIDs, trace the Fire Protection Water flow path from the motor driven fire water pump 2FPW-P2, to the RPV using RHS Train A. 2RHS*MOV24A is available for injection. Where necessary, add EOP equipment to be used. K/A 2.1.24 *PRA (IPE: Fire Water – RHR Crosstie)*
		Question: 2. How do you verify that a PID is up to date and what is required to use it as a working copy? K/A 2.1.21
A.3	Radiation Work Permits	JPM (New) Review the attached RWP for task performance (GAP-RPP-02) K/A 2.3.7, 2.3.4, 2.3.10
A.4	Emergency Classification	JPM: (New) Emergency Plan classification of each SRO candidates scenario (to be administered after each scenario). K/A 2.4.29, 2.4.41

Facility: Nine Mile Point # 2		Date of Examination: 12/06/99
Examination Level (circle one): **SRO**		Operating Test Number: Cat A Test 2
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Startup Requirements	Question 1. During a reactor startup using control rod sequence A2UP, the ATC RO notices that at the completion of RWM Step 3, control rod 26-07 is at position 02. The RO reports that he failed to move the rod to position 04 when positioning it. Classify the reactivity management event. K/A 2.2.1, 2.2.35,
		Question 2. A reactor startup is in progress using control rod sequence A2UP. RWM Step 4 was just completed. Prior to and through the completion of RWM step 5, what reactivity controls must be in place? 2.1.2, 2.2.1, 2.2.36
	Security	Question 1. How are vital area keys in the Control Room controlled? K/A 2.1.2, 2.1.13
		Question 2. What are the responsibilities of Nine Mile Point employee who checks out a vital area key for a temporary job in the plant? K/A 2.1.2, 2.1.13
A.2	Surveillance Testing	Question: 1. On 12/14/99 at 0000 hrs it is discovered that N2-OSP-RHR-Q@004, RHR SYSTEM LOOP A PUMP & VALVE OPERABILITY TEST AND ASME XI PRESSURE TEST, was performed on 9/1/99 at 0000 hrs. What actions are required if the test cannot be performed within the next 48 hours? K/A 2.1.12, 2.2.12,
		Question 2. During a refueling outage, the 2DER*MOV120, EQUIP DRAINS OUTBD ISOL VLV, is scheduled to have its disk and seat replaced. Following completion of the work, what testing is required? K/A 2.1.12, 2.1.28, 2.1.33, 2.2.18, 2.2.21, 2.2.24
A.3	Radiation Monitoring	Question 1. When may the SSS waive a pre-job ALARA review? K/A 2.3.2
		Question 2. What installed radiation monitoring equipment is required on the refueling floor for a core offload (excluding personal radiation monitoring)? K/A 2.3.5
A.4	Emergency Classification	JPM: (New) Emergency Plan classification of each SRO candidates scenario (to be administered after each scenario). K/A 2.4.29, 2.4.41

Facility: Nine Mile Point # 2		Date of Examination: 12/06/99
Examination Level (circle one): **RO**		Operating Test Number: Cat A Test 1
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Shift Turnover	Question: 1.What are the requirements for maintaining an active license (Fill a Technical Specification required on-shift position)? K/A 2.1.4
		Question: 2. Following 4 days off you work day-shift (12 hour shifts) for five consecutive days, Thursday through Monday. You are called Monday night and asked to come in and work 12 hours on Tuesday day-shift. Determine if it is acceptable to work Tuesday including why or why not? K/A 2.1.1
	Start Up Requirements	Question: 1. Given SRM readings from N2-OP-101A (pg 6) and marked up Rod Sequence Pull Sheet, describe the rod movement restrictions that apply. K/A 2.2.1, 2.2.2, 2.2.35
		Question: 2. A reactor startup is in progress using Startup Control Sequence A2UP; currently performing step 9. Control rod 34-55 was just withdrawn to position 18 and the reactor is declared critical. The doubling time is 40 seconds. What actions are required? K/A 2.1.23, 2.2.1, 2.2.2
A.2	Piping and Instrument Drawings	Question: 1. Using the PIDs, trace the Fire Protection Water flow path from the motor driven fire water pump 2FPW-P2, to the RPV using RHS Train A. 2RHS*MOV24A is available for injection. Where necessary, add EOP equipment to be used. K/A 2.1.24 *PRA (IPE: Fire Water – RHR Crosstie)*
		Question: 2. How do you verify that a PID is up to date and what is required to use it as a working copy? K/A 2.1.24
A.3	Radiation Work Permits	JPM (New) Review the attached RWP for task performance (GAP-RPP-02) K/A 2.3.7, 2.3.4, 2.3.10
A.4	Emergency Classification	Question 1. The station is currently at an ALERT due to an ATWS. You are performing the actions to vent the scram air header when the STATION EVACUATION alarm is sounded and announcements for station evacuation are made. What are your actions in response to the Station Evacuation? K/A 2.4.12, 2.4.29, 2.4.34, 2.4.41
		Question 2. Following a Station Evacuation due to a LOCA, you are informed that two (2) maintenance workers are unaccounted for. The OSC is operational. What actions are required? K/A 2.4.39, 2.4.29, 2.4.42

Facility: Nine Mile Point # 2 Examination Level (circle one): **RO**		Date of Examination: 12/06/99 Operating Test Number: Cat A Test 2
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Fuel Handling	Question 1. As the ATC RO in the Control Room you are informed an irradiated fuel assembly has been dropped. What actions must be taken? K/A 2.4.4, 2.4.11, 2.2.26, 2.2.27, 2.2.32
		Question 2. What sources of water are available as emergency make-up to the Spent Fuel Pool and what are the requirements associated with their use? K/A 2.2.27, 2.2.32
	Security	Question 1. You have been issued a vital area key for temporary use to perform a task in the plant. What are your responsibilities associated with the control, use and return of the key? K/A 2.1.2, 2.1.13
		Question 2. You have been assigned to escort visitors into the protected area. What are maximum number of days and maximum number of visitors that can you can escort without additional authorizations? K/A 2.1.2, 2.1.13
A.2	Temporary Modifications to Systems	Question 1. Two inputs to 2CEC*PNL851, Annunciator 851306, OFF-GAS SYSTEM TROUBLE, have been removed from service under a markup. What steps must be taken to identify this condition? K/A 2.4.33
		Question 2. What method(s) is available to the CSO to determine the current active temporary modifications? K/A 2.2.17, 2.2.18,
A.3	Radiation Exposure Limits	Question 1. Your current exposure for the calendar year is 3800 mrem. A job requires that you receive 300 mrem. What actions are required prior to performing the job? K/A 2.3.4, 2.3.10
		Question 2. What actions are required if you must enter a Very High Radiation Area? K/A 2.3.1, 2.3.4, 2.3.10
A.4	Emergency Classification as CSO	JPM: EPIP-EPP-28, Fire Fighting, CSO Actions for a fire in the protected area. K/A 2.4.27, 2.4.29

Facility: Nine Mile Point # 2 Date of Examination: 12/06/99
Exam Level (circle one): RO / SRO Operating Test No.: Plant JPMs

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function

B.2 Facility Walk-Through

J1-8, 02-OPS-PJE-200-2-06, Defeat WCS Injection interlocks, K/A 295037, EA1.11	D	3
J1-9, 02-OPS-PJE-200-2-69, Vent Control Rod overpiston volume, K/A 295015, AA1.01	D/R	1
J1-10, 02-OPS-PJE-296-2-04, Manual operation of RCIC from RSP, K/A 296016, AA1.06	D	2

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

Facility: Nine Mile Point # 2 Date of Examination: 12/06/99
Exam Level (circle one): RO / SRO Operating Test No.: Simulator Day 5

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
J1-1, 02-OPS-SJE-NEW, Manual Initiation of the Control Building Special Filter Train, K/A 290003, A4.01, 295038. EA1.07	N/S	9
J1-2, 02-OPS-SJE-264-2-04, Parallel Div I EDG with offsite (faulted), K/A 264000, A4.05 *PRA (IPE: AC Power Recovery)*	M/S/A	6
J1-3, 02-OPS-SJE-NEW, Add Water to the Suppression Pool via the HPCS System (faulted), K/A 223001, A1.08, A2.11, 295030, EA1.03	N/S/A	5

B.2 Facility Walk-Through

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

Facility: Nine Mile Point # 2 | Date of Examination: 12/06/99
Exam Level (circle one): RO / SRO | Operating Test No.: Simulator Day 6

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
J1-4, 02-OPS-SJE-NEW, Manually Initiate ADS (faulted), K/A 218000, A2.04, A4.01, A4.02 *PRA (IPE: Operator Depressurizes)*	N/S/A	3
J1-5, 02-OPS-SJE-NEW, Raising CRD Flow to the RPV After Shutdown During Emergency, K/A 295031, EA1.10	N/S	2
J1-6, 02-OPS-SJE-NEW, Withdraw Control Rods to Achieve Criticality (faulted), K/A 201002, A1.01, A1.02, A1.03, A2.02	N/S/L/A	1
J1-7, 02-OPS-SJE-205-2-10, Restore RHR B in Shutdown Cooling Following Shutdown for a Short Period, K/A 205000, A4.01, A4.03	D/S/L	4

B.2 Facility Walk-Through

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

Facility: Nine Mile Point # 2 | Date of Examination: 12/06/99
Exam Level (circle one): RO / SRO | Operating Test No.: Simulator Day 7

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
J2-4, 02-OPS-SJE-NEW, Lineup and Spray the Drywell following a LOCA (faulted), K/A 226001, A4.03	N/S/A	5
J2-5, 02-OPS-SJE-NEW, Vent the Reactor Pressure Vessel for Primary Containment Flooding (faulted), K/A 295031, EA2.01, 239001, A2.03, A4.01, A4.02	N/S/A	4
J2-6, 02-OPS-SJE-201-2-22, Cooldown using Turbine Bypass Valves K/A 295025, EA1.02	D/S/L	3
J2-7, 02-OPS-SJE-NEW, Transfer Feedwater Control to High Pressure, Low Flow Control Valves, K/A 295002, A1.04, A4.01, A4.02, A4.03	N/S/L	2

B.2 Facility Walk-Through

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

Facility: Nine Mile Point 2 Date of Exam: 12/06/99 Exam Level: RO

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

3. Generic Knowledge and Abilities	Cat 1	Cat 2	Cat 3	Cat 4	
	3	3	4	3	13

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic 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.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

Scenario Outline

Nine Mile Point 2	Scenario No. 1	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives: Evaluate candidates ability to raise and lower power under normal and abnormal conditions; respond to fuel failures and rising plant radiation levels; failure of a main steam line radiation monitor; clogging of condensate demineralizers resulting in a loss of feedwater; failure of the RCIC flow controller; an un-isolatable steam line break in the secondary containment; ability to execute normal, abnormal and emergency procedures, and insure compliance with Technical Specifications.

Initial Conditions: 90% Power (IC-20), normal power operations, return to 100% power following a rod pattern adjustment; HPCS has been out of service 16 hours and is inoperable due to injection valve CSH*MOV107 binding. Maintenance markup issued, not expected back this shift.

Turnover: Continue the power ascension in accordance with N2-OP-101D and support maintenance recovery of HPCS. 14 day LCO, T.S. 3.5.1 for HPCS inop.

Event No.	Malf. No.	Type	Event Description
1		N	Raise power to 100% with recirculation flow.
2		R	Raise power to 100% with recirculation flow.
3	RX01	C	(RO) Fuel element failure resulting in raised off-gas and main steam line radiation, requiring power reduction (SOP-17).
4		R	(RO) Reduce power with recirculation flow.
5	MS15D	I	(BOP/RO) Main steam line radiation monitor fails high, diagnose to determine instrument has failed, bypass and reset, check T.S. (3.3.1)

Scenario Outline

6	REM. FUNC.	C	(BOP/RO) Condensate demineralizers sequentially clog up requiring power reduction, placing more demineralizers in service and resulting in a loss of feedwater. *PRA (IPE: Loss of Feedwater)*
7	RC07	I	(BOP) RCIC flow controller fails high after initial operation, requiring manual control.
8		M	RCIC steam line break in the secondary containment, isolation valves fail to close, temperatures and radiation levels rise in secondary containment requiring RPV blowdown. *PRA (IPE: Emergency Depressurization), LER 99-010*
9	RP08A RP08B	I	Div I and II RRCS 98 sec timer failure, requiring manual SLC initiation.

Scenario Outline

Nine Mile Point 2	Scenario No. 2	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives: Evaluate candidates ability to lower power under normal and abnormal conditions; respond to instrument and component failures encountered during surveillance testing and normal operations which require a Technical Specification 3.0.3 shutdown. Respond to a stuck open SRV; feedwater controller failure, EHC failure and failure of control rods to fully insert which results in an ATWS condition; lower RPV level to reduce power and control RPV pressure; execute normal, abnormal and emergency procedures; ensure compliance with Technical Specifications.

Initial Conditions: 100% Power (IC-20), normal power operations, no equipment out of service.

Turnover: Continue normal power operations and return RCIC to operability following maintenance by performing of N2-OSP-ISC-Q@002, RCIC Pump and Valve Operability Test and System Integrity (completed through step B.2.21).

Event No.	Malf. No.	Type	Event Description
1		N	Perform N2-OSP-ISC-Q@002, RCIC Pump and Valve Operability Test and System Integrity
2	OVER-RIDES	I	(BOP) RHR flow instrument fails downscale, preventing Minimum Flow Valve (RHS*MOV4A (4B) from opening
3	AD05C	C	(BOP/RO) ADS Relief Valve opens, enter SOP 34, pull fuses to close valve. Places plant in a condition requiring T.S. 3.0.3 shutdown *PRA (IPE: Inadvertent Open Safety Relief Valves)*
4		R	(RO) Reduce power with recirculation flow
5	FW14	I	(RO) Feedwater master controller fails low requiring manual control of feedwater. *PRA (IPE: Loss of Feedwater), LER 99-010*

Scenario Outline

6	OVER-RIDES	C	(BOP/RO) EHC system leak requiring power reduction
7	RD17Z	M	Control rods fail to fully insert, RRCS fails, all turbine and bypass valves close, requiring use of SRVs and lowering RPV level for pressure control. After control is established alternate methods must be used to scram the rods

Scenario Outline

Nine Mile Point 2	Scenario No. 3	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives: Evaluate candidates ability to raise and lower power under normal and abnormal conditions; respond to power monitoring instrument failures and electrical plant failures; maintain core coverage with a LOCA and degraded ECCS; execute normal, abnormal and emergency procedures; ensure compliance with Technical Specifications.

Initial Conditions: 75% Power (IC-16), continuation of a plant startup from a maintenance outage for unplanned main generator work, RCIC Tagged Out for coupling alignment.

Turnover: Continue the power ascension in accordance with N2-OP-101D, Technical Specification LCO in effect, 3.7.4, RCIC inoperable, 4 hours into 14 day LCO

Event No.	Malf. No.	Type	Event Description
1		N	Continue power ascension to 100% power.
2		R	(RO) Raise power with recirc flow
3	NM11	I	(RO) APRM Failure Upscale, Consult T.S., Bypass APRM
4	EG02	I	(BOP) Main Generator Automatic Voltage Regulator Fails High
5	RR32	C	(RO) HPU A Oil Temp High, causing A FCV Lockup, restore and reset, check T.S. (3.4.1.3) *DER 2-99-3370*
6	EG04	C	(BOP) Main Generator Overheating, enter N2-SOP-68 *PRA, (IPE: Turbine Trip)*

Scenario Outline

7	ED02 RR20	M	Loss of Line 5, EDG 1 fails to start, resulting in a loss of power to bus 101, enter SOP-3 and SOP-11, "A" FCV ruptures, HPCS is avaialable to restore level *PRA, (IPE: Divisional AC Failure) (IPE: Partial loss of Off-Site Power) (IPE: Operation of Service Water* *LER-99-010*

Scenario Outline

Nine Mile Point 2	Scenario No. Alternate	Operating Test No. 1
Examiners:	**Candidates:**	

Objectives: Evaluate candidates ability to lower power under normal and abnormal conditions; respond to a feedwater control system failure; control rod drive suction filter clogging casing a pump trip; failure of the on-line CRD flow controller; closed cooling water system break in the drywell; an un-isolatable steam line break in the drywell; ability to execute normal, abnormal and emergency procedures, and insure compliance with Technical Specifications.

Initial Conditions: 100% Power (IC-20), normal power operations

Turnover: , Lower power in preparation for a shutdown for scheduled refueling outage.

Event No.	Malf. No.	Type	Event Description
1		N	Lower power with recirculation flow.
2		R	Lower power with recirculation flow.
3	FW30A	I	(RO) RPV level narrow range transmitter fails as is while in control, during power reduction.
4	RD18	C	(RO) On-line control rod drive pump suction filter clogs tripping the control rod drive pump.
5	RD14A(B)	I	Failure of the CRD Flow Control Valve
6	CW06	C	(BOP) Closed cooling water (CCP) break in the drywell, requires shutting down drywell coolers, entering N2-SOP-60
7	MS04	M	Steam line break in drywell, cannot be isolated drywell sprays may be lined up.

Scenario Outline

8	RH01 A/B/C	C	RHR Pump Trip, Trip the operating RHR Pump requiring verifying loop filled and vented and re-starting an alternate RHR Pump