BWR SRO EXAMINATION OUTLINE

Facility: **GRAND GULF NUCLEAR STATION** Date of Exam: **6 FEBRUARY 2004**

TIER	GROUP	K/A CATEGORY POINTS K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G *	POINT TOTAL
1. Emergency & Abnormal Plant Evolutions	1	6	3	2				8	3			4	26
	2	0	2	3				4	5			3	17
	TIER TOTAL	6	5	5				12	8			7	43
2. Plant Systems	1	1	1	3	3	0	3	3	1	1	3	4	23
	2	1	1	1	0	3	2	0	2	2	0	1	13
	3	0	0	0	0	0	1	1	1	0	1	0	4
	TIER TOTAL	2	2	4	3	3	6	4	4	3	4	5	40

3. Generic Knowledge & Abilities	CAT 1	CAT 2	CAT 3	CAT 4	
	5	4	2	6	17

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. 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 exam must total 100 points.
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.

GRAND GULF NUCLEAR STATION FEBRUARY 2004	BWR SRO EXAMINATION OUTLINE EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 1	ES-401-1

E/APE #/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO /BOTH	RELATED K/A	ORIGIN	NOTES:
295003 Partial or Complete Loss of AC Power/ 6 CFR41.7			02				Given plant conditions describe the difference of how loads on BOP and ESF busses are removed and subsequently restored during undervoltage conditions.	3.1	801 q001	BOTH	AK1.02: 3.4 AK1.03: 3.2 AK2.03: 3.9 AK3.01: 3.5 AK3.03: 3.6 AA1.01: 3.8	NEW	
295006 SCRAM / 1 CFR41.5				03			Given conditions of a reactor scram, describe the response of the Turbine Pressure Control System.	3.7	802 q002	BOTH	AK2.07: 4.1 AA2.04: 4.1	NEW	
295007 High Reactor Pressure / 3 CFR41.6	01						Given Reactor pressure, determine systems available to inject into the RPV for level control.	3.2	803 q003	BOTH	AK2.03: 3.2 AK2.04: 3.3	NEW	
295009 Low Reactor Water Level / 2 CFR41.4/41.5/41.7/43.5					02		Given a steam flow / feed flow mismatch and plant conditions, determine the reactor water level response and response of Reactor Water Level control.	3.7	804 q004	BOTH		MOD NRC 8/2002	
295010 High Drywell Pressure / 5 CFR41.4/41.5		05					Given plant parameters, determine the affects on Drywell Pressure. (Loss of cooling to the Drywell Chilled Water System with the plant at power.)	3.8	805 q005	BOTH	223001 K6.01: 3.8 A4.12: 3.6	MOD NRC 3/1998	
295013 High Suppression Pool Water Temp. / 5 CFR41.10/43.2/43.5					01		During a surveillance operating RCIC, determine how often Suppression Pool Temperature is required to be monitored and the threshold for alternate actions.	4.0	876 q076	**SRO**	AA1.02: 3.9 2.1.33: 4.0 2.4.4: 4.3	MOD NRC 8/2002	
295014 Inadvertent Reactivity Addition / 1 CFR41.1/41.2/41.6/43.6						2. 1. 30	With the reactor in startup conditions such that the reactor is close to criticality, what are the operator actions if a high worth control rod is withdrawn.	3.4	806 q006	BOTH	AA1.04: 3.3 AA2.02: 3.9 AA2.03: 4.3 2.1.2: 4.0	NEW	Pilgrim event 2/2003
295015 Incomplete SCRAM / 1 CFR41.6/43.5				04			Given control panel indications, determine the cause preventing full insertion of control rods under scram conditions.	3.7	807 q007	BOTH	AA1.01: 3.9 AA1.02: 4.2 2.1.31: 3.9	NEW	
295016 Control Room Abandonment / 7 CFR41.7				05			Given a loss of DC electrical power, describe the status of operation of the Safety Relief Valves operated from the Remote Shutdown Panels.	2.9	808 q008	BOTH		NEW	
295017 High Offsite Release Rate / 9 CFR41.11/41.13/43.4			01				With a release of radioactive material in progress, determine the response of systems to protect the safety of control room personnel and maintain habitability.	3.9	809 q009	BOTH	AK3.05: 3.6	NEW	
PAGE 1 TOTAL TIER 1 GROUP 1	1	1	2	3	2	1	PAGE TOTAL # QUESTIONS	10					

E/APE #/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO /BOTH	RELATED K/A	ORIGIN	NOTES:
295023 Refueling Accidents / 8 CFR41.4/41.5/41.10/43.5/43.7				02			With a Refueling outage in progress, determine the effects of a loss of Fuel Pool Cooling and Cleanup on the Fuel Storage pools.	3.1	877 q077	**SRO**		NEW	
295024 High Drywell Pressure / 5 CFR41.7/41.10/43.5		06					Given a high drywell pressure condition, determine the operation of the Divisional Diesel Generators.	4.0	811 q011	BOTH	EA1.06: 3.7	NEW	
295025 High Reactor Pressure / 3 CFR41.5/41.6/41.7		04					With a rising reactor pressure, determine the response of the RPS and ATWS ARI/RPT.	4.1	812 q012	BOTH	EK2.01: 4.1	NEW	
295026 Suppression Pool High Water Temp. / 5 CFR41.10/41.12/43.4/43.5						2. 3. 2	With RHR operating in Suppression Pool Cooling in response to a high Suppression Pool Temperature, describe the basis for contacting Radiation Protection personnel.	2.9	810 q010	BOTH	2.1.32: 3.8	NEW	
295027 High Containment Temperature / 5 CFR41.9/41.10/43.2/43.5				03			Determine the Containment Temperature at which Emergency Depressurization is required.	3.8	813 q013	BOTH	EK3.01: 3.8	MOD NRC 12/2000	
295030 Low Suppression Pool Water Level / 5 CFR41.8/41.10/43.5	02						Determine the Suppression Pool Water level at which ECCS pump NPSH is questionable.	3.8	814 q014	BOTH		NEW	
295031 Reactor Low Water Level / 2 CFR41.2/41.3/41.10/41.14/43.5	01						Given plant conditions and a low reactor water level, determine core cooling mechanism and adequacy.	4.7	815 q015	BOTH	2.1.1: 3.8 2.4.6: 4.0 2.4.18: 3.6	MOD NRC 8/2002	
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1 CFR41.10/43.5						2. 4. 40	Given ATWS conditions, determine the Emergency Plan Emergency Action Level.	4.0	878 q078	**SRO**	2.4.41: 4.1	NEW	Alert vs. Site Area Emergency
295038 High Offsite Release Rate / 9 CFR41.10/41.12/43.4/43.5				02			Given meteorological data, maps and a radioactive release, determine protective action recommendations to be issued.	3.8	879 q079	**SRO**	2.4.44: 4.0	NEW	
500000 High Containment Hydrogen Conc. / 5 CFR41.9	01						Determine the bases for the Hydrogen Control leg of EP-3.	3.9	817 q017	BOTH		MOD NRC 8/2002	
295031 Reactor Low Water Level / 2 CFR41.7/41.10/43.5						2. 1. 31	Determine actual reactor water level when operating from the Remote Shutdown Panels using the associated graphs and given indications.	3.9	816 q016	BOTH	EK2.01: 4.4 EA2.01: 4.6	MOD NRC 8/20021	
PAGE 2 TOTAL TIER 1 GROUP 1	3	2	0	3	0	3	PAGE TOTAL # QUESTIONS	11					

GRAND GULF NUCLEAR STATION FEBRUARY 2004				BWR SRO EXAMINATION OUTLINE EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 1			CONT.					ES-401-1
E/APE #/NAME/SAFETY FUNCTION	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO/ BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
295025 High Reactor Pressure / 3 CFR41.4/41.5/41.14				05			Given plant conditions, describe the response of RCIC to a rising reactor pressure.	3.7	818 q018	BOTH	217000 A1.04: 3.6	NEW	
295017 High Off-Site Release Rate / 9 CFR41.10/41.13/43.2/43.4/43.5				01			With a liquid radwaste discharge required and a discharge permit, determine whether a release is allowed.	3.1	880 q080	**SRO**	2.3.3: 2.9 2.3.6: 3.1	NEW	
295015 Incomplete SCRAM / 1 CFR41.1/41.2/41.5	04						Describe the reaction of the core with an ATWS and lowering of reactor pressure.	3.8	820 q020	BOTH	AK1.02: 4.1	MOD NRC 4/2000	
295030 Low Suppression Pool Water Level / 5 CFR41.7/41.9/41.10/43.5					01		Given the failure of Control Room Suppression Pool Level indication, determine Suppression Pool level using alternate means.	4.2	821 q021	BOTH	2.1.25: 3.1 2.4.21: 4.3	NEW	EOP 2 Attachment 29
295026 Suppression Pool High Water Temp. / 5 CFR41.5/41.9/41.10/43.2/43.5	02						Describe the relationship between Reactor Pressure, Suppression Pool Temperature, and the ability of the Suppression Pool to take reactor pressure.	3.8	822 q022	BOTH	2.4.18: 3.6 2.4.6: 4.0 2.4.14: 3.9	MOD NRC 3/1998	
PAGE 3 TOTAL TIER 1 GROUP 1	2	0	0	2	1	0	PAGE TOTAL # QUESTIONS	5					
PAGE 1 TOTAL TIER 1 GROUP 1	1	1	2	3	2	1	PAGE TOTAL # QUESTIONS	10					
PAGE 2 TOTAL TIER 1 GROUP 1	3	2	0	3	0	3	PAGE TOTAL # QUESTIONS	11					
K/A CATEGORY TOTALS:	6	3	2	8	3	4	TIER 1 GROUP 1 GROUP POINT TOTAL	26					

GRAND GULF NUCLEAR STATION FEBRUARY 2004	BWR SRO EXAMINATION OUTLINE EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 2												ES-401-1
E/APE #/NAME/SAFETY FUNCTION	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO/ BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 CFR41.5/41.10/43.1/43.5						2. 2. 34	Given plant conditions and a reduction in core flow, determine the effects on Thermal Limits and core stability.	3.2	819 q019	BOTH	AK1.03: 4.1 AK1.04: 3.3	NEW	
295002 Loss of Main Condenser Vacuum / 3 CFR41.4/41.7/43.5				03			Given plant conditions, determine how a loss of condenser vacuum will affect the ability of the plant to remain operating. (RPS)	3.5	823 q023	BOTH	AA1.04: 3.4 AK2.01: 3.5 AK2.03: 3.6	NEW	Low Power
295004 Partial or Complete Loss of DC Power / 6 CFR41.5/41.7				03			Given a loss of DC control power and conditions that would normally result in trips of the AC Electrical Distribution System, determine the operation of the AC circuit breakers.	3.6	824 q024	BOTH		NEW	
295005 Main Turbine Generator Trip / 3 CFR41.5/41.6			03				Given a trip of the Main Generator, determine the affects on Feedwater temperature to the reactor.	3.0	825 q025	BOTH		NEW	
295008 High Reactor Water Level / 2 CFR41.4/41.5					03		During a reactor startup from cold shutdown, determine the means for control of reactor water level during reactor heat up. (RWCU Blow down)	3.0	826 q026	BOTH	AA2.05: 3.1 AA2.04: 3.3	NEW	
295011 High Containment Temperature / 5 CFR41.5/41.9/43.5			01				Given plant conditions, determine Containment cooling mechanisms and available additional cooling.	3.9	827 q027	BOTH	AK2.01: 4.0	MOD NRC 12/2000	
295012 High Drywell Temperature / 5													
295018 Partial or Complete Loss of CCW / 8													
295019 Partial or Complete Loss of Inst. Air / 8 CFR41.4/41.10/43.5			01				Given a loss of Instrument Air, determine Safety Relief Valves that can be operated using nitrogen installed per off normal event procedures.	3.4	828 q028	BOTH		NEW	GGNS Scram # 107
295020 Inadvertent Cont. Isolation / 5 & 7 CFR41.4/41.7/41.9/41.10/43.5					06		Given plant conditions and an isolation of the Containment, Auxiliary Building and Drywell, determine validity and ability to restore system.	3.8	829 q029	BOTH		NEW	
295021 Loss of Shutdown Cooling / 4 CFR41.5/41.10/43.5					02		Given plant conditions with ADHR in service for Shutdown Cooling, determine the affects of a plant transient on ADHR operation.	3.4	830 q030	BOTH		NEW	
PAGE 1 TOTAL TIER 1 GROUP 2	0	0	3	2	3	1	PAGE TOTAL # QUESTIONS	9					

GRAND GULF NUCLEAR STATION FEBRUARY 2004							BWR SRO EXAMINATION OUTLINE EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 2	CONT.					ES-401-1
E/APE #/NAME/SAFETY FUNCTION	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO/ BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
295022 Loss of CRD Pumps / 1 CFR41.5/41.10/43.5						2.1.7	Given plant conditions and a trip of the operating CRD pump, determine the actions to be taken.	4.4	831 q031	BOTH	AK1.01: 3.4 2.4.4: 4.3 2.4.7: 3.8	NEW	
295028 High Drywell Temperature / 5 CFR41.5/41.7/41.10/43.5					03		Given plant conditions and EOP graphs, determine the accuracy of reactor water level indications.	3.9	832 q032	BOTH	EK1.01: 3.7	NEW	
295029 High Suppression Pool Water Level / 5													
295032 High Secondary Containment Area Temperature / 5 CFR41.4/41.10/43.5				04			Given entry into the Secondary Containment EOP on high temperature in an ECCS Room, identify systems not required to be isolated from Primary Containment.	3.4	833 q033	BOTH		NEW	
295033 High Secondary Containment Area Radiation Levels / 9 CFR41.12/43.4		04					Given high area radiation levels in Secondary Containment, determine when Standby Gas Treatment will be required to be for operated.	4.2	834 q034	BOTH		NEW	
295034 Secondary Containment Ventilation High Radiation / 9 CFR41.4/41.10/41.13/43.4						2.1.7	Given plant parameters, determine operation of ventilation systems.	4.4	835 q035	BOTH		NEW	
295035 Secondary Containment High Differential Pressure / 5 CFR41.4/41.7/41.13		01					Describe the operation of the Secondary Containment Ventilation Systems due to high differential pressure.	3.6	836 q036	BOTH		NEW	
295036 Secondary Containment High Sump/Area Water Level / 5 CFR41.4/41.10/43.5				03			Given plant conditions, identify the available routes to remove water from ECCS pump rooms.	3.0	837 q037	BOTH		NEW	
600000 Plant Fire On Site / 8 CFR41.10/43.5					03		Determine the actions that will occur upon activation of a fire alarm.	3.2	838 q038	BOTH		NEW	
PAGE 2 TOTAL TIER 1 GROUP 2	0	2	0	2	2	2	PAGE TOTAL # QUESTIONS	8					
PAGE 1 TOTAL TIER 1 GROUP 2	0	0	3	2	3	1	PAGE TOTAL # QUESTIONS	9					
K/A CATEGORY TOTALS:	0	2	3	4	5	3	TIER 1 GROUP 2 GROUP POINT TOTAL	17					

GRAND GULF NUCLEAR STATION FEBRUARY 2004							BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 1										ES-401-1
SYSTEM #/NAME	**K 1**	**K 2**	**K 3**	**K 4**	**K 5**	**K 6**	**A 1**	**A 2**	**A 3**	**A 4**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO/ BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
201005 RCIS CFR41.6/43.6							01					Given a failure of the Main Steam Bypass valves open with the plant at power, determine the affects on RCIS.	3.3	839 q039	BOTH	A2.04: 3.2 K6.01: 3.2 K5.10: 3.3 K1.02: 3.5	NEW	
202002 Recirculation Flow Control CFR41.6			06									Describe the operation of the Recirc Flow Control Valves during a Flow Control Valve Runback when a HPU alarms.	3.7	840 q040	BOTH	A1.08: 3.4	NEW	
203000 RHR/LPCI: Injection Mode CFR41.8						10						Describe the affects on LPCI injection when the associated Standby Service Water System trips.	3.1	841 q041	BOTH		NEW	
209001 LPCS CFR41.7				10								Describe the operation of the LPCS Injection valve without ECCS injection signals present.	2.9	842 q042	BOTH		NEW	
209002 HPCS CFR41.7/41.8/43.1/43.2											2. 1. 10	Given plant conditions and a failure of the HPCS system, determine the actions with respect to Tech Specs.	3.9	881 q081	**SRO**	2.2.22: 4.1 2.2.25: 3.7	NEW	
211000 SLC CFR41.6/41.7							04					During an initiation of SLC with a failure of the SLC pumps to start, determine the final valve positions.	3.7	843 q043	BOTH	A2.06: 3.3 A2.07: 3.2	NEW	
212000 RPS CFR41.7			12									Describe the affect on Secondary Containment with a loss of power to RPS.	3.3	844 q044	BOTH		NEW	
215004 Source Range Monitor CFR41.5/41.6	06											Describe the hazards involved with movement of SRM detectors following under vessel work.	2.8	845 q045	BOTH		NEW	
PAGE 1 TOTAL TIER 2 GROUP 1	1	0	2	1	0	1	2	0	0	0	1	PAGE TOTAL # QUESTIONS	8					

SYSTEM #/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
215005 APRM / LPRM CFR41.6/41.7		01										Given LPRM/APRM status and a loss of power to an LPRM, determine the reaction of the RPS & RCIS systems.	2.6	846 q046	BOTH	K1.01: 4.0 K5.06: 2.6 K4.01: 3.7 K4.02: 4.2	NEW	
216000 Nuclear Boiler Instrumentation CFR41.5/41.7								03				Given leakage on the instrument line for Reactor Vessel Level indication, determine the indications and reaction of systems supplied that indication.	3.1	847 q047	BOTH	K1.22: 3.8	NEW	
217000 RCIC CFR41.5/41.7/41.10/43.5										04		With RCIC operating for a surveillance, determine the affects of a manual isolation signal.	3.6	848 q048	BOTH	A2.03: 3.3	NEW	
218000 ADS CFR41.7/43.1/43.2											2. 2. 23	Given plant conditions, determine the LCO status for inoperable ADS valves.	3.8	882 q082	**SRO**		NEW	
223001 Primary CTMT and Auxiliaries CFR41.9/41.10/43.5											2. 4. 2	Given plant conditions, determine requirements for entry into the Emergency Operating Procedures.	4.1	849 q049	BOTH		NEW	
223002 PCIS / Nuclear Steam Supply Shutoff CFR41.7/41.9/41.11/43.4						03						Given radiation monitor readings and radiography in Containment, determine the status of plant systems.	3.1	850 q050	BOTH	272000 K1.09: 3.8	NEW	
226001 RHR/LPCI: CTMT Spray Mode CFR41.7/41.8/41.10/43.5						08						Given indications from plant instrumentation, determine the operation of the Containment Spray System.	2.8	851 q051	BOTH		NEW	
239002 SRVs CFR41.7									08			Given SRV operation, determine the meaning of indications and SRV status.	3.6	852 q052	BOTH		NEW	
241000 Reactor / Turbine Pressure Regulator CFR41.7				06								Identify the conditions of the Reactor/Turbine Pressure Control system that would result in a Main Turbine Trip.	3.7	853 q053	BOTH		NEW	
PAGE 2 TOTALS TIER 2 GROUP 1	0	1	0	1	0	2	0	1	1	1	2	PAGE 2 TOTAL # QUESTIONS	9					

SYSTEM #/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
259002 Reactor Water Level Control CFR41.4/41.5/41.7										02		With the Digital Feedwater Level Control System selected for automatic operation, determine the reaction of the system for a given failure.	3.6	854 q054	BOTH		NEW	
261000 SGTS CFR41.7/41.10/41.11/43.4											2. 4. 10	Given operation of the Standby Gas Treatment System followed by alarms that would indicate a change in plant status, determine actions to be taken.	3.1	855 q055	BOTH		NEW	
262001 AC Electrical Distribution CFR41.4/41.7			01									Given the plant at full power and a loss of bus 11HD, determine the final operation of the Recirculation system.	3.7	856 q056	BOTH	202001 K1.08: 3.2 K6.03: 3.0	NEW	
264000 EDGs CFR41.8/43.2				07								Given system alignment, determine the operational condition of the diesel generator.	3.4	857 q057	BOTH		NEW	
290001 Secondary CTMT CFR41.10										03		Identify the proper alignment of the Auxiliary Building Ventilation systems to maintain proper building differential pressure.	2.7	858 q058	BOTH		NEW	
262001 AC Electrical Distribution CFR41.10/43.5							02					Determine the method employed to control the return of loads during a station blackout when cross connecting Division III to Division II.	3.5	859 q059	BOTH		NEW	
PAGE 3 TOTALS TIER 2 GROUP 1	0	0	1	1	0	0	1	0	0	2	1	PAGE TOTAL # QUESTIONS	6					
PAGE 1 TOTALS TIER 2 GROUP 1	1	0	2	1	0	1	2	0	0	0	1	PAGE TOTAL # QUESTIONS	8					
PAGE 2 TOTALS TIER 2 GROUP 1	0	1	0	1	0	2	0	1	1	1	2	PAGE TOTAL # QUESTIONS	9					
K/A CATEGORY TOTALS:	1	1	3	3	0	3	3	1	1	3	4	TIER 2 GROUP 1 GROUP POINT TOTAL	23					

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GRAND GULF NUCLEAR STATION FEBRUARY 2004						BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 2											ES-401-1
SYSTEM #/NAME	**K 1**	**K 2**	**K 3**	**K 4**	**K 5**	**K 6**	**A 1**	**A 2**	**A 3**	**A 4**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO / BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
201001 CRD Hydraulic CFR41.5/41.6									10			Given alarms and light status, determine the status of the CRD Hydraulic system.	2.9	860 q060	BOTH		NEW	
202001 Recirculation CFR41.3/41.5						06						Given plant conditions and a failure of the Recirculation Pump Motor Generator, determine final system configuration.	3.1	861 q061	BOTH		NEW	
204000 RWCU CFR41.4								09				With a loss of the room cooling for the RWCU equipment areas and temperatures, determine the affects on the RWCU system.	2.8	862 q062	BOTH		NEW	
205000 Shutdown Cooling CFR41.2/41.3/41.4/41.5/43.2			01									Identify the indications of a mode change following a loss of shutdown cooling.	3.3	863 q063	BOTH		NEW	
215003 IRM																		
219000 RHR /LPCI Suppression Pool Cooling Mode CFR41.7					01							With RHR in Suppression Pool Cooling and an extended loss of power, describe the actions required to restore RHR to Suppression Pool Cooling. (System Vent)	2.7	864 q064	BOTH		NEW	ONEP Caution
234000 Fuel Handling Equipment CFR41.4/41.9/41.12/43.4/43.7					03							Describe the affects of a lowering Fuel Pool water level on fuel handling operations.	3.4	865 q065	BOTH	K6.05: 3.3	NEW	
239003 MSIV Leakage Control																		
245000 Main Turbine Gen., and Auxiliaries																		
259001 Reactor Feedwater CFR41.4/41.10/43.5						06						Describe the actions to be taken for a loss of Plant Service Water with regard to the Condensate and Feedwater systems.	2.7	866 q066	BOTH		NEW	
PAGE 1 TOTAL TIER 2 GROUP 2	0	0	1	0	2	2	0	1	1	0	0	PAGE TOTAL # QUESTIONS	7					

SYSTEM #/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
262002 UPS (AC/DC) CFR41.7/41.10/43.5								03				Describe the operation of the Static Inverter (static switch) with an oscillating frequency output of the Inverter and a loss of synchronization between sources.	2.6	867 q067	BOTH		NEW	
263000 DC Electrical Distribution																		
271000 Offgas CFR41.4/41.10/41.13/43.4/43.5									02			Given a change in Offgas flow, determine a potential cause and its affects on the plant and Offgas System.	2.8	868 q068	BOTH	A2.01: 3.3 A2.10: 3.3	NEW	
272000 Radiation Monitoring CFR41.10/41.11/43.4/43.5		05										Given a loss of power to UPS, determine the affects on Fuel Handling Area and Fuel Pool Sweep Exhaust Radiation Monitors.	2.9	869 q069	BOTH		NEW	
286000 Fire Protection CFR41.10/41.11/41.13/43.4/43.5											2. 3. 8	Given a fire in the Turbine Building, describe the actions to be taken to utilize the Turbine Building Roof hatches for venting and smoke removal.	3.2	888 q088	**SRO**		NEW	
290003 Control Room HVAC CFR41.4					03							Describe the basis for maintaining control of Control Room temperature.	2.7	871 q071	BOTH		NEW	
300000 Instrument Air CFR41.4/41.10/43.5	02											Describe the process of utilizing Service Air to supply the Instrument Air system during a loss of the Instrument Air compressors.	2.8	870 q070	BOTH		NEW	
400000 Component Cooling Water																		
PAGE 2 TOTALS	1	1	0	0	1	0	0	1	1	0	1	PAGE 3 TOTAL # QUESTIONS	6					
PAGE 1 TOTALS	0	0	1	0	2	2	0	1	1	0	0	PAGE 1 TOTAL # QUESTIONS	7					
K/A CATEGORY TOTALS:	1	1	1	0	3	2	0	2	2	0	1	TIER 2 GROUP 2 GROUP POINT TOTAL	13					

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GRAND GULF NUCLEAR STATION FEBRUARY 2004							BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 3										ES-401-1
SYSTEM #/NAME	**K 1**	**K 2**	**K 3**	**K 4**	**K 5**	**K 6**	**A 1**	**A 2**	**A 3**	**A 4**	**G**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO / BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
201003 Control Rod and Drive Mechanism																		
215001 Traversing In-core Probe																		
233000 Fuel Pool Cooling and Cleanup CFR41.4/41.9							02					Describe the operation of the Fuel Pool Cooling and Cleanup System with a lowering level in the Spent Fuel Pool.	3.1	872 q072	BOTH		NEW	
239001 Main and Reheat Steam CFR41.4/41.7/41.9						09						Determine the response of the MSIVs to a partial actuation of isolation logic.	4.1	873 q073	BOTH		NEW	
256000 Reactor Condensate CFR41.4								15				Given parameters and plant conditions, determine the source of in-leakage into the Reactor Condensate/ Feedwater systems.	3.1	874 q074	BOTH		NEW	
268000 Radwaste CFR41.13/43.4										01		Determine the operation of floor drain sump pumps with one pump removed from service.	3.6	875 q075	BOTH		NEW	
288000 Plant Ventilation																		
290002 Reactor Vessel Internals																		
K/A CATEGORY TOTALS:	0	0	0	0	0	1	1	1	0	1	0	TIER 2 GROUP 3 GROUP POINT TOTAL	4					

GRAND GULF NUCLEAR STATION FEBRUARY 2004	BWR SRO EXAMINATION OUTLINE GENERIC KNOWLEDGE AND ABILITIES TIER 3									ES-401-5
CATEGORY	**C1**	**C2**	**C3**	**C4**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO /BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
CONDUCT OF OPERATIONS – Shift Turnover CFR41.10/43.5	2.1.3				Determine the actions required for personnel to assume shift duties during off turnover times.	3.4	883 q083	**SRO**		MOD NRC 6/2001	
CONDUCT OF OPERATIONS – Procedural Adherence CFR41.10/43.5	2.1.20				Given a situation that requires procedure changes to accomplish a task, determine the actions to be taken.	4.2	884 q084	**SRO**	2.1.23: 4.0 2.1.2: 4.0	NEW	
CONDUCT OF OPERATIONS – Procedures CFR41.10/43.5	2.1.21				Describe the usage and limits on procedural lineup check sheets.	3.2	885 q085	**SRO**	*2.1.20: 4.2* *2.2.14: 3.0* *2.1.29: 3.3*	NEW	
CONDUCT OF OPERATIONS – Operational Mode CFR43.2	2.1.22				Given plant conditions, determine the plant Tech Spec Mode of operation.	3.3	886 q086	**SRO**		NEW	
CONDUCT OF OPERATIONS – Plant Personnel Control CFR41.6/41.10/43.5	2.1.9				Given conditions determine whose authority is required to stop work in the plant.	4.0	887 q087	**SRO**		NEW	
EQUIPMENT CONTROL – Configuration Control CFR41.10/43.5		2.2.15			Given a component temporarily out of normal alignment per system operating instructions, determine the tracking mechanism to be employed.	2.9	889 q089	**SRO**	*2.2.11: 3.4*	NEW	Configuration control SOER 98-1
EQUIPMENT CONTROL – Maintenance Work Orders CFR41.10/43.5		2.2.19			Given conditions, identify when a PASSPORT work order is required to be issued.	3.1	890 q090	**SRO**		NEW	NEW Work Control System
EQUIPMENT CONTROL – Maintenance affecting LCOs CFR41.10/43.2/43.5		2.2.24			Given an inoperable component on an LCO determine the affects of maintenance.	3.8	891 q091	**SRO**		NEW	
EQUIPMENT CONTROL – Core Alterations CFR43.6/43.7		2.2.34			Determine whether an activity constitutes a Core Alteration.	3.2	892 q092	**SRO**	2.2.32: 3.3	NEW	
RADIATION CONTROL – SRO Responsibilities for Systems CFR*41.10*/41.12/43.4/*43.5*			2.3.3		Describe the Shift Manager responsibilities for shipments of Radioactive materials offsite.	2.9	893 q093	**SRO**		MOD NRC 12/2000	Hazardous Materials Transportation plan
RADIATION CONTROL – Radiation Work Permits CFR41.10/41.12/43.4/43.5			2.3.7		Given conditions and procedures, determine applicability of radiation work permits.	3.3	894 q094	**SRO**		MOD NRC 8/2002	
PAGE 1 TOTAL TIER 3	5	4	2	0	PAGE TOTAL # QUESTIONS	11					

GRAND GULF NUCLEAR STATION FEBRUARY 2004					BWR SRO EXAMINATION OUTLINE GENERIC KNOWLEDGE AND ABILITIES TIER 3	CONT.					ES-401-5
CATEGORY	**C1**	**C2**	**C3**	**C4**	**TOPIC(S)**	**IMP**	**REC #**	**SRO/RO /BOTH**	**RELATED K/A**	**ORIGIN**	**NOTES:**
EMERGENCY PROCEDURES / PLAN – AOP's and usage CFR41.10/43.5				2.4.11	Given plant conditions, determine the usage of Off Normal Event Procedures and when other procedures take priority.	3.6	895 q095	**SRO**	2.4.8: 3.7	NEW	
EMERGENCY PROCEDURES / PLAN – Emergency Responsibilities CFR41.10/43.5				2.4.12	During the initial phase of a security threat emergency, describe the actions to be taken by Operations personnel and the Emergency Response Organization.	3.9	896 q096	**SRO**	2.4.28: 3.3	NEW	Security Threat Actions
EMERGENCY PROCEDURES / PLAN – EOPs SAPs CFR41.10/43.5				2.4.18	Describe the bases for Emergency Director concurrence for the transition to the SAPs and the yellow highlighted steps of the SAPs.	3.6	897 q097	**SRO**		NEW	
EMERGENCY PROCEDURES / PLAN – Loss of all Annunciators / Reportability CFR41.10/43.5				2.4.32	Determine the actions to be taken for a loss of all Control Room annunciators.	3.5	898 q098	**SRO**		NEW	
EMERGENCY PROCEDURES / PLAN – Health Physics responsibilities during an emergency CFR41.10/43.5				2.4.36	Describe the purpose for having Health Physics personnel report to the Control Room during an emergency.	2.8	899 q099	**SRO**		NEW	
EMERGENCY PROCEDURES / PLAN – Emergency Communications Systems CFR41.10/43.5				2.4.43	Given unavailability of the Operational Hotline, identify alternative methods of making Emergency Notifications.	3.5	900 q100	**SRO**		NEW	*Turkey Point Hurricane Andrew*
PAGE 2 TOTAL TIER 3	0	0	0	6	PAGE TOTAL # QUESTIONS	6					
PAGE 1 TOTAL TIER 3	5	4	2	0	PAGE TOTAL # QUESTIONS	11					
K/A CATEGORY TOTALS:	5	4	2	6	TIER 3 GROUP POINT TOTAL	17					

Facility: **GRAND GULF NUCLEAR STATION** Date of Examination: **2/9/2004 - 2/11/2004**

Examination Level (circle one): RO / **SRO** Operating Test Number: __1___

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	Knowledge / Ability	IMP	Additional K/A's	ORIGIN	NOTES
A.1	Technical Specifications	JPM GJPM-SRO-ADM50 Given a component, determine Limiting Condition for Operations and complete entry into ESOMS.	2.1.12	4.0	2.2.23: 3.8 2.2.22: 4.1	**MOD**	Different component using ESOMS computer **CFR 55.45 (a)12 & 13**
	Plant Chemistry	JPM GJPM-OP-ADM-52 Given a chemistry report and procedures, determine the plant conditions and actions to be taken.	2.1.34	2.9	2.1.6: 4.3	**NEW**	**CFR 55.45 (a)12 & 13**
A.2	*Pre*-Maintenance Operability	JPM GJPM-SRO-ADM51 Given a *Condition Report*, determine the *operability* requirements for the component and enter into *PCRS* system.	2.2.21	3.5		**NEW**	*PCRS* **CFR 55.45 (a)12 & 13**
A.3	Radiation Control	JPM GJPM-SRO-ADM33 Perform required actions to access the Controlled Access Area (CAA), determine requirements to enter a High Contamination Area and authorization required, and exit the CAA.	2.3.1	3.0	2.3.4: 3.1 2.3.2: 2.9	**BANK** **NRC 6/2001**	**CFR 55.45 (a)9 & 10**
A.4	Emergency Plan Action Levels	JPM GJPM-SRO-A&E55 Given conditions, determine the appropriate emergency classification, actions to be taken for a security threat compromising the Remote Shutdown Panels and complete the required notification form.	2.4.41	4.1	2.4.30: 3.6 2.4.40: 4.0 2.4.28: 3.3	**NEW**	**CFR 55.45 (a)11 Security Threat**

Facility: **GRAND GULF NUCLEAR STATION** Date of Examination: **2/9/2004 – 2/9/2004**

Exam Level (circle one): RO / ***SRO(I)*** / SRO(U) Operating Test No.: ___1___

System / JPM Title / Type Codes*	Safety Function	Knowledge / Ability	IMP.	Additional K/A's	ORIGIN	NOTES
B.1. CONTROL ROOM SYSTEMS						
1. 205000 SHUTDOWN COOLING SYSTEM (RHR) **(D)(S)(A)(L)** Startup RHR in Shutdown Cooling (E12-F053x fail on stroke) GJPM-RO-E1212	**4**	A4.01	3.7	A4.02: 3.5 A4.03: 3.5 A4.09: 3.1 A2.10: 2.9 A2.12: 3.0 A1.02: 3.2	**BANK** **NRC 3/1998**	**CFR 55.45(a) 1; 3, 4; 5; 6 & 7**
2. 262001 AC ELECTRICAL DISTRIBUTION **(M)(S)** Distribute loads between Service Transformers 11 & 21 GJPM-RO-R2731	**6**	A4.01	3.7	A4.02: 3.4 A4.04: 3.7 A4.05: 3.3 2.1.31: 3.9 2.1.30: 3.4	**MOD** **NRC 8/2002**	**CFR 55.045(a)6 & 8**
3. 212000 REACTOR PROTECTION SYSTEM (RPS) **(D)(C)** Defeat RPS Scram Signals per EP-2 Attachment 19 GJPM-RO-EP031	**7**	A4.17	4.1	295037 EA1.01: 4.6 295015 AA1.02: 4.2 2.1.30: 3.4 2.1.20: 4.2	**BANK** **NRC 6/2001**	**CFR 55.45(a)8**
4. 218000 AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) **(D)(S)(A)** Manually initiate ADS. (No pump permissive) GJPM-RO-E2222	**3**	A4.01	4.4	A4.02: 4.2	**BANK** **NRC 3/1998**	**CFR 55.45(a)8**
5. 223001 PRIMARY CONTAINMENT SYSTEM **(D)(S)** Raise Suppression Pool water level using HPCS GJPM-RO-E2205	**5**	A2.11	3.8	A1.08: 3.6 209002 A4.01: 3.7 A4.04: 3.1 A4.09: 3.5	**BANK**	**CFR 55.45(a)8 NRC 8/2002 lowered level**
6. 202002 RECIRCULATION FLOW CONTROL SYST. **(D)(S)** Recover Recirculation Flow Control Valve following an automatic runback. GJPM-RO-B3311	**1**	A2.08	3.3	A1.08: 3.4 2.1.30: 3.4	**BANK**	**CFR 55.45(a) 2; 6 & 8**

Facility: **GRAND GULF NUCLEAR STATION** Date of Examination: **2/9/2004 – 2/9/2004**

Exam Level (circle one): RO / ***SRO(I)*** / SRO(U) Operating Test No.: ___1___

System / JPM Title / Type Codes*	Safety Function	Knowledge / Ability	IMP.	Additional K/A's	ORIGIN	NOTES
B.1. CONTROL ROOM SYSTEMS (cont)						
7. 259001 REACTOR FEEDWATER SYSTEM **(N)(S)(L)(A)** Shift from Long Cycle Cleanup to Startup Level Control with Condensate (S/U Level Control Valve fails full OPEN). GJPM-RO-N2102	**2**	A4.04	2.9	A4.05: 3.9 A2.07: 3.8 A3.03: 3.2 A3.04: 3.7 A4.01: 3.5 2.1.30: 3.4 259002 A1.05: 2.9 A4.03: 3.6	**NEW**	**CFR 55.45(a) 1; 3; 4; 6 & 8**
B.2. FACILITY WALK-THROUGH						
8. 286000 FIRE PROTECTION SYSTEM **(D)(P)(A)** Perform a local start of a diesel driven fire pump (failure of first manual local bank start). GJPM-RO-P6402	**8**	A4.06	3.4		**BANK** **NRC 8/2002**	**CFR 55.45(a) 6 & 8 Abnormal**
9. 295019 LOSS OF INSTRUMENT AIR **(D)(P)(R)** Lineup makeup Nitrogen to the ADS Valve Accumulators per ONEP. GJPM-NLO-P5301	**8**	AA1.01	3.3		**BANK** **NRC 6/2001**	**CFR 55.45(a) 8 & 9 GGNS Scram 4/2003 Emergency/ Abnormal**
10. 295016 CONTROL ROOM ABANDONMENT **(N)(P)(A)** Startup RCIC from the Remote Shutdown Panel to control RPV Water Level (Failed flow controller). GJPM-RO-C6106	**2**	AA1.06	4.1	2.1.30: 3.4 AK2.01: 4.5 AK3.03: 3.7 AA1.07: 4.3 AA2.02: 4.3	**NEW**	**CFR 55.45(a) 4; 6; & 8 Other Safety Function 7 Emergency/ Abnormal**

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

Facility: **GRAND GULF NUCLEAR STATION** Date of Examination: **2/9/2004 - 2/11/2004**

Examination Level (circle one): RO / ***SRO*** Operating Test Number: __1___

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	Knowledge / Ability	IMP	Additional K/A's	ORIGIN	NOTES
A.1	Technical Specifications	JPM GJPM-SRO-ADM50 Given a component, determine Limiting Condition for Operations and complete entry into ESOMS.	2.1.12	4.0	2.2.23: 3.8 2.2.22: 4.1	**MOD**	Different component using ESOMS computer **CFR 55.45 (a)12 & 13**
	Plant Chemistry	JPM GJPM-OP-ADM-52 Given a chemistry report and procedures, determine the plant conditions and actions to be taken.	2.1.34	2.9	2.1.6: 4.3	**NEW**	**CFR 55.45 (a)12 & 13**
A.2	*Pre*-Maintenance Operability	JPM GJPM-SRO-ADM51 Given a *condition report*, determine the *operability* requirements for the component and enter into *PCRS* system.	2.2.21	3.5		**NEW**	*PCRS* **CFR 55.45 (a)12 & 13**
A.3	Radiation Control	JPM GJPM-SRO-ADM33 Perform required actions to access the Controlled Access Area (CAA), determine requirements to enter a High Contamination Area and authorization required, and exit the CAA.	2.3.1	3.0	2.3.4: 3.1 2.3.2: 2.9	**BANK** **NRC 6/2001**	**CFR 55.45 (a)9 & 10**
A.4	Emergency Plan Action Levels	JPM GJPM-SRO-A&E55 Given conditions, determine the appropriate emergency classification, actions to be taken for a security threat compromising the Remote Shutdown Panels and complete the required notification form.	2.4.41	4.1	2.4.30: 3.6 2.4.40: 4.0 2.4.28: 3.3	**NEW**	**CFR 55.45(a) 11 Security Threat**

Facility: **GRAND GULF NUCLEAR STATION** Date of Examination: **2/9/2004 – 2/9/2004**

Exam Level (circle one): RO / SRO(I) / ***SRO(U)*** Operating Test No.: ___1___

System / JPM Title / Type Codes*	Safety Function	Knowledge / Ability	IMP.	Additional K/A's	ORIGIN	NOTES
B.1. CONTROL ROOM SYSTEMS						
1. 205000 SHUTDOWN COOLING SYSTEM (RHR) **(D)(S)(A)(L)** Startup RHR in Shutdown Cooling (E12-F053x fail on stroke) GJPM-RO-E1212	**4**	A4.01	3.7	A4.02: 3.5 A4.03: 3.5 A4.09: 3.1 A2.10: 2.9 A2.12: 3.0 A1.02: 3.2	**BANK** **NRC 3/1998**	**CFR 55.45(a) 1; 3; 4 5; 6 & 7**
2. 262001 AC ELECTRICAL DISTRIBUTION **(M)(S)** Distribute loads between Service Transformers 11 & 21 GJPM-RO-R2731	**6**	A4.01	3.7	A4.02: 3.4 A4.04: 3.7 A4.05: 3.3 2.1.31: 3.9 2.1.30: 3.4	**MOD** **NRC 8/2002**	**CFR 55.45(a) 6 & 8**
3. 212000 REACTOR PROTECTION SYSTEM (RPS) **(D)(C)** Defeat RPS Scram Signals per EP-2 Attachment 19 GJPM-RO-EP031	**7**	A4.17	4.1	295037 EA1.01: 4.6 295015 AA1.02: 4.1 2.1.30: 3.4 2.1.20: 4.2	**BANK** **NRC 6/2001**	**CFR 55.45(a)8**
B.2. FACILITY WALK-THROUGH						
4. 295019 LOSS OF INSTRUMENT AIR **(D)(P)(R)** Lineup makeup Nitrogen to the ADS Valve Accumulators GJPM-NLO-P5301	**8**	AA1.01	3.3		**BANK** **NRC 6/2001**	**CFR 55.45(a) 8 & 9 GGNS Scram 4/2003 Emergency/ Abnormal**
5. 295016 CONTROL ROOM ABANDONMENT **(N)(P)(A)** Startup RCIC from the Remote Shutdown Panel to control RPV Water Level (Faulted) GJPM-RO-C6106	**2**	AA1.06	4.1	2.1.30: 3.4 AK2.01: 4.5 AK3.03: 3.7 AA1.07: 4.3 AA2.02: 4.3	**NEW**	**CFR 55.45(a) 4; 6; & 8 Other Safety Function 7 Emergency/ Abnormal**

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

Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **1** Op-Test No.: **Day 1**

Objectives: To evaluate the candidates' ability to operate the facility in response to the following evolutions:

1. Complete a shift of Reactor Recirculation Pumps to Fast Speed.
2. Take actions in response to a Control Rod Drift and complete actions of the CRD Malfunctions ONEP.
3. Respond to a trip of RPS 'A' MG set and the implications of having both RPS buses on Alternate Source of power.
4. Make determination of *multiple* Control Rod Drifts following insertion and disarming CRD and taking actions for multiple Control Rod Drifts per CRD Malfunctions ONEP.
5. Take actions per the EOPs in response to an ATWS and mitigate the consequences of the ATWS with no Main Steam Bypass Valves.
6. Take actions for a failure of Standby Liquid Control to inject to the Reactor during an ATWS.

Initial Conditions: Reactor Power is at 34 %.

INOPERABLE Equipment

APRM 'H' is INOP due to a failed power supply card
RHR 'C' Pump is tagged out of service for motor oil replacement
CCW Pump 'B' is tagged out of service for pump seal replacement
RPS 'B' Motor Generator is out of service for EPA circuit breaker replacement, RPS 'B' is on its Alternate Source.
Service Air Compressor 'B' is in service with Service Air Compressor 'A' tagged out of service for oil replacement.

Appropriate clearances and LCOs are written.

Turnover: The plant is operating at 34% power. Reactor Recirculation Pump 'A' has been shifted to Fast speed. Continue operations to shift Reactor Recirculation Pump 'B' to Fast speed at step 5.11.4 of IOI-2. There are scattered thundershowers reported in the Tensas Parish area.

Scenario **1** Day **1** (Continued)

Event No.	10CFR 55.45(a)	K/A	Event Type*	Event Description
1	2, 3, 4, 5, 6, 8	202002 A4.07; A4.08; A4.09 202001 A4.01; A4.02 A1.02; A1.07	R (RO) N (SS)	Shift Reactor Recirculation Pump 'B' to fast speed. (SOI 04-1-01-B33-1 section 4.2)
2	3, 4, 5, 6, 8	2.4.49; 2.4.4 201005 A2.13; A3.0; A4.01 201003 A2.03; A3.01	C(RO)	Respond to Control Rod Drift. Perform actions per ONEP 05-1-02-IV-1. Isolate/valve out of service the affected control rod.
3	6, 8	2.1.32; 2.1.33 212000 A2.01; K3.05		Respond to trip of RPS 'A' Motor Generator trip. Complete Technical Specification/procedural determinations.
4	2, 3, 4, 5, 6, 8	2.4.4; 2.4.49 201005 A2.13; A3.0; A4.01 201003 A2.03; A3.01	C(RO)	Recognize and respond to *multiple* control rod drift*s* and insert a manual Reactor SCRAM per ONEP 05-1-02-IV-1.
5	3, 4, 5, 6, 7, 8	2.4.4; 2.4.49 295037 EA1.0; EA2.0	M (ALL)	Upon Reactor Scram recognize the failure of all control rods to fully insert and take actions per EOPs for ATWS.
	3, 4, 6, 7, 8	241000 A2.03 239002 A4.01; A4.05	C (BOP)	Recognize the failure of Main Steam Bypass Valves to open and control reactor pressure using SRVs within specified band.
	3, 6, 8	212000 A2.02; A4.14; A4.16; A4.17 295037 EA1.01; EA1.08		Recognize the loss of both Alternate Divisions of RPS EPAs when Low Pressure ECCS is manually initiated and restore power to RPS to allow insertion of control rods.
	3, 4, 6, 8	295037 EA1.04; EA1.10 211000 A2.01	C (BOP)	Recognize the failure of Standby Liquid Control to meet the parameters to inject into the Reactor when initiated and actions taken for Alternate Boron Injection.

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

All events include 55.45(a) 12 & 13
K/A 2.1.30; 2.1.31; 2.4.45; 2.4.46; 2.4.47; and 2.4.48

Critical Tasks

- Insert manual scram on *multiple* Control Rod Drift*s*.
- Inject Standby Liquid Control prior to Suppression Pool Temperature reaching 110 °F.
- Identify the need for Alternate Standby Liquid Control injection.
- Terminate and prevent injection from Feedwater and ECCS when conditions require entry into Level/Power Control.
- Commence injection into the reactor using Feedwater or RHR 'A' or 'B' through Shutdown Cooling *before* reactor level reaches –192".
- Insert Control Rods in response to ATWS conditions.

Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **2** Op-Test No.: **Day 2**

Objectives: To evaluate the candidates' ability to operate the facility in response to the following evolutions:

1. Raise Reactor Power by withdrawing control rods.
2. Perform operator actions for a stuck control rod per ONEP.
3. Startup 2nd Reactor Feed Pump.
4. Respond to a failure of ESF UPS bus 1Y89 (inverter 1Y87).
5. Respond to a momentary loss of Grid per ONEPs.
6. Respond to a failure of Feedwater Line in the Drywell, initiate a reactor scram based on rising Drywell Pressure per EOPs.
7. Respond to a failure of Division 2 ECCS to initiate.
8. With a small break LOCA in the Drywell and reduced injection systems maintain reactor level per the EOPs.

Initial Conditions: Reactor Power is at 44 % bringing the plant up following an outage; Reactor Recirculation pumps are in Fast Speed at 60 % core flow; a single Reactor Feed Pump in three element Master Level Control.

INOPERABLE Equipment

APRM 'H' is INOP due to a failed power supply card
RHR 'C' is tagged out of service for motor oil replacement
CCW Pump 'B' is tagged out of service for pump seal replacement
RPS 'B' Motor Generator is out of service for EPA circuit breaker replacement, RPS 'B' is on its Alternate Source.
Service Air Compressor 'B' is in service with Service Air Compressor 'A' tagged out of service for oil replacement.

Appropriate clearances and LCOs are written.

Turnover: Continue to bring the plant to full power per IOI-2. There are scattered thundershowers reported in the Tensas Parish area.

Scenario **2** Day **2** (Continued)

Event No.	10CFR 55.45(a)	K/A	Event Type*	Event Description
1	2, 3, 4, 5, 6	201005 A3.0; A4.0	R(RO)	Withdraw control rods to raise power. (Control Rod Pull Sheet & IOI 03-1-01-2)
2	4, 5, 6, 8	201005 A3.0; A4.0 201003 A2.01 201001 A4.03; A4.04 2.4.4; 2.4.49	C (RO, BOP)	Control Rod 24-49 is stuck, un-stick control rod per ONEP. (ONEP 05-1-02-IV-1)
3	2, 4, 5, 6, 8	259001 A4.02; A4.01; A4.04; A4.05; A4.07 259002 A4.01; A4.02; A4.03; A4.06	N (RO)	Startup 2nd Reactor Feed Pump (SOI 04-1-01-N21-1)
4	3, 4, 8	2.1.33; 2.2.22 262002 A1.01; K3.0	C (RO, BOP)	Respond to a trip of ESF UPS Bus 1Y89 and Inverter 1Y87. (Multiple SOIs and ARIs)
5	3, 5, 6, 8	295003 AA1.0; AA2.0 262001 A1.0; A2.0; A3.0; A4.0 2.4.4; 2.4.49	M (ALL)	Respond to momentary Loss of Grid. (ONEP 05-1-02-I-4 & SOI Various) (GGNS Event 4/2003) Single Control Rod Stuck withdrawn.
	3, 4, 5, 6, 7, 8, 11	295024 EA1.0; EA2.0 295031 EA1.0; EA2.0	C (ALL)	Recirc Line 'B' ruptures in the Drywell with leakage from the reactor.
	3, 4, 5, 8	2.1.2 295024 EA1.0	I (BOP)	Failure of Division 2 ECCS to automatically initiate on High Drywell Pressure
	3, 5, 7	206002 A1.01; A2.03; A2.08; A3.01; A4.03	C (BOP)	HPCS injection valve failure to open on initiation

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

All events include 55.45(a) 12 & 13
K/A 2.1.30; 2.1.31; 2.4.45; 2.4.46; 2.4.47; 2.4.48

Critical Tasks

- Recognize failure of Division 2 to initiate and manually initiate Division 2
- Restore power and reestablish feed through Feedwater or RCIC or lower reactor pressure to allow injection from low pressure systems
- Upon receipt of second control rod drift, manually scram the reactor.

Facility: **GRAND GULF NUCLEAR STATION** Scenario No.: **3** Op-Test No.: **Day 2**

Objectives: To evaluate the candidates' ability to operate the facility in response to the following evolutions:

1. Raise Reactor Power by withdrawing control rods.
2. Start 2nd Circulating Water Pump.
3. Respond to an EHC failure.
4. Respond to a loss of Main Condenser Vacuum.
5. Respond to an automatic and manual scram function failure ATWS ARI/RPT will insert control rods with two control rods stuck withdrawn.
6. Respond to a steam leak in the Auxiliary Building Steam Tunnel and a failure of Group 1 to isolate.
7. Take actions per the EOPs in response to two stuck control rods following a Reactor Scram.
8. Take actions per EOPs to control RPV parameters with a failure of the MSIVs to isolate the steam leak.

Initial Conditions: Reactor Power is at 45 % continuing power ascension to rated conditions.

INOPERABLE Equipment

APRM 'H' is INOP due to a failed power supply card
RHR Pump 'C' is tagged out of service for motor oil replacement
CCW Pump 'B' is tagged out of service for pump seal replacement
RPS 'B' Motor Generator is out of service for EPA circuit breaker replacement, RPS 'B' is on its Alternate Source.
Service Air Compressor 'B' is in service with Service Air Compressor 'A' tagged out of service for oil replacement.

Appropriate clearances and LCOs are written.

Turnover: Continue power ascension. There are scattered thundershowers reported in the Tensas Parish area.

Scenario **3 Day 2** (Continued)

Event No.	10CFR 55.45(a)	K/A	Event Type*	Event Description
1	2, 3, 5, 6, 8	201005 A3.0; A4.0	R (RO)	Raise reactor power by withdrawing control rods. (IOI 03-1-01-2 and Control Rod Movement Sheet)
2	2, 6, 8	2.1.30; 2.1.31	N (BOP)	Start 2nd Circulating Water. (SOI 04-1-01-N71-1)
3	3, 5, 8	241000 A1.11; A2.06		Respond to an EHC leak. (ARI 04-1-02-1H13-P680)
4	3, 4, 5, 6, 8	241000 A2.07; A3.08; A3.10 239001 A2.08 295002 AA1.0; AA2.0	C (BOP)	Respond to a lowering Main Condenser Vacuum. (ONEP 05-1-02-V-8)
5	2, 3, 4, 5, 6, 8	295006 AA1.01; AA1.07; AA2.01; AA2.05 295037 EA1.03	C (RO)	Recognize a failure to automatically scram and manually scram the reactor.
6	3, 4, 6, 8, 10	239001 A2.03; A2.07; A2.11; A2.12	M (ALL)	Recognize and respond to a steam leak in the Auxiliary Building Steam Tunnel.
	3, 4, 6, 8, 10	239001 A3.01 223002 A1.02; A4.02	I (BOP)	Recognize the failure of Group 1 to automatically isolate and take actions to isolate the Main Steam Lines (ONEP 05-1-01-III-5)
	3, 5, 6	295032 EA1.01; EA1.05; EA2.01; EA2.03		Recognize the failure of a single Main Steam line to isolate and take actions for mitigation of the leak.
	2, 3, 4, 5	295015 AA1.01; AA1.02; AA2.01; AA2.02	C (RO)	Recognize the failure of two control rods to fully insert on the Reactor Scram.

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

All events include 55.45(a) 12 & 13
K/A 2.1.30; 2.1.31; 2.4.45; 2.4.46; 2.4.47; and 2.4.48

Critical Tasks

- Manually scram the reactor.
- Isolate the main steam lines.