| E/APE #/NAME/SAFETY FUNCTION | K1 | K2 | K3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295005 Main Turbine Generator Trip / 3 CFR41.5/41.6 | | | | | 05 | | Given a spurious Main Turbine Generator trip, determine the initial affect on Reactor Power and Reactor Pressure. | 3.7 | | BOTH | AA2.04: 3.8 | NEW | |
| 295006 SCRAM / 1 CFR41.6/41.10/43.5 | | | | | 02 | | Describe the position of control rods following a reactor scram and how position is determined. | 4.3 | 10 | BOTH | 201005 A3.02: 3.5 A4.02: 3.7 | BANK NRC 3/98 | Rx SCRAM Immediate Actions |
| 295007 High Reactor Pressure / 3 CFR41.5 | | 01 | | | | | Describe the response of the Turbine Pressure Control System on an increasing reactor pressure. | 3.5 | 69 | BOTH | 241000 K4.01: 3.8 A2.02: 3.7 | BANK NRC 3/98 | |
| 295009 Low Reactor Water Level / 2 CFR41.7 | | | | 02 | | | Describe the reaction of the Reactor Water Level Control System to a failure of a Feedwater Flow Transmitter to an upscale value. | 4.0 | 68 | BOTH | AA2.02: 3.6 259002 K6.04: 3.1 | BANK NRC 3/98 | Digital Feed Control System |
| 295010 High Drywell Pressure / 5 CFR41.10/43.5 | | | | | 01 | | Given indications, calculate the Drywell Equipment Drain leak rate. | 3.4 | | BOTH | 2.1.2: 3.0 2.1.18: 2.9 | NEW | |
| 295014 Inadvertent Reactivity Addition / 1 CFR41.1/41.2/41.6/43.6 | | | 01 | | | | With the reactor in startup conditions such that the reactor has dropped subcritical, what are the operator actions if a high worth control rod is withdrawn fully. | 4.1 | 204 | BOTH | | BANK NRC 4/00 | Susquehanna reactivity event 7/98 |
| 295015 Incomplete SCRAM / 1 CFR41.6/43.6 | | | 01 | | | | Describe the method to be used to allow the insertion of control rods using RCIS during an ATWS. | 3.4 | 203 | BOTH | | BANK NRC 4/00 | |
| 295024 High Drywell Pressure / 5 CFR41.9 | 01 | | | | | | Describe the implications of exceeding the Drywell maximum design pressure | 4.1 | 259 | BOTH | | BANK NRC 12/00 | ① random select EA1 moved to EK1 |
| 295025 High Reactor Pressure / 3 CFR41.9/41.10/43.5 | | | | | 03 | | Describe the basis for the correlation between Reactor Pressure and Suppression Pool Temperature concerning HCTL during an ATWS. | 3.9 | | BOTH | 295026 EA2.03: 3.9 | NEW | |
| 295031 Reactor Low Water Level / 2 CFR41.10/43.5 | | | | | 04 | | Given plant conditions and component configuration, determine if adequate core cooling exists. | 4.6 | | BOTH | 2.4.18: 2.7 | NEW | |
| PAGE 1 TOTAL TIER 1 GROUP 1 | 1 | 1 | 2 | 1 | 5 | 0 | PAGE TOTAL # QUESTIONS | 10 | | | | | |

① 295024 Random selection was EA1, changed due to simulator examination of test will cover these topics. Changed to Generic.

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1 CFR41.6/41.10/43.6 | | | 05 | | | | Describe at what point Cold Shutdown Boron Weight is achieved and its basis. | 3.2 | 38 | BOTH | | BANK NRC 3/98 | |
| 500000 High Containment Hydrogen Conc. / 5 CFR41.10/43.5 | 01 | | | | | | Determine the bases for the Hydrogen Control leg of EP 3. | 3.3 | | BOTH | | NEW | |
| 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 CFR41.1/41.2/41.10/43.5/43.6 | 07 | | | | | | Given plant conditions during an ATWS, determine a condition that the Reactor would be considered shutdown. | 3.4 | | BOTH | | NEW | |
| PAGE 2 TOTAL TIER 1 GROUP 1 | 2 | 0 | 1 | 0 | 0 | 0 | PAGE TOTAL # QUESTIONS | 3 | | | | | |
| PAGE 1 TOTAL TIER 1 GROUP 1 | 1 | 1 | 2 | 1 | 5 | 0 | PAGE TOTAL # QUESTIONS | 10 | | | | | |
| K/A CATEGORY TOTALS: | 3 | 1 | 3 | 1 | 5 | 0 | TIER 1 GROUP 1 GROUP POINT TOTAL | 13 | | | | | |

| GRAND GULF NUCLEAR STATION<br>JUNE 2001 | BWR RO EXAMINATION OUTLINE<br>EMERGENCY & ABNORMAL PLANT<br>EVOLUTIONS - TIER 1 GROUP 2 | ES-401-2 |
|---|---|---|

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | 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<br>CFR41.10/41.5/43.5 | | | | | 01 | | Given plant conditions and the power to flow map, identify the operational region and any immediate actions to be taken. | 3.5 | 26 | BOTH | AK1.02: 3.3 | BANK NRC 3/98 | BWR topic Thermal Hydraulic Instability. |
| 295002 Loss of Main Condenser Vacuum / 3<br>CFR41.4 | 03 | | | | | | Describe the effect on plant operation in the event of a reduction in Condenser vacuum at 100% power. | 3.6 | 40 | BOTH | | BANK NRC 3/98 | Multiple events in GGNS history |
| 295003 Partial or Complete Loss of AC Power/ 6<br>CFR41.7 | | | | 01 | | | Given a lockout on BOP Transformer 12B, determine the configuration of the AC Distribution System. | 3.7 | | BOTH | | NEW | |
| 295004 Partial or Complete Loss of DC Power / 6<br>CFR41.10 | | | | | | 2.1.32 | Determine the order of steps for restoring a battery charger to service. | 3.4 | | BOTH | AA1.01:3.3 | NEW | ③Random select AA1 move to generic |
| 295008 High Reactor Water Level / 2<br>CFR41.4/41.5 | 01 | | | | | | Identify the affects of a high Reactor Water Level on the Main Turbine and Reactor Feed Pump Turbines. | 3.0 | 275 | BOTH | 245000 A3.01: 3.6<br>259001 K6.07: 3.8 | BANK NRC 4/00 | |
| 295011 High Containment Temperature / 5<br>CFR41.9/41.10/43.5 | 01 | | | | | | Identify the bases for securing Containment Spray prior to going below 0 psig in Containment. | 4.0 | | BOTH | | NEW | ④Random select AA2 moved to AK1 |
| 295012 High Drywell Temperature / 5 | | | | | | | | | | | | | |
| 295013 High Suppression Pool Water Temp. / 5 | | | | | | | | | | | | | |
| 295016 Control Room Abandonment / 7<br>CFR41.5/41.10/43.5 | | | | | 02 | | Given parameters from the Remote Shutdown Panel indications, determine actual and Narrow Range RPV level. | 4.2 | | BOTH | 2.1.25: 3.1<br>2.4.11: 3.6 | MOD | |
| 295017 High Offsite Release Rate / 9<br>CFR41.10/41.12/43.4/43.5 | | 06 | | | | | Given plant conditions and the EPPs, determine protective action recommendations per the Site Emergency Plan. | 3.4 | 112 | BOTH | | BANK NRC 3/98 | Relates release to actions to protect the public |
| PAGE 1 TOTAL TIER 1 GROUP 2 | 3 | 1 | 0 | 1 | 2 | 1 | PAGE TOTAL # QUESTIONS | 8 | | | | | |

③ 295004 Random selection was AA1, changed to Generic 2.1.32 to use precaution and limitations for restoration operations.
④ 295011 Random selection was AA2, changed to AK1, AA2 had low discriminatory value on written examination.

**GRAND GULF NUCLEAR STATION**
**JUNE 2001**

**BWR RO EXAMINATION OUTLINE** **CONT.** **ES-401-2**
**EMERGENCY & ABNORMAL PLANT**
**EVOLUTIONS - TIER 1 GROUP 2**

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295018 Partial or Complete Loss of CCW / 8<br>CFR41.7/41.10/43.5 | | 01 | | | | | Identify which system loads are allowed to operate with a partial loss of Component Cooling Water. | 3.3 | | BOTH | 400000<br>K3.01: 2.9 | NEW | |
| 295019 Partial or Complete Loss of Inst. Air / 8<br>CFR41.4/41.13/43.4/43.5 | | 06 | | | | | With a loss of Instrument Air, determine the effects on the Offgas System | 2.8 | 315 | BOTH | 271000<br>K6.01: 2.8 | | |
| 295020 Inadvertent Cont. Isolation / 5 & 7<br>CFR41.7 | | | 01 | | | | Determine the effects on the Reactor Protection System with an inadvertent isolation of the Main Steam Lines at power. | 3.8 | 316 | BOTH | | BANK<br>NRC<br>12/00 | |
| 295022 Loss of CRD Pumps / 1<br>CFR41.5 | | | | 04 | | | Describe the effects on reactor water level during a reactor startup with minimal decay heat and a loss of CRD Pumps. (RWCU is lined up to blowdown to the main condenser to compensate for CRD flow.) | 2.5 | 55 | BOTH | AK2.04: 2.5<br>AK2.05: 2.4 | BANK<br>NRC 3/98 | |
| 295026 Suppression Pool High Water Temp. / 5<br>CFR43.2/43.3 | | | | | | 2.1.33 | Describe the Technical Specification implications for placing a loop of RHR in the Suppression Pool Cooling mode. | 3.4 | | BOTH | 2.1.32: 3.4 | NEW | ②Random select EA1 moved to Generic |
| 295027 High Containment Temperature / 5<br>CFR41.9/41.10/43.2 | | | 03 | | | | Given plant conditions, determine the Technical Specification Bases for shutting down the Reactor due to a high Containment Temperature. | 3.7 | | BOTH | 2.2.25: 2.5 | NEW | |
| 295028 High Drywell Temperature / 5<br>CFR41.3/43.5 | | 03 | | | | | Evaluate Drywell Temperature vs Reactor Pressure to determine the qualification of the Reactor Level Instrumentation. | 3.6 | 1 | BOTH | EK1.01: 3.5<br>295027<br>EK1.02: 3.0 | BANK<br>NRC 3/98 | EP-2 Caution 1 |
| 295029 High Suppression Pool Water Level / 5<br>CFR41.9/41.10 | 01 | | | | | | Identify the bases for Emergency RPV Depressurization when Suppression Pool Level cannot be maintained below 24.4 feet. | 3.4 | | BOTH | | NEW | |
| 295030 Low Suppression Pool Water Level / 5<br>CFR41.9/41.10/43.5 | 03 | | | | | | Given the EP Curves and parameters, determine the status of the Suppression Pool's ability to receive heat based on Suppression Pool Level and action to be taken. | 3.8 | 111 | BOTH | | BANK<br>NRC 3/98 | HCTL curves |
| PAGE 2 TOTAL TIER 1 GROUP 2 | 2 | 3 | 2 | 1 | 0 | 1 | PAGE TOTAL # QUESTIONS | 9 | | | | | |

② 295026 Random selection was EA1, changed due to simulator examination will cover these topics. Changed to Generic.

| E/APE #/NAME/SAFETY FUNCTION | K1 | K2 | K3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295033 High Secondary Containment Area Radiation Levels / 9 | | | | | | | | | | | | | |
| 295034 Secondary Containment Ventilation High Radiation / 9 | | | | | | | | | | | | | |
| 295038 High Offsite Release Rate / 9 CFR41.10/41.11/41.12/41.13/43.4/43.5 | | | | | 04 | | Given Rad monitor release point indication and plant conditions, determine source of release and actions to be taken. | 3.3 | | BOTH | | NEW | |
| 600000 Plant Fire On Site / 8 CFR41.10/43.5 | | | | | 17 | | Given a fire in the Main Control Room, describe the actions to be taken and what safe shutdown equipment is available for operation without suspect. | 3.1 | 178 | BOTH | | BANK NRC 4/00 | |
| PAGE 3 TOTAL TIER 1 GROUP 2 | 0 | 0 | 0 | 0 | 2 | 0 | PAGE TOTAL # QUESTIONS | 2 | | | | | |
| PAGE 1 TOTAL TIER 1 GROUP 2 | 3 | 1 | 0 | 1 | 2 | 1 | PAGE TOTAL # QUESTIONS | 8 | | | | | |
| PAGE 2 TOTAL TIER 1 GROUP 2 | 2 | 3 | 2 | 1 | 0 | 1 | PAGE TOTAL # QUESTIONS | 9 | | | | | |
| K/A CATEGORY TOTALS: | 5 | 4 | 2 | 2 | 4 | 2 | TIER 1 GROUP 2 GROUP POINT TOTAL | 19 | | | | | |

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295021 Loss of Shutdown Cooling / 4 CFR41.5/41.10/41.14/43.5 | | | 01 | | | | Identify the reason for raising Reactor Water Level to +82 inches with no Recirc. Pumps in operation. | 3.3 | | BOTH | | NEW | |
| 295023 Refueling Accidents / 8 | | | | | | | | | | | | | |
| 295032 High Secondary Containment Area Temperature / 5 CFR41.4/41.9/41.10/43.5 | | | | 05 | | | Given plant conditions, determine systems which should have isolated | 3.7 | 229 | BOTH | | BANK NRC 4/00 | |
| 295035 Secondary Containment High Differential Pressure / 5 CFR41.7/41.8/4.10/43.5 | 01 | | | | | | Given a trip of both Fuel Handling Area Exhaust fans, identify the correct operator response. | 3.9 | | BOTH | 2.4.50: 3.3 | NEW | |
| 295036 Secondary Containment High Sump/Area Water Level / 5 CFR41.10/43.5 | | 01 | | | | | Given a configuration lineup for the RHR C Room Sump, determine the system response to a sump High level. | 3.1 | | BOTH | 2.4.50: 3.3 | NEW | |
| K/A CATEGORY TOTALS: | 1 | 1 | 1 | 1 | 0 | 0 | TIER 1 GROUP 3 GROUP POINT TOTAL | 4 | | | | | |

**GRAND GULF NUCLEAR STATION** **JUNE 2001**

**BWR RO EXAMINATION OUTLINE** **PLANT SYSTEMS - TIER 2 GROUP 1**

**ES-401-2**

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201001 CRD Hydraulic<br>CFR41.5/41.6 | | | | 08 | | | | | | | | Discuss the control of CRD Drive Pressure and Flow Control during a reactor shutdown and depressurization. | 3.1 | 59 | BOTH | | BANK<br>NRC 3/98 | |
| 201005 RCIS<br>CFR41.6/43.6 | | | | | 10 | | | | | | | Given plant conditions, determine control rod movement and effects under those conditions. | 3.2 | | BOTH | K5.09: 3.5 | NEW | |
| 202002 Recirculation Flow Control<br>CFR41.2/41.3/41.5/41.6/41.7 | | | | | | | 06 | | | | | Given plant conditions with a Reactor Recirc Pump trip, identify how Total Core Flow is determined. | 3.4 | A037 | BOTH | A1.07: 3.1<br>A2.01: 3.4<br>A2.09: 3.1<br>A4.08: 3.3<br>A4.09: 3.2 | BANK<br>AUDIT<br>12/00 | ⑤Random select K5 moved to A1 |
| 203000 RHR/LPCI: Injection Mode<br>CFR41.8 | 17 | | | | | | | | | | | State the basis for monitoring reactor pressure when aligning the RHR system for injection into the vessel for the LPCI mode. | 4.0 | 60 | **RO** | K4.01: 4.2<br>K4.02: 3.3<br>A3.01: 3.8<br>A3.08: 4.1<br>A4.08: 4.3 | BANK<br>NRC 3/98 | Where is pressure sensed on LPCI for operation of the injection valve |
| 209001 LPCS<br>CFR41.7/41.8 | | | | 08 | | | | | | | | Predict the response of the LPCS System with given signals and plant conditions. | 3.8 | 2 | **RO** | A3.-: 3.5-3.9 | BANK<br>NRC 3/98 | |
| 209002 HPCS<br>CFR41.7/41.8 | | | 01 | | | | | | | | | Given a spurious initiation of the HPCS system, determine the effect on Reactor water level. | 3.9 | | BOTH | 259002<br>A2.08: 4.5 | NEW | |
| 211000 SLC<br>CFR41.6/41.7/41.8 | 03 | | | | | | | | | | | Given a loss of instrument air inside Containment, identify the components affected in the SBLC system. | 2.5 | | BOTH | | NEW | |
| 212000 RPS<br>CFR41.6/41.7 | | | | | | | | | 04 | | | Given plant conditions and description of status lights and alarms associated with RPS, determine the reason for the indications. | 3.9 | | BOTH | | NEW | |
| 215003 IRM<br>CFR41.6 | | | | | | 01 | | | | | | Given plant conditions and Neutron Monitoring indications, determine the status of Rod Blocks and RPS. | 3.8 | | **RO** | K4.01: 3.7<br>K4.02: 4.0 | MOD | |
| PAGE 1 TOTAL TIER 2 GROUP 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | PAGE TOTAL # QUESTIONS | 9 | | | | | |

⑤ 202002 Random selection K5 for GGNS has no discriminatory value. Changed to A1.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215004 Source Range Monitor CFR41.5/41.6 | | | | | | | 04 | | | | | Describe the effects SRMs have on RCIS Rod Blocks when withdrawing SRM detectors from the core during a reactor startup. | 3.5 | 71 | BOTH | A3.04: 3.6 201005 K4.03: 3.5 | BANK NRC 3/98 | |
| 215005 APRM / LPRM CFR41.7/43.2 | | | | | | | | | | 04 | | Given the status of APRM C LPRM's, determine operability of APRM C. | 3.2 | | BOTH | 2.2.22: 4.1 | NEW | |
| 216000 Nuclear Boiler Instrumentation CFR41.7 | | | | 05 | | | | | | | | Describe logic required to initiate ECCS. | 3.9 | 243 | BOTH | | BANK NRC 4/00 | |
| 217000 RCIC CFR41.6/41.7 | | 04 | | | | | | | | | | Given a loss of DC bus 1DA2, identify which RCIC component is affected. | 2.6 | | BOTH | K2.01: 2.8 K2.02: 2.8 K6.01: 3.4 | NEW | |
| 218000 ADS CFR41.5/41.7/41.8 | | | | | | | | | | 01 | | Given plant conditions and configuration lineup, determine how ADS valves can be operated. | 4.4 | | BOTH | A4.02: 4.2 A4.04: 4.1 A4.05: 4.2 | NEW | |
| 223001 Primary CTMT and Auxiliaries CFR41.7/41.8 | | 08 | | | | | | | | | | Given plant conditions and electrical busses that are unavailable, determine which components are available. | 2.7 | | BOTH | K2.09: 2.7 K2.10: 2.7 | NEW | |
| 223002 PCIS / Nuclear Steam Supply Shutoff CFR41.7/41.9 | | | | | | 01 | | | | | | Given that RPS "B" is tripped due to an I&C surveillance, determine the effect of a momentary loss of 15 bus on the MSIVs. | 3.1 | | BOTH | K6.08: 3.5 | NEW | |
| 239002 SRVs CFR41.3/41.7 | | | | | | | | | | 07 | | Given plant conditions and configuration lineup, determine which indications for SRVs are valid. | 3.6 | | BOTH | | NEW | |
| 241000 Reactor / Turbine Pressure Regulator CFR41.5/41.7 | | | | | | | | 03 | | | | Given a failure of the Turbine Bypass valves, determine the effect on the Turbine Pressure Regulating system. | 4.1 | | BOTH | A2.02: 3.7 | NEW | |
| 290001 Secondary CTMT CFR41.7/41.9 | 09 | | | | | | | | | | | Identify how the Secondary Containment Isolation valves respond to a Loss of Instrument Air. | 2.9 | | BOTH | K6.08: 2.7 | NEW | |
| 259002 Reactor Water Level Control CFR41.5 | | | | | | | | 06 | | | | Given a failure of the Master Controller input to Reactor Water Level Control, determine the response of Reactor Water Level Control. | 3.3 | | BOTH | K5.01: 3.1 | NEW | |
| PAGE 2 TOTALS TIER 2 GROUP 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 3 | 0 | PAGE 2 TOTAL # QUESTIONS | 11 | | | | | |

**GRAND GULF NUCLEAR STATION** **BWR RO EXAMINATION OUTLINE** **ES-401-2**
**JUNE 2001** **PLANT SYSTEMS - TIER 2 GROUP 1 CONT.**

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 261000 SGTS<br>CFR41.17/41.11 | 08 | | | | | | | | | | | Describe the response of the radiation monitoring system for SBGT on an initiation of the system. | 2.8 | 265 | BOTH | K4.01: 3.7 | BANK<br>NRC 4/00 | |
| 264000 EDGs<br>CFR41.8 | | | | 02 | | | | | | | | Identify signals that will result in a loss of the Division I diesel generator when operating in response to a LOCA signal. | 4.0 | 334 | BOTH | | BANK<br>NRC<br>12/00 | |
| 203000 RHR/LPCI: Injection Mode<br>CFR41.7 | | | | | | 01 | | | | | | Given plant conditions with a manual override inserted on RHR/LPCI, determine system operation following a loss and restoration of power to the respective bus. | 3.6 | | BOTH | K4.01: 4.2 | NEW | ⑥Random select AK5 moved to AK6 |
| 209001 LPCS<br>CFR41.7/41.8 | | 01 | | | | | | | | | | Given plant conditions concerning a loss of 15 bus, determine which ECCS pumps are affected. | 3.0 | | BOTH | 203000<br>K2.01: 3.5 | NEW | |
| 211000 SLC<br>CFR41.6/41.7 | | | | | | | 09 | | | | | Describe the response of Standby Liquid Control with SLC testing in progress and a system initiation signal. | 4.0 | | **RO** | A2.06: 3.1<br>A3.08: 4.2<br>A4.08: 4.2 | BANK | ⑩Random select K6 moved to A1 |
| 212000 RPS<br>CFR41.6 | | | 06 | | | | | | | | | Given plant conditions and a malfunction of the RPS power system, determine the operation of the Scram Pilot, Backup Scram, and ARI Valves. | 4.0 | | **RO** | K4.01: 3.4 | | |
| 261000 SGTS<br>CFR41.7/41.10 | | | | | | | | 01 | | | | Identify the plant conditions that would result in an auto start of a SBGT system that was placed in standby following an initiation. | 2.9 | | BOTH | A1.01: 2.9 | NEW | |
| 264000 EDGs<br>CFR41.8 | | | | | | | | | | | 2.4.4 | During degraded grid conditions, determine the response of the diesel generators. | 4.0 | | **RO** | K4.05: 3.2<br>A3.05: 3.4 | | |
| PAGE 3 TOTALS TIER 2 GROUP 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | PAGE TOTAL # QUESTIONS | 8 | | | | | |
| PAGE 1 TOTALS TIER 2 GROUP 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | PAGE TOTAL # QUESTIONS | 9 | | | | | |
| PAGE 2 TOTALS TIER 2 GROUP 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 3 | 0 | PAGE TOTAL # QUESTIONS | 11 | | | | | |
| K/A CATEGORY TOTALS: | 4 | 3 | 2 | 4 | 1 | 3 | 3 | 3 | 1 | 3 | 1 | TIER 2 GROUP 1 GROUP POINT TOTAL | 28 | | | | | |

⑥ 203000 Random selection K5 covered in 295031, changed to K6.
⑩ 211000 Random selection K6 has low discriminatory value. Changed to A1.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO / BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201003 Control Rod and Drive Mechanism CFR41.6/41.10/43.5 | | | | | | | 01 | | | | | During a reactor startup, describe the indications of an uncoupled control rod. | 3.7 | | **RO** | K4.02: 3.8<br>A2.02: 3.7 | | |
| 202001 Recirculation CFR41.3/41.5 | | | | | | | | 10 | | | | Given plant conditions in regard to Reactor Recirc. Pump seals, determine the failed mechanism. | 3.5 | | BOTH | A1.09: 3.3<br>A1.10: 2.6 | NEW | |
| 204000 RWCU CFR41.6 | | | | | | 07 | | | | | | Given plant conditions, determine operation of the Reactor Water Cleanup System upon an initiation of SLC B. | 3.3 | 251 | BOTH | | BANK NRC 4/00 | |
| 205000 Shutdown Cooling CFR41.2/41.3/41.4/41.5 | 03 | | | | | | | | | | | Given plant conditions and configuration lineup, determine valid method for determining Reactor coolant temperature. | 3.4 | | BOTH | K3.03: 3.8<br>A1.03: 3.3<br>A1.06: 3.7<br>A1.08: 3.1 | NEW | |
| 219000 RHR /LPCI Suppression Pool Cooling Mode CFR41.7 | | | | | | | | | | 14 | | Given plant conditions, determine the effect of placing a loop of RHR in Suppression Pool Cooling. | 3.7 | | BOTH | | NEW | |
| 226001 RHR/LPCI: CTMT Spray Mode CFR41.7/41.8 | | | | | | | | 03 | | | | Given a CTMT Spray initiation, determine the effect on RHR Heat Exchanger Bypass valve. | 3.1 | | BOTH | K4.09: 3.2<br>A1.05: 3.1<br>A4.06: 2.9 | NEW | |
| 239001 Main and Reheat Steam CFR41.4/41.14 | | | | | | | | | 01 | | | Given plant conditions, determine the status of the Main Steam Isolation Valves. | 4.2 | | **RO** | | | |
| 245000 Main Turbine Gen. and Auxiliaries CFR41.4/41.10/43.5 | 04 | | | | | | | | | | | Given conditions of a Turbine Trip and parameters, determine the actuation of the Reactor Protection System. | 3.6 | | **RO** | | | Change to RPS 9/2000 |
| PAGE 1 TOTAL TIER 2 GROUP 2 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | PAGE TOTAL # QUESTIONS | 8 | | | | | |

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 256000 Reactor Condensate<br>CFR41.4 | | | | | | 02 | | | | | | Describe the impact on the Reactor Condensate system on a complete loss of Circulating Water. | 3.1 | 67 | **RO** | | BANK<br>NRC 3/98 | |
| 262001 AC Electrical Distribution<br>CFR41.4/41.7/41.10/43.5 | | | | | | | | | | | 2.1.30 | Describe the indications for a circuit breaker returned to service following local maintenance. | 3.9 | 335 | BOTH | A4.03: 3.2 | BANK<br>NRC<br>12/00 | SOER 98-2<br>⑦Random select A4 moved to generic |
| 262002 UPS (AC/DC)<br>CFR41.7/41.10/43.5 | | | | | | | | | 01 | | | Concerning the ESF Static Inverters, identify the correct response of the inverter on a loss of normal power supply. | 2.8 | | BOTH | A2.01: 2.6<br>A1.01: 2.4 | NEW | |
| 263000 DC Electrical Distribution<br>CFR41.4 | | | 02 | | | | | | | | | Discern the effects of a loss of DC power on the operation of circuit breakers. | 3.5 | 254 | **RO** | | BANK<br>NRC 5/00 | ♣Random select A4 moved to K3 |
| 271000 Offgas<br>CFR41.7/41.13 | | | | | | | | | 01 | | | Identify the components affected by a HI-HI-HI Offgas Post Treatment Rad condition. | 3.3 | | BOTH | K1.02: 3.1<br>K4.08: 3.1<br>A2.04: 3.7 | NEW | |
| 272000 Radiation Monitoring<br>CFR41.7/41.11/43.4 | | | | 02 | | | | | | | | Given plant conditions with a High Containment and Drywell Vent Exhaust Rad level, determine the components affected. | 3.7 | | BOTH | K1.18: 3.1 | NEW | |
| 286000 Fire Protection<br>CFR41.8/43.2 | | | | | | | 06 | | | | | Concerning CO2 Storage Tank operability, identify which condition the CO2 Storage Tank would be considered Operable. | 2.9 | | BOTH | | NEW | |
| 290001 Secondary CTMT<br>CFR41.7/41.9 | 09 | | | | | | | | | | | Identify how the Secondary Containment Isolation valves respond to a Loss of Instrument Air. | 2.9 | | BOTH | K6.08: 2.7 | NEW | |
| PAGE 2 TOTAL TIER 2 GROUP 2 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | PAGE TOTAL # QUESTIONS | 8 | | | | | |

⑦ 262001 Random selection A4 covered under A4 and Generic, classified under Generic.
♣ 263000 Random selection A4 has low discriminatory value at GGNS, changed to K3.

| **SYSTEM #/NAME** | **K 1** | **K 2** | **K 3** | **K 4** | **K 5** | **K 6** | **A1** | **A2** | **A3** | **A4** | **G** | **TOPIC(S)** | **IMP** | **REC #** | **SRO/RO/ BOTH** | **RELATED K/A** | **ORIGIN** | **NOTES:** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 290003 Control Room HVAC CFR41.7/41.11/43.4 | | | | | | | | | 01 | | | Determine the condition that will cause the Control Room HVAC to shift to the Isolate Mode and start the Standby Fresh Air Units. | 3.3 | | BOTH | K1.01: 3.4 A1.05: 3.2 | NEW | |
| 300000 Instrument Air CFR41.4/41.10/43.5 | | | 02 | | | | | | | | | Given a loss of Instrument Air, determine the effects on the Reactor Water Cleanup System. | 3.3 | | **RO** | 204000 K6.04: 2.7 A2.07: 2.5 | | ♦Random selection A1 moved to K3. |
| 400000 Component Cooling Water CFR41.7 | | | 01 | | | | | | | | | Given a loss of CCW, identify which heat load would be of most concern. | 2.9 | | BOTH | | NEW | |
| PAGE 3 TOTALS | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | PAGE 3 TOTAL # QUESTIONS | 3 | | | | | |
| PAGE 1 TOTALS | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | PAGE 1 TOTAL # QUESTIONS | 8 | | | | | |
| PAGE 2 TOTALS | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | PAGE 2 TOTAL # QUESTIONS | 8 | | | | | |
| K/A CATEGORY TOTALS: | 3 | 0 | 3 | 1 | 0 | 2 | 2 | 2 | 4 | 1 | 1 | TIER 2 GROUP 2 GROUP POINT TOTAL | 19 | | | | | |

♦ 300000 Random selection was A1. Category A1 has no topics, moved to category K3.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO / BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215001 Traversing In-core Probe | | | | | | | | | | | | | | | | | | |
| 233000 Fuel Pool Cooling and Cleanup CFR41.7 | | | | | | | | | 02 | | | Concerning the Fuel Pool Cooling and Cleanup pumps, determine which set of plant conditions would result in a pump trip. | 2.6 | | BOTH | | NEW | |
| 234000 Fuel Handling Equipment CFR41.2/41.10/43.7 | | | | | 05 | | | | | | | Identify correct methods used to verify proper fuel orientation. | 3.0 | | BOTH | | NEW | |
| 239003 MSIV Leakage Control | | | | | | | | | | | | | | | | | | |
| 268000 Radwaste | | | | | | | | | | | | | | | | | | |
| 288000 Plant Ventilation CFR41.7 | | | | | | | | | | 02 | | Identify where RCIC room temperature can be monitored. | 2.8 | | BOTH | | NEW | |
| 290002 Reactor Vessel Internals CFR41.3/41.14/43.2 | | | | | | | | | | | 2.1.25 | Given plant conditions, determine the allowances based on the Pressure vs Temperature graph for the Reactor Vessel. | 2.8 | 261 | BOTH | K5.05: 3.1<br>A2.04: 3.7<br>2.2.22: 3.4<br>2.1.32: 3.4 | BANK NRC 4/00 | ⑨Random select A4 moved to generic |
| K/A CATEGORY TOTALS: | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | TIER 2 GROUP 3 GROUP POINT TOTAL | 4 | | | | | |

⑨ 290002 Random selection A4 had NONE for knowledge factors. Moved to Generic.

| CATEGORY | C1 | C2 | C3 | C4 | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCT OF OPERATIONS – Mode of Operation CFR41.10/43.1 | 2.1.22 | | | | Given plant conditions determine the Tech Spec Operational Mode of the plant. | 2.8 | | **RO** | | | |
| CONDUCT OF OPERATIONS – System Purpose CFR41.13/43.4 | 2.1.27 | | | | Describe the purpose of the Equipment Drain System. | 2.8 | | **RO** | 268000 | | |
| CONDUCT OF OPERATIONS – Operator Responsibilities CFR41.10/43.5 | 2.1.2 | | | | Given a situation, describe the responsibility of the Operator with regard to operation of the Controls of the reactor. | 3.0 | | **RO** | | | 10CFR 50.54i &j |
| CONDUCT OF OPERATIONS – Tech Specs CFR41.10/43.2 | 2.1.12 | | | | Given plant conditions and Tech Specs, apply the appropriate LCO actions for the conditions. | 2.9 | | **RO** | | | |
| EQUIPMENT CONTROL – Fuel Handling Responsibilities of Control Room Operator CFR41.10/43.5/43.7 | | 2.2.30 | | | During Refueling operations, describe the requirements for communications with the Refueling Floor and the responsibility of the Control Room. | 3.0 | | **RO** | | | |
| EQUIPMENT CONTROL – Protective Tagging CFR41.10/43.5 | | 2.2.13 | | | Given an air-operated component, determine the appropriate protective position for an equipment clearance. | 3.6 | | **RO** | | | |
| RADIATION CONTROL - Radiation Limits CFR41.10/43.4 | | | 2.3.4 | | Given personnel radiation exposure, determine their availability based on GGNS radiation limits. | 2.5 | 277 | **RO** | | BANK NRC 5/00 | |
| RADIATION CONTROL – ALARA CFR41.10/43.4 | | | 2.3.2 | | Describe the personnel hazards when operating RHR in Suppression Pool Cooling mode. (ALARA) | 2.5 | 287 | **RO** | 2.1.32: 3.4 | BANK NRC 5/00 | Internal Hazard to personnel |
| EMERGENCY PROCEDURES / PLAN - Immediate Operator Actions CFR41.10/43.5 | | | | 2.4.1 | Given plant conditions, identify the immediate operator actions for the situation. | 4.3 | 101 | **RO** | | BANK NRC 3/98 | |
| EMERGENCY PROCEDURES / PLAN – Local Operator Emergency Response CFR41.10/43.5 | | | | 2.4.35 | Describe the response of Non-Licensed Operators during implementation of the Emergency Plan | 3.3 | | **RO** | | NEW | E-Plan changes 2/2001 |
| EMERGENCY PROCEDURES / PLAN - EOP Mitigation Strategy CFR41.10/43.5 | | | | 2.4.6 | Given conditions, identify the process for entry and use of the Severe Accident Guides. | 3.1 | | **RO** | | | |
| EMERGENCY PROCEDURES / PLAN – Procedural use and PEER checking expectations during emergencies CFR41.10/43.5 | | | | 2.4.12 | Given plant conditions involving operations per the EOPs, describe the Operations Philosophy concerning procedural usage and PEER checking. | 3.4 | 391 | **RO** | | BANK 12/00 | RO examination not given. |
| EMERGENCY PROCEDURES / PLAN – Fire Protection actions CFR41.10/43.5 | | | | 2.4.25 | Describe the Control Room Operator Actions for a fire in Division I Diesel Generator Room. | 2.9 | | **RO** | | | |
| K/A CATEGORY TOTALS: | 4 | 2 | 2 | 5 | TIER 3 GROUP POINT TOTAL | 13 | | | | | |

**BWR RO EXAMINATION OUTLINE**

Facility: **GRAND GULF NUCLEAR STATION** Date of Exam: **1 JUNE 2001**

| 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** | 3 | 1 | 3 | | | | 1 | 5 | | | 0 | 13 |
| | **2** | 5 | 4 | 2 | | | | 2 | 4 | | | 2 | 19 |
| | **3** | 1 | 1 | 1 | | | | 1 | 0 | | | 0 | 4 |
| | **TIER TOTAL** | 9 | 6 | 6 | | | | 4 | 9 | | | 2 | 36 |
| **2. Plant Systems** | **1** | 4 | 3 | 2 | 4 | 1 | 3 | 3 | 3 | 1 | 3 | 1 | 28 |
| | **2** | 3 | 0 | 3 | 1 | 0 | 2 | 2 | 2 | 4 | 1 | 1 | 19 |
| | **3** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 4 |
| | **TIER TOTAL** | 7 | 3 | 5 | 5 | 2 | 5 | 5 | 5 | 6 | 5 | 3 | 51 |

| **3. Generic Knowledge & Abilities** | **CAT 1** | **CAT 2** | **CAT 3** | **CAT 4** | |
|---|---|---|---|---|---|
| | 4 | 2 | 2 | 5 | 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.

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295003 Partial or Complete Loss of AC Power/ 6<br>CFR41.7 | | | | 01 | | | Given a lockout on BOP Transformer 12B, determine the configuration of the AC Distribution System. | 3.8 | | BOTH | | NEW | |
| 295006 SCRAM / 1<br>CFR41.6/41.10/43.5 | | | | | 02 | | Describe the position of control rods following a reactor scram and how position is determined. | 4.4 | 10 | BOTH | 201005<br>A3.02: 3.5<br>A4.02: 3.7 | BANK<br>NRC 3/98 | Rx SCRAM Immediate Actions |
| 295007 High Reactor Pressure / 3<br>CFR41.5 | | 01 | | | | | Describe the response of the Turbine Pressure Control System on an increasing reactor pressure. | 3.7 | 69 | BOTH | 241000<br>K4.01: 3.8<br>A2.02: 3.7 | BANK<br>NRC 3/98 | |
| 295009 Low Reactor Water Level / 2<br>CFR41.7 | | | | 02 | | | Describe the reaction of the Reactor Water Level Control System to a failure of a Feedwater Flow Transmitter to an upscale value. | 4.0 | 68 | BOTH | AA2.02: 3.7<br>259002<br>K6.04: 3.1 | BANK<br>NRC 3/98 | Digital Feed Control System |
| 295010 High Drywell Pressure / 5<br>CFR41.10/43.5 | | | | | 01 | | Given indications, calculate the Drywell Equipment Drain leak rate. | 3.8 | | BOTH | 2.1.2: 4.0<br>2.1.18: 3.0 | NEW | |
| 295013 High Suppression Pool Water Temp. / 5<br>CFR41.9/41.10/43.5 | | | 02 | | | | Given a condition that is adding heat to the Suppression Pool and a Suppression Pool Temperature reading, determine the appropriate action(s) to be taken. | 3.8 | | **SRO** | 2.2.12: 3.4 | NEW | |
| 295014 Inadvertent Reactivity Addition / 1<br>CFR41.1/41.2/41.6/43.6 | | | 01 | | | | With the reactor in startup conditions such that the reactor has dropped subcritical, what are the operator actions if a high worth control rod is withdrawn fully. | 4.1 | 204 | BOTH | | BANK<br>NRC 4/00 | Susquehanna reactivity event 7/98 |
| 295015 Incomplete SCRAM / 1<br>CFR41.6/43.6 | | | 01 | | | | Describe the method to be used to allow the insertion of control rods using RCIS during an ATWS. | 3.7 | 203 | BOTH | | BANK<br>NRC 4/00 | |
| 295016 Control Room Abandonment / 7<br>CFR41.7 | | 01 | | | | | Describe the impact and reason for having two switches for E12-F042A/B, LPCI Injection Valves. | 4.5 | 29 | **SRO** | | BANK<br>NRC 3/98 | |
| 295017 High Offsite Release Rate / 9<br>CFR41.10/41.12/43.4/43.5 | | 06 | | | | | Given plant conditions and EPPs, determine protective action recommendations per Site Emergency Plan. | 4.6 | 112 | BOTH | | BANK<br>NRC 3/98 | Relates release to actions to protect the public. |
| 295023 Refueling Accidents / 8<br>CFR41.2/41.6/43.6/43.7 | | | | 03 | | | Describe the requirements to ensure proper positioning of spent fuel bundles being moved on the Refueling Platform Grapple. | 3.6 | 187 | **SRO** | | BANK<br>NRC 4/00 | Damaged Fuel at RBS |
| 295024 High Drywell Pressure / 5<br>CFR41.9 | 01 | | | | | | Describe the implications of exceeding the Drywell maximum design pressure | 4.2 | 259 | BOTH | | BANK<br>NRC<br>12/00 | ① random select EA1 moved to EK1 |
| PAGE 1 TOTAL TIER 1 GROUP 1 | 1 | 3 | 3 | 3 | 2 | 0 | PAGE TOTAL # QUESTIONS | 12 | | | | | |

① 295024 Random selection was EA1, changed due to simulator examination of test will cover these topics. Changed to Generic.

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295025 High Reactor Pressure / 3<br>CFR41.9/41.10/43.5 | | | | | 03 | | Describe the basis for the correlation between Reactor Pressure and Suppression Pool Temperature concerning HCTL during an ATWS. | 4.1 | | BOTH | 295026 EA2.03: 4.0 | NEW | |
| 295026 Suppression Pool High Water Temp. / 5<br>CFR43.2/43.3 | | | | | | 2.1.33 | Describe the Technical Specification implications for placing a loop of RHR in the Suppression Pool Cooling mode. | 4.0 | | BOTH | 2.1.32: 3.8 | NEW | ② random select EA1 moved to Generic |
| 295027 High Containment Temperature / 5<br>CFR41.9/41.10/43.2 | | | 03 | | | | Given plant conditions, determine the Technical Specification Bases for shutting down the Reactor due to a high Containment Temperature. | 3.7 | | BOTH | 2.2.25: 3.7 | NEW | |
| 295030 Low Suppression Pool Water Level / 5<br>CFR41.9/41.10/43.5 | 03 | | | | | | Given the EP Curves and parameters, determine the status of the Suppression Pool's ability to receive heat based on Suppression Pool Level and action to be taken. | 4.1 | 111 | BOTH | | BANK NRC 3/98 | HCTL curves |
| 295031 Reactor Low Water Level / 2<br>CFR41.10/43.5 | | | | | 04 | | Given plant conditions and component configuration, determine if adequate core cooling exists. | 4.8 | | BOTH | 2.4.18: 3.6 | NEW | |
| 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1<br>CFR41.6/41.10/43.6 | | | 05 | | | | Describe at what point Cold Shutdown Boron Weight is achieved and its basis. | 3.7 | 38 | BOTH | | BANK NRC 3/98 | |
| 295038 High Offsite Release Rate / 9<br>CFR41.10/41.11/41.12/41.13/43.4/43.5 | | | | | 04 | | Given Rad monitor release point indication and plant conditions, determine source of release and actions to be taken. | 4.5 | | BOTH | | NEW | |
| 500000 High Containment Hydrogen Conc. / 5<br>CFR41.10/43.5 | 01 | | | | | | Determine the bases for the Hydrogen Control leg of EP 3. | 3.9 | | BOTH | | NEW | |
| 295009 Low Reactor Water Level / 2<br>CFR41.7/43.5 | | 01 | | | | | Determine the effect of a single Reactor Water level instrument failing downscale during given plant conditions | 4.0 | | **SRO** | AK2.02: 3.9 | NEW | |
| PAGE 2 TOTAL TIER 1 GROUP 1 | 2 | 1 | 2 | 0 | 3 | 1 | PAGE TOTAL # QUESTIONS | 9 | | | | | |

② 295026 Random selection was EA1, changed due to simulator examination will cover these topics. Changed to Generic.

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295015 Incomplete SCRAM / 1<br>CFR41.2/41.6/43.5/43.6 | | | | | 02 | | Describe means to obtain indication of a control rod, which is stuck at an odd reed switch position in the core following a reactor scram. | 4.2 | 407 | **SRO** | | BANK<br>NRC<br>12/00 | |
| 295016 Control Room Abandonment / 7<br>CFR41.5/41.10/43.5 | | | | | 02 | | Given parameters from the Remote Shutdown Panel indications, determine actual and Narrow Range RPV level. | 4.3 | | BOTH | 2.1.25: 3.1<br>2.4.4: 3.6 | MOD | |
| 295023 Refueling Accidents Cooling Mode / 8<br>CFR41.7/41.11/43.4/43.7 | | 06 | | | | | Given a description of a Fuel Handling Accident and indications of Radiation Monitoring Equipment, determine status of affected components. | 3.8 | | **SRO** | AK2.03: 3.6<br>AK2.05: 3.7<br>AK2.07: 3.9 | NEW | |
| 295030 Low Suppression Pool Water Level / 5<br>CFR41.7/41.9 | | | | | 02 | | Evaluate Suppression Pool Temperature, with a Low Suppression Pool Level. | 3.9 | 8 | **SRO** | | BANK<br>NRC 3/98 | Caution 2<br>EOP-2 |
| 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1<br>CFR41.1/41.2/41.10/43.5/43.6 | 07 | | | | | | Given plant conditions during an ATWS, determine a condition that the Reactor would be considered shutdown. | 3.8 | | BOTH | | NEW | |
| PAGE 3 TOTAL TIER 1 GROUP 1 | 1 | 1 | 0 | 0 | 3 | 0 | PAGE TOTAL # QUESTIONS | 5 | | | | | |
| PAGE 1 TOTAL TIER 1 GROUP 1 | 1 | 3 | 3 | 3 | 2 | 0 | PAGE TOTAL # QUESTIONS | 12 | | | | | |
| PAGE 2 TOTAL TIER 1 GROUP 1 | 2 | 1 | 2 | 0 | 3 | 1 | PAGE TOTAL # QUESTIONS | 9 | | | | | |
| K/A CATEGORY TOTALS: | 4 | 5 | 5 | 3 | 8 | 1 | TIER 1 GROUP 1 GROUP POINT TOTAL | 26 | | | | | |

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | 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<br>CFR41.5/41.10/43.5 | | | | | 01 | | Given plant conditions and the power to flow map, identify the operational region and any immediate actions to be taken. | 3.8 | 26 | BOTH | AK1.02: 3.5 | BANK NRC 3/98 | BWR topic Thermal Hydraulic Instability. |
| 295002 Loss of Main Condenser Vacuum / 3<br>CFR41.4 | 03 | | | | | | Describe the effect on plant operation in the event of a reduction in Condenser vacuum at 100% power. | 3.8 | 40 | BOTH | | BANK NRC 3/98 | Multiple events in GGNS history |
| 295004 Partial or Complete Loss of DC Power / 6<br>CFR41.10 | | | | | | 2.1.32 | Determine the order of steps for restoring a battery charger to service. | 3.8 | | BOTH | AA1.01:3.4<br>2.1.30: 3.4 | NEW | ③Random select AA1 move to generic |
| 295005 Main Turbine Generator Trip / 3<br>CFR41.5/41.6 | | | | | 05 | | Given a spurious Main Turbine Generator trip, determine the initial effect on Reactor Power and Reactor Pressure. | 3.9 | | BOTH | AA2.04: 3.8 | NEW | |
| 295008 High Reactor Water Level / 2<br>CFR41.4/41.5 | 01 | | | | | | Identify the effects of a High Reactor Water Level on the Main Turbine and Reactor Feed Pump Turbines. | 3.2 | 275 | BOTH | 245000 A3.01: 3.6<br>259001 K6.07: 3.8 | BANK NRC 4/00 | |
| 295011 High Containment Temperature / 5<br>CFR41.9/41.10/43.5 | 01 | | | | | | Identify the bases for securing Containment Spray prior to going below 0 psig in Containment. | 4.1 | | BOTH | | NEW | ④Random select AA2 moved to AK1 |
| 295012 High Drywell Temperature / 5 | | | | | | | | | | | | | |
| 295018 Partial or Complete Loss of CCW / 8<br>CFR41.7/41.10/43.5 | | 01 | | | | | Identify which system loads are allowed to operate with a partial loss of Component Cooling Water. | 3.4 | | BOTH | 400000 K3.01: 3.3 | NEW | |
| 295019 Partial or Complete Loss of Inst. Air / 8<br>CFR41.4/41.13/43.4/43.5 | | 06 | | | | | With a loss of Instrument Air, determine the affects on the Offgas System. | 2.9 | 315 | BOTH | 271000 K6.01: 2.8 | BANK NRC 12/00 | |
| 295020 Inadvertent Cont. Isolation / 5 & 7<br>CFR41.7 | | | 01 | | | | Determine the affects on the Reactor Protection System with an inadvertent isolation of the Main Steam Lines at power. | 3.8 | 316 | BOTH | | BANK NRC 12/00 | |
| 295021 Loss of Shutdown Cooling / 4<br>CFR41.5/41.10/41.14/43.5 | | | 01 | | | | Identify the reason for raising Reactor Water Level to +82 inches with no Recirc. Pumps in operation. | 3.4 | | BOTH | | NEW | |
| PAGE 1 TOTAL TIER 1 GROUP 2 | 3 | 2 | 2 | 0 | 2 | 1 | PAGE TOTAL # QUESTIONS | 10 | | | | | |

③ 295004 Random selection was AA1, changed to Generic 2.1.32 to use precaution and limitations for restoration operations.
④ 295011 Random selection was AA2, changed to AK1, AA2 had low discriminatory value on written examination.

| E/APE #/NAME/SAFETY FUNCTION | K 1 | K 2 | K 3 | A1 | A2 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 295022 Loss of CRD Pumps / 1<br>CFR41.5 | | | | 04 | | | Describe the affects on reactor water level during a reactor startup with minimal decay heat and a loss of CRD Pumps. (RWCU is lined up to blowdown to the main condenser to compensate for CRD flow.) | 2.6 | 55 | BOTH | AK2.04: 2.7<br>AK2.05: 2.5 | BANK<br>NRC 3/98 | |
| 295028 High Drywell Temperature / 5<br>CFR41.3/43.5 | | 03 | | | | | Evaluate Drywell Temperature vs Reactor Pressure to determine the qualification of the Reactor Level Instrumentation. | 3.8 | 1 | BOTH | EK1.01: 3.7<br>295027<br>EK1.02: 3.2 | BANK<br>NRC 3/98 | EP-2 Caution 1 |
| 295029 High Suppression Pool Water Level / 5<br>CFR41.9/41.10 | 01 | | | | | | Identify the bases for Emergency RPV Depressurization when Suppression Pool Level cannot be maintained below 24.4 feet. | 3.7 | | BOTH | | NEW | |
| 295032 High Secondary Containment Area Temperature / 5<br>CFR41.4/41.9/41.10/43.5 | | | | 05 | | | Given plant conditions, determine systems, which should have isolated. | 3.9 | 229 | BOTH | | BANK<br>NRC 4/00 | |
| 295033 High Secondary Containment Area Radiation Levels / 9 | | | | | | | | | | | | | |
| 295034 Secondary Containment Ventilation High Radiation / 9 | | | | | | | | | | | | | |
| 295035 Secondary Containment High Differential Pressure / 5<br>CFR41.7/41.8/4.10/43.5 | 01 | | | | | | Given a trip of both Fuel Handling Area Exhaust fans, identify the correct operator response. | 4.2 | | BOTH | 2.4.50: 3.3 | NEW | |
| 295036 Secondary Containment High Sump/Area Water Level / 5<br>CFR41.10/43.5 | | 01 | | | | | Given a configuration lineup for the RHR C Room Sump, determine the system response to a sump High level. | 3.2 | | BOTH | 2.4.50: 3.3 | NEW | |
| 600000 Plant Fire On Site / 8<br>CFR41.10/43.5 | | | | | 17 | | Given a fire in the Main Control Room, describe the actions to be taken and what safe shutdown equipment is available for operation without suspect. | 3.6 | 178 | BOTH | | BANK<br>NRC 4/00 | |
| PAGE 2 TOTAL TIER 1 GROUP 2 | 2 | 2 | 0 | 2 | 1 | 0 | PAGE TOTAL # QUESTIONS | 7 | | | | | |
| PAGE 1 TOTAL TIER 1 GROUP 2 | 3 | 2 | 2 | 0 | 2 | 1 | PAGE TOTAL # QUESTIONS | 10 | | | | | |
| K/A CATEGORY TOTALS: | 5 | 4 | 2 | 2 | 3 | 1 | TIER 1 GROUP 2 GROUP POINT TOTAL | 17 | | | | | |

**GRAND GULF NUCLEAR STATION** **BWR SRO EXAMINATION OUTLINE** **ES-401-1**
**JUNE 2001** **PLANT SYSTEMS - TIER 2 GROUP 1**

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201005 RCIS<br>CFR41.6/43.6 | | | | | 10 | | | | | | | Given plant conditions, determine control rod movement and effects under those conditions. | 3.3 | | BOTH | K5.09: 3.5 | NEW | |
| 202002 Recirculation Flow Control<br>CFR41.2/41.3/41.5/41.6/41.7 | | | | | | | 06 | | | | | Given plant conditions with a Reactor Recirc Pump trip, identify how Total Core Flow is determined. | 3.3 | A037 | BOTH | A1.07: 3.1<br>A2.01: 3.4<br>A2.09: 3.3<br>A4.08: 3.3<br>A4.09: 3.3 | BANK<br>AUDIT<br>12/00 | ⑤Random select K5 moved to A1. |
| 203000 RHR/LPCI: Injection Mode<br>CFR41.7 | | | | | | 01 | | | | | | Given plant conditions with a manual override inserted on RHR/LPCI, determine system operation following a loss and restoration of power to the respective bus. | 3.7 | | BOTH | K4.01: 4.2 | NEW | ⑥Random select K5 moved to K6. |
| 209001 LPCS<br>CFR41.7/41.8 | | 01 | | | | | | | | | | Given plant conditions concerning a loss of 15 bus, determine which ECCS pumps are affected. | 3.1 | | BOTH | 203000<br>K2.01: 3.5 | NEW | |
| 209002 HPCS<br>CFR41.7/41.8 | | | 01 | | | | | | | | | Given a spurious initiation of the HPCS system, determine the effect on Reactor water level. | 3.9 | | BOTH | 259002<br>A2.08: 4.5 | NEW | |
| 211000 SLC<br>CFR41.6/41.7/41.8 | 03 | | | | | | | | | | | Given a loss of instrument air inside Containment, identify the components affected in the SBLC system. | 2.6 | | BOTH | | NEW | |
| 212000 RPS<br>CFR41.6/41.7 | | | | | | | | | 04 | | | Given plant conditions and description of status lights and alarms associated with RPS, determine the reason for the indications. | 3.8 | | BOTH | | NEW | |
| 215004 Source Range Monitor<br>CFR41.6/41.5 | | | | | | | 04 | | | | | Describe the effects SRMs have on RCIS Rod Blocks when withdrawing SRM detectors from the core during a reactor startup. | 3.5 | 71 | BOTH | A3.04: 3.6<br>201005<br>K4.03: 3.5 | BANK<br>NRC 3/98 | |
| PAGE 1 TOTAL TIER 2 GROUP 1 | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | PAGE TOTAL # QUESTIONS | 8 | | | | | |

⑤ 202002 Random selection K5 for GGNS has no discriminatory value. Changed to A1.
⑥ 203000 Random selection K5 covered in 295031, changed to K6.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215005 APRM / LPRM<br>CFR41.7/43.2 | | | | | | | | | | 04 | | Given the status of APRM C LPRM's, determine operability of APRM C. | 3.2 | | BOTH | 2.2.22: 4.1 | NEW | |
| 216000 Nuclear Boiler Instrumentation<br>CFR41.7 | | | | 05 | | | | | | | | Describe logic required to initiate ECCS. | 4.1 | 243 | BOTH | | BANK<br>NRC 4/00 | |
| 217000 RCIC<br>CFR41.6/41.7 | | 04 | | | | | | | | | | Given a loss of DC bus 1DA2, identify which RCIC component is affected. | 2.6 | | BOTH | K2.01: 2.8<br>K2.02: 2.9<br>K2.03: 2.8 | NEW | |
| 218000 ADS<br>CFR41.5/41.7/41.8 | | | | | | | | | | 01 | | Given plant conditions and configuration lineup, determine how ADS valves can be operated. | 4.4 | | BOTH | A4.02: 4.2<br>A4.04: 4.1<br>A4.05: 4.2 | NEW | |
| 223001 Primary CTMT and Auxiliaries<br>CFR41.7/41.8 | | 08 | | | | | | | | | | Given plant conditions and electrical busses that are unavailable, determine which components are available. | 3.0 | | BOTH | K2.09: 2.9<br>K2.10: 2.9 | NEW | |
| 223002 PCIS / Nuclear Steam Supply Shutoff<br>CFR41.7/41.9 | | | | | | 01 | | | | | | Given that RPS "B" is tripped due to an I&C surveillance, determine the effect of a momentary loss of 15 bus on the MSIVs. | 3.3 | | BOTH | K6.08: 3.7 | NEW | |
| 226001 RHR/LPCI: CTMT Spray Mode<br>CFR41.7/41.8 | | | | | | | | 03 | | | | Given a CTMT Spray initiation, determine the effect on RHR Heat Exchanger Bypass valve. | 3.1 | | BOTH | K4.09: 3.4<br>A1.05: 3.4<br>A4.06: 2.8 | NEW | |
| 239002 SRVs<br>CFR41.3/41.7 | | | | | | | | | | 07 | | Given plant conditions and configuration lineup, determine which indications for SRVs are valid. | 3.6 | | BOTH | | NEW | |
| 241000 Reactor / Turbine Pressure Regulator<br>CFR41.5/41.7 | | | | | | | | 03 | | | | Given a failure of the Turbine Bypass valves, determine the effect on the Turbine Pressure Regulating system. | 4.2 | | BOTH | A2.02: 3.7 | NEW | |
| PAGE 2 TOTALS TIER 2 GROUP 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | PAGE 2 TOTAL # QUESTIONS | 9 | | | | | |

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 259002 Reactor Water Level Control<br>CFR41.5 | | | | | | | | 06 | | | | Given a failure of the Master Controller input to Reactor Water Level Control, determine the response of Reactor Water Level Control. | 3.4 | | BOTH | K5.01: 3.1 | NEW | |
| 261000 SGTS<br>CFR41.7/41.11 | 08 | | | | | | | | | | | Describe the response of the radiation monitoring system for SBGT on an initiation of the system. | 3.1 | 265 | BOTH | K4.01: 3.8 | BANK<br>NRC 4/00 | |
| 262001 AC Electrical Distribution<br>CFR41.4/41.7/41.10/43.5 | | | | | | | | | | | 2.<br>1.<br>30 | Describe the indications for a circuit breaker returned to service following local maintenance. | 3.9 | 335 | BOTH | A4.03: 3.4 | BANK<br>NRC<br>12/00 | SOER 98-2<br>⑦Random select A4 moved to generic |
| 264000 EDGs<br>CFR41.7/41.8 | | | | | | | 09 | | | | | Given a High Drywell Pressure, determine how the Div. 3 diesel would respond to a reverse power if the HPCS INIT RESET P/B were depressed. | 3.1 | | BOTH | K4.01: 3.7<br>K4.02: 4.2<br>A2.10: 4.2 | NEW | |
| 290001 Secondary CTMT<br>CFR41.7/41.9 | 09 | | | | | | | | | | | Identify how the Secondary Containment Isolation valves respond to a Loss of Instrument Air. | 2.9 | | BOTH | K6.08: 2.8 | NEW | |
| 261000 SGTS<br>CFR41.7/41.10 | | | | | | | | 01 | | | | Identify the plant conditions that would result in an auto start of a SBGT system that was placed in standby following an initiation. | 3.1 | | BOTH | A1.01: 3.1 | NEW | |
| PAGE 3 TOTALS TIER 2 GROUP 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | PAGE TOTAL # QUESTIONS | 6 | | | | | |
| PAGE 1 TOTALS TIER 2 GROUP 1 | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | PAGE TOTAL # QUESTIONS | 8 | | | | | |
| PAGE 2 TOTALS TIER 2 GROUP 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | PAGE TOTAL # QUESTIONS | 9 | | | | | |
| K/A CATEGORY TOTALS: | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 1 | 3 | 1 | TIER 2 GROUP 1 GROUP POINT TOTAL | 23 | | | | | |

⑦ 262001 Random selection A4 covered under A4 and Generic, classified under Generic.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO / BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201001 CRD Hydraulic<br>CFR41.5/41.6 | | | | 08 | | | | | | | | Discuss the control of CRD Drive Pressure and Flow Control during a reactor shutdown and depressurization. | 3.0 | 59 | BOTH | | BANK<br>NRC<br>3/98 | |
| 202001 Recirculation<br>CFR41.3/41.5 | | | | | | | | 10 | | | | Given plant conditions in regard to Reactor Recirc. Pump seals, determine the failed mechanism. | 3.9 | | BOTH | A1.09: 3.3<br>A1.10: 2.7 | NEW | |
| 204000 RWCU<br>CFR41.7 | | | | | | 07 | | | | | | Given plant conditions, determine operation of the Reactor Water Cleanup System, upon an initiation of SBLC B. | 3.5 | 251 | BOTH | | BANK<br>NRC<br>4/00 | |
| 205000 Shutdown Cooling<br>CFR41.2/41.3/41.4/41.5 | 03 | | | | | | | | | | | Given plant conditions and configuration lineup, determine valid method for determining Reactor coolant temperature. | 3.5 | | BOTH | K3.03: 3.9<br>A1.03: 3.3<br>A1.06: 3.7<br>A1.08: 2.9 | NEW | |
| 215003 IRM | | | | | | | | | | | | | | | | | | |
| 219000 RHR /LPCI Suppression Pool Cooling Mode<br>CFR41.7 | | | | | | | | | | 14 | | Given plant conditions, determine the effect of placing a loop of RHR in Suppression Pool Cooling. | 3.5 | | BOTH | | NEW | |
| 234000 Fuel Handling Equipment<br>CFR41.2/41.10/43.7 | | | | | 05 | | | | | | | Identify correct methods used to verify proper fuel orientation. | 3.7 | | BOTH | | NEW | |
| 239003 MSIV Leakage Control | | | | | | | | | | | | | | | | | | |
| 245000 Main Turbine Gen., and Auxiliaries | | | | | | | | | | | | | | | | | | |
| 259001 Reactor Feedwater<br>CFR41.5/41.10/43.5 | | | | | 03 | | | | | | | Given a set of plant conditions, determine the operational limitations for the Reactor Feed Pump Turbines | 2.8 | | BOTH | | NEW | |
| PAGE 1 TOTAL TIER 2 GROUP 2 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | PAGE TOTAL # QUESTIONS | 7 | | | | | |

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | G | TOPIC(S) | IMP | REC # | SRO/RO/ BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 262002 UPS (AC/DC)<br>CFR41.7/41.10/43.5 | | | | | | | 01 | | | | | Concerning the ESF Static Inverters, identify the correct response of the inverter on a loss of normal power supply. | 2.6 | | BOTH | A2.01: 2.8<br>A3.01: 3.1 | NEW | |
| 263000 DC Electrical Distribution | | | | | | | | | | | | | | | | | | |
| 271000 Offgas<br>CFR41.7/41.13 | | | | | | | | | 01 | | | Identify the components affected by a HI-HI-HI Offgas Post Treatment Rad condition. | 3.3 | | BOTH | K1.02: 3.3<br>K4.08: 3.3<br>A2.04: 4.1 | NEW | |
| 272000 Radiation Monitoring<br>CFR41.7/41.11/43.4 | | | | 02 | | | | | | | | Given plant conditions with a High Containment and Drywell Vent Exhaust Rad level, determine the components affected. | 4.1 | | BOTH | K1.18: 3.1 | NEW | |
| 286000 Fire Protection<br>CFR41.8/43.2 | | | | | | | 06 | | | | | Concerning CO2 Storage Tank operability, identify which condition the CO2 Storage Tank would be considered Operable. | 3.0 | | BOTH | | NEW | |
| 290003 Control Room HVAC<br>CFR41.7/41.11/43.4 | | | | | | | | | 01 | | | Determine the condition that will cause the Control Room HVAC to shift to the Isolate Mode and start the Standby Fresh Air Units. | 3.5 | | BOTH | K1.01: 3.5<br>A1.05: 3.3 | NEW | |
| 300000 Instrument Air | | | | | | | | | | | | | | | | | | |
| 400000 Component Cooling Water<br>CFR41.7 | | | 01 | | | | | | | | | Given a loss of CCW, identify which heat load would be of most concern. | 3.3 | | BOTH | | NEW | |
| PAGE 2 TOTALS | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | PAGE 3 TOTAL # QUESTIONS | 6 | | | | | |
| PAGE 1 TOTALS | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | PAGE 1 TOTAL # QUESTIONS | 7 | | | | | |
| K/A CATEGORY TOTALS: | 1 | 0 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 0 | TIER 2 GROUP 2 GROUP POINT TOTAL | 13 | | | | | |

.

| SYSTEM #/NAME | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A1 | A2 | A3 | A4 | 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<br>CFR41.7 | | | | | | | | | 02 | | | Concerning the Fuel Pool Cooling and Cleanup pumps, determine which set of plant conditions would result in a pump trip. | 2.6 | | BOTH | | NEW | |
| 239001 Main and Reheat Steam | | | | | | | | | | | | | | | | | | |
| 256000 Reactor Condensate | | | | | | | | | | | | | | | | | | |
| 268000 Radwaste<br>CFR41.12/43.4 | | | | | 01 | | | | | | | Given radiological conditions in an area, determine the Radiation Dose that would be received from those conditions. | 3.0 | | **SRO** | 2.3.4: 3.1 | NEW | ⑧Random select K4 moved to K5 |
| 288000 Plant Ventilation<br>CFR41.7 | | | | | | | | | | 02 | | Identify where RCIC room temperature can be monitored. | 2.8 | | BOTH | | NEW | |
| 290002 Reactor Vessel Internals<br>CFR41.3/41.14/43.2 | | | | | | | | | | | 2.1.25 | Given plant conditions, determine the allowances based on the Pressure vs Temperature graph for the Reactor Vessel. | 3.1 | 261 | BOTH | K5.05: 3.3<br>A2.04: 4.1<br>2.2.22: 4.1<br>2.1.32: 3.8 | BANK<br>NRC 4/00 | ⑨Random select A4 moved to generic |
| K/A CATEGORY TOTALS: | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | TIER 2 GROUP 3 GROUP POINT TOTAL | 4 | | | | | |

⑧ 268000 Random selection K4 had NONE for knowledge factors. Moved to K5 for radiation hazards for CFR 55.41.12 & 43.4
⑨ 290002 Random selection A4 had NONE for knowledge factors. Moved to Generic.

| CATEGORY | C1 | C2 | C3 | C4 | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCT OF OPERATIONS – Shift Relief CFR41.10/43.5 | 2.1.3 | | | | Determine the actions required for personnel to assume shift duties during off turnover times. | 3.4 | | **SRO** | | | |
| CONDUCT OF OPERATIONS – Station Operating Orders CFR41.10/43.5 | 2.1.15 | | | | Given a situation where the Station Night Orders are unable to be accomplished, determine the course of action to be taken. | 3.0 | | **SRO** | | | |
| CONDUCT OF OPERATIONS – Chemistry Limits CFR41.10/43.2/43.5 | 2.1.34 | | | | Given plant conditions, procedures, and coolant samples, determine actions to be taken based on chemistry results. | 2.9 | | **SRO** | | MOD | Use of EPRI Guidelines vs Tech Specs. |
| CONDUCT OF OPERATIONS – Tech Specs CFR43.2 | 2.1.12 | | | | Given conditions and applicable Tech Specs, determine applicable conditions and action statements. | 4.0 | | **SRO** | | | |
| CONDUCT OF OPERATIONS – Management Role during Transients CFR41.10/43.5 | 2.1.6 | | | | Given plant conditions during a transient/accident conditions, evaluate the role of Shift Manager and Emergency Director with implementation of SAPs. | 4.3 | | **SRO** | | | SAP implementation |
| EQUIPMENT CONTROL – Refueling Procedures & Limitations CFR43.6/43.7 | | 2.2.27 | | | Given plant conditions, describe the requirements for movement of spent fuel between Containment and the Auxiliary Building. | 3.5 | | **SRO** | | | |
| EQUIPMENT CONTROL – Temporary Alterations CFR41.10/43.5 | | 2.2.11 | | | Given a Temporary Alteration, describe the implementation requirements. | 3.4 | | **SRO** | | | |
| EQUIPMENT CONTROL – Troubleshooting CFR41.10/43.5 | | 2.2.20 | | | Given a situation in the plant, apply the rules concerning MAIs vs allowed troubleshooting. | 3.3 | | **SRO** | | | |
| EQUIPMENT CONTROL – Core Alterations CFR43.6/43.7 | | 2.2.32 | | | Given a situation during refueling operations, apply the Criticality Rules. | 3.3 | | **SRO** | | | |
| RADIATION CONTROL – ALARA CFR41.12/43.4 | | | 2.3.2 | | Given a situation requiring independent verification in a high radiation area determine allowances for waiving verification based on ALARA and requirements for meeting verification. | 2.9 | | **SRO** | 2.1.29: 3.3<br>2.2.11: 3.4<br>2.2.13: 3.8 | | |
| RADIATION CONTROL – Containment Purge CFR41.10/43.4/43.5 | | | 2.3.9 | | Determine the conditions which would require the purging of the Containment atmosphere irregardless of offsite radiological release rates. | 3.4 | | **SRO** | | | Hydrogen Control of SAPs. |
| PAGE 1 TOTAL TIER 3 | 5 | 4 | 2 | 0 | PAGE TOTAL # QUESTIONS | 11 | | | | | |

| CATEGORY | C1 | C2 | C3 | C4 | TOPIC(S) | IMP | REC # | SRO/RO /BOTH | RELATED K/A | ORIGIN | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EMERGENCY PROCEDURES / PLAN – EOP Definitions and usage CFR41.10/43.5 | | | | 2.4.17 | During implementation of the EOPs a step directs the restoration and maintaining a parameter, describe the requirements and expectations for application of these directions. | 3.8 | | **SRO** | | | |
| EMERGENCY PROCEDURES / PLAN – SAPs CFR41.10/43.5 | | | | 2.4.4 | Given conditions determine the applicable Severe Accident Procedure to be utilized. | 4.3 | | **SRO** | 2.4.1: 4.6<br>2.4.5: 3.6 | | SAP Entry |
| EMERGENCY PROCEDURES / PLAN – EAL CFR41.10/43.5 | | | | 2.4.29 | Given a situation involving the site Emergency Plan, describe the activation requirements for the emergency response facilities. | 4.0 | | **SRO** | 2.4.42: 3.7 | | ERO facility activation |
| EMERGENCY PROCEDURES / PLAN – Non-Licensed Operator Response during E-Plan implementation CFR41.10/43.5 | | | | 2.4.12 | During the initial phase of an emergency, determine the support personnel in addition to the normal Control Room staff assigned to augment the Control Room and their responsibilities. | 3.9 | | **SRO** | 2.4.35: 3.5 | | E-Plan Changes for NLO, Radiation Protection, and I&C personnel |
| EMERGENCY PROCEDURES / PLAN – Security Threat CFR41.10/43.5 | | | | 2.4.28 | Given a security threat situation, determine actions to be taken for protection of the plant. | 3.3 | | **SRO** | | | |
| EMERGENCY PROCEDURES / PLAN – Shift Manning / Fire Brigade CFR41.10/43.1/43.2/43.5 | | | | 2.4.26 | Determine requirements for fire brigade and conditions when the fire brigade may be less than required. | 3.3 | | **SRO** | 2.1.4: 3.4 | | |
| PAGE 2 TOTAL TIER 3 | 0 | 0 | 0 | 6 | | 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 | | | | | |

**BWR SRO EXAMINATION OUTLINE**

Facility: **GRAND GULF NUCLEAR STATION** Date of Exam: **1 JUNE 2001**

| TIER | GROUP | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | POINT TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Emergency & Abnormal Plant Evolutions** | **1** | 4 | 5 | 5 | | | | 3 | 8 | | | 1 | 26 |
| | **2** | 5 | 4 | 2 | | | | 2 | 3 | | | 1 | 17 |
| | **TIER TOTAL** | 9 | 9 | 7 | | | | 5 | 11 | | | 2 | 43 |
| **2. Plant Systems** | **1** | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 4 | 1 | 3 | 1 | 23 |
| | **2** | 1 | 0 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 0 | 13 |
| | **3** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 4 |
| | **TIER TOTAL** | 4 | 3 | 2 | 3 | 4 | 3 | 5 | 5 | 4 | 5 | 2 | 40 |

(K/A CATEGORY POINTS: K1–G)

| **3. Generic Knowledge & Abilities** | **CAT 1** | **CAT 2** | **CAT 3** | **CAT 4** | POINT TOTAL |
|---|---|---|---|---|---|
| | 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. 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.

**QUESTION 1**

Given a spurious Main Turbine Generator Trip from 100 % power,

Determine the **instantaneous** effect it will have on Reactor Power and Reactor Pressure. (Disregard the effects of reactor scram and other plant response and just consider the initial reactor response.)

A. Reactor Power will go up and Reactor Pressure will go up.

B. Reactor Power will go down and Reactor Pressure will go down.

C. Reactor Power will go up and Reactor Pressure will go down.

D. Reactor Power will go down and Reactor Pressure will go up.

**QUESTION 1** **NRC RECORD # WRI 501**
**ANSWER: A** **SYSTEM # B33** **K/A 295005 A2.05: 3.7/3.9**
**LP# GG-1-LP-OP-B3300**
**OBJ. 27 a.** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 1**
**REFERENCE: Tech. Spec Bases 3.3.4.1** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.5/41.6**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 2

The reactor was operating at the end of cycle just prior to a refueling outage when a reactor scram occurred.

Which one of the following is a correct method of verifying the position of the control rods? (The scram has NOT been reset.)

A. Using the full core display on H13-P680, depress ALL RODS with RCIS in Raw Data and observe a blank display with only green LEDs for all control rods.

B. Using the full core display on H13-P680, depress ALL RODS with RCIS in Raw Data and observe all control rods indicate 00 with a green LED for all control rods.

C. Using the full core display on H13-P680, depress ALL RODS with RCIS out of Raw Data and observe a blank display with only red LEDs for all control rods.

D. Using the full core display on H13-P680, depress ALL RODS with RCIS out of Raw Data and observe all control rods indicate 00 with a red LED for all control rods.

**QUESTION 2** **NRC RECORD # WRI 10**
**ANSWER: A.** **SYSTEM # C11-2; C11-1B** **K/A 295006 AA2.02: 4.3/4.4**
**201005 A3.02: 3.5/3.5**
**A4.02: 3.7/3.7**
**LP# GG-1-LP-OP-C111B**
**OBJ. 3c, 3f**
**LP# GG-1-LP-OP-C1102**
**OBJ. 12** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 04-1-01-C11-2 sect. 4.7.2p & 4.8.2i**
NEW
MODIFIED ***BANK***
**NRC 3/98**
**DIFF: 2; CA**
RO SRO ***BOTH*** **CFR 41.6/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 3**

Plant conditions are as follows:

| | |
|---|---|
| MODE: | Mode 1 |
| Rx power: | 28 % |
| T-G Load: | 365 MWE |
| Load Demand | 390 MWE |
| Bypass position: | 0 % |

All other parameters are per plant design.

The operator withdraws a control rod that raises Reactor power to 29 %.

How will the Turbine EHC Control System respond?

A. The Bypass Control Valves will open by whatever amount is required to maintain Rx pressure.

B. The Turbine Control Valves will open by whatever amount is required to maintain Rx pressure.

C. The Bypass Control Valves will close by whatever amount is required to maintain Rx pressure.

D. The Turbine Control Valves will close by whatever amount is required to maintain Rx pressure.

**QUESTION 3** **NRC RECORD # WRI 69**
**ANSWER: B.** **SYSTEM # N32-2** **K/A 295007 AK2.01: 3.5/3.7**
**241000 A2.02: 3.7/3.7**
**LP# GG-1-LP-RO-N3202** **K4.01: 3.8/3.8**
**OBJ 4b, 6b, 7b** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 03-1-01-2 sect. 5.2** NEW
MODIFIED ***BANK***
**DIFF: 2; CA** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 4**

The plant is operating at 70 % power.

Which of the following best describes the response of the Reactor Water Level Control System on a failure of a single Feed Flow Transmitter UPSCALE?

A. The Digital Feed System will recognize the failure and de-select 3 - element control and return level to the level setpoint.

B. The Digital Feed System will lower feed flow until reactor level drops to 32 inches at which time it will become level dominant remaining in 3 - element control.

C. The Digital Feed System will lower feed flow and reactor level will stabilize out at a new low level below the low level alarm setpoint.

D. The Digital Feed System will lock up the controls and hold level at the normal level, remain in 3 - element control, and actuate the DFCS TROUBLE annunciator on P680.

| | | | |
|---|---|---|---|
| **QUESTION 4** | | **NRC RECORD # WRI 68** | |
| **ANSWER: A.** | **SYSTEM # C34** | **K/A 295009** | **AA1.02: 4.0/4.0** |
| | | | **AA2.02: 3.6/3.7** |
| **LP# GG-1-LP-RO-C3401** | | **259002** | **K6.04: 3.1/3.1** |
| **OBJ 1.10** | **SRO TIER 1 GROUP 1 /** | **RO TIER 1 GROUP 1** | |
| **REFERENCE:** | **ARI 04-1-02-H13-P680** | NEW | |
| | **2A-C9** | MODIFIED | ***BANK*** |
| **DIFF: 2; CA** | | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.7** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 5**

The plant is operating at 70 % power.

Determine the calculated Drywell Floor Drain (Unidentified Leakage) rate and Drywell Total Leakage.

Calculated Drywell Equipment Drain (Identified Leakage) Rate is 2.16 gpm.

**ATTACHED are indications from the Drywell Floor Drain Sump Chart Recorder E31-LR-R618 and information provided from the Daily Operations Log 06-OP-1000-D-0001 item 25 and 26**

PDS Computer is inoperable.

| | Drywell Unidentified Leakage rate | Drywell Total Leakage rate |
|---|---|---|
| **A.** | 1.50 | 5.00 |
| **B.** | 1.50 | 3.66 |
| **C.** | 2.03 | 5.00 |
| **D.** | 2.03 | 3.66 |

**QUESTION 5** **NRC RECORD # WRI 502**
**ANSWER: B.** **SYSTEM # E31** **K/A 295010 AA2.01: 3.4/3.8**
**2.1.2: 3.0/4.0**
**LP# GG-1-QC-RO-CRO01** **2.1.18: 2.9/3.0**
**2.1.25: 2.8/3.1**
**OBJ** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 06-OP-1000-D-0001** ***NEW***
**Drywell Floor Drain Chart** MODIFIED BANK
**DIFF: 2; CA** **E31-LR-R618**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 06-OP-1000-D-0001**
**Attachment I Item 25 &**
**method 1 & calculator**
**Chart paper indications**
**of sump readings**

**QUESTION 6**

The plant is performing a reactor startup from cold shutdown.

The reactor was at the point of adding heat.

The Control Room Supervisor instructed the operators to stop the startup for a short duration to perform a surveillance.

During this time, the reactor went subcritical and power dropped to range 3 of the IRMs.

The At-The-Controls Operator, noting that reactor power had dropped selected the next control rod and withdrew the control rod from 20 to 48 with continuous motion as allowed by the Control Rod Movement Sequence Sheet.

This resulted in a sustained 20-second period.

The following are the plant parameters at present:

| | |
|---|---|
| Reactor Pressure | 80 psig |
| Reactor Level | + 40 inches |

Which one of the following describes the next action the At-The-Controls operator should take?

A. Immediately range all IRMs to range 10 and monitor overlap data between IRMs and APRMs.

B. Perform the coupling checks for the Control Rod, and inform the Reactor Engineer of the power rise.

C. Withdraw the next in sequence Control Rod to maintain the power rise to reach the point of adding heat.

D. Insert the Control Rod to a position which causes reactor period to be > 50 seconds.

**QUESTION 6** **NRC RECORD # WRI 204**
**ANSWER: D.** **SYSTEM # C11-2; C51** **K/A 295014** **AK3.01: 4.1/4.1**
**LP# GG-1-LP-OP-IOI01**
**OBJ. 3c & d** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE:** **03-1-01-1 sect. 2.1.4** NEW
**Susquehanna reactivity** MODIFIED ***<u>BANK</u>***
**DIFF 1; M** **Event 7/98** **NRC 4/00**
**04-1-01-C51-1 sect 4.3.2 NOTE** RO SRO ***<u>BOTH</u>*** **CFR 41.1/41.2/ 41.6/43.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 7**

Scram conditions exist. All control rods did NOT fully insert.

Reactor water level is being maintained at –60 inches.

Reactor pressure is being maintained at 910 psig.

Reactor power is 20 %.

The following indications exist:

RPS white lights on H13-P680 are extinguished.

Scram Air Header Pressure low annunciator is illuminated.

RX SCRAM TRIP annunciator is illuminated.

Which one of the following contains the minimum actions required to drive the control rods to position 00 using Rod Control and Information System?

A. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

B. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods in sequence and insert.

C. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive insert and withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

D. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, confirm a CRD pump is operating, select control rods in sequence and insert.

**QUESTION 7** **NRC RECORD # WRI 203**
**ANSWER: C.** **SYSTEM # C11-2; C71; C11-1A** **K/A 295015 AK3.01: 3.4/3.7**
**LP# GG-1-LP-RO-EP02A**
**OBJ. 5** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: EP 05-S-01-EP-2A** NEW
**Step 48 Att. 18, 19 & 20** MODIFIED ***BANK***
**DIFF 3; CA** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.6/43.6**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2 EP-2A**

## QUESTION 8

Which one of the following identifies the significance of exceeding the maximum Drywell pressure?

A. The Drywell Purge Compressor discharge valve differential pressure limit would be exceeded preventing the operation of the Drywell Purge Compressors and the combustible gas control function.

B. The Drywell structure could be breached resulting in the loss of the pressure suppression function resulting in the direct pressurization of Containment in a DBA that would result in a failure of Containment.

C. The resultant Suppression Pool surge upon depressurization of the Drywell would cause the structures inside the Containment to exceed the maximum loading and could result in a compounded failure.

D. The Suppression Pool surge upon depressurization of the Drywell would result in the overflowing of the Weir Wall and the degradation of equipment in the lower elevation of the Drywell required for accident mitigation.

**QUESTION 8** **NRC RECORD # WRI 259**
**ANSWER: B.** **SYSTEM # M41** **K/A 295024** **EK1.01: 4.1/4.2**
**LP# GG-1-LP-OP-M4101**
**OBJ. 4, 5** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: FSAR sect 3.8.1; 6.2.1.1.1j** NEW
**Table 6.2-1** MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.9**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 9**

Which of the following is the basis for the correlation between Reactor Pressure and Suppression Pool Temperature concerning Heat Capacity Temperature Limit (HCTL) during an ATWS?

A. It is the highest suppression pool temperature from which an Emergency Depressurization will not raise suppression pool temperature above the capability to monitor suppression pool temperature with the reactor still pressurized.

B. It is the highest suppression pool temperature from which an Emergency Depressurization can be performed and the suppression pool still capable of absorbing all the energy from the reactor at all pressures.

C. It is the highest suppression pool temperature from which an Emergency Depressurization will not raise containment temperature above the maximum temperature capability of the containment and equipment in containment that may be required to operate with the reactor still pressurized.

D. It is the highest suppression pool temperature from which an Emergency Depressurization will not result in direct steam introduction into the containment through a Suppression Pool approaching saturation conditions with the reactor still pressurized.

**QUESTION 9** **NRC RECORD # WRI 503**
**ANSWER: C.** **SYSTEM # M41-1** **K/A 295025** **A2.03: 3.9/4.1**
**LP# GG-1-LP-RO-EP02.01**
**OBJ. 12** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: GGNS PSTG Appendix B** ***NEW***
MODIFIED BANK
**DIFF 1;M**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**U.S. NUCLEAR REGULATORY COMMISSION**
**WRITTEN EXAMINATION JUNE 2001**
**SENIOR REACTOR OPERATOR**

**QUESTION 10**

The plant is in an ATWS condition. Reactor power was at 80% after the scram condition occurred. Standby Liquid Control has been initiated but failed to inject.

Which of the following conditions would adequate core cooling ***NOT*** be assured?

A.
| | |
|---|---|
| Drywell Temperature | 185°F |
| Reactor Pressure | 600 psig |
| Suppression Pool Level | 18 feet |
| 2 SRVs open | |
| Reactor Water Level | -187 inches Fuel Zone |
| Feedwater is injecting. | |

B.
| | |
|---|---|
| Drywell Temperature | 200°F |
| Reactor Pressure | 350 psig |
| Suppression Pool Level | 21.5 feet |
| 8 SRVs open | |
| Reactor Water Level | -215 inches Fuel Zone |
| No high pressure injection systems available | |

C.
| | |
|---|---|
| Drywell Temperature | 190°F |
| Reactor Pressure | 150 psig |
| Suppression Pool Level | 22 feet |
| 8 SRVs open | |
| Reactor Water Level | -205 inches Fuel Zone |
| LPCS is injecting, no other systems available | |

D.
| | |
|---|---|
| Drywell Temperature | 220°F |
| Reactor Pressure | 200 psig |
| Suppression Pool Level ` | 23 feet |
| 8 SRVs open | |
| Reactor Water Level | -165 inches Fuel Zone (level instruments are suspect per caution 1) |
| Feedwater is injecting. | |

**QUESTION 10** **NRC RECORD # WRI 504**
**ANSWER: C.** **SYSTEM # B21; EP** **K/A 295031** **A2.04: 4.6/4.8**
**LP# GG-1-LP-RO-EP02A**
**OBJ. 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 05-S-01-EP-2A** ***NEW***
**GGNS PSTG** MODIFIED BANK
**DIFF 3;CA**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2A**

**QUESTION 11**

Which one of the following describes the conditions that Cold Shutdown Boron Weight is designed to over come?

A. 68 °F, xenon free, water level at steam lines, 50 % rod density.

B. 68 °F, xenon free, water level in normal band, all rods fully withdrawn.

C. 110 °F, xenon free, water level in normal band, all rods fully withdrawn.

D. 110 °F, xenon free, water level at steam lines, 50 % rod density.

| | | | |
|---|---|---|---|
| **QUESTION 11** | | **NRC RECORD # WRI 38** | |
| **ANSWER: B.** | **SYSTEM #** | **K/A 295037** | **EK3.05: 3.2/3.7** |
| | **EOP-2A BASES** | | |
| **LP# GG-1-LP-RO-EP02A** | | | |
| **OBJ 2** | **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1** | | |
| **REFERENCE: 05-S-01-EP-2A Bases** | | NEW | |
| | **Step 21 PSTG App C 2.1** | MODIFIED | ***BANK*** |
| **DIFF 1; M** | **Tech Spec 3.1.7 Bases** | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.6/41.10/43.6** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 12**

Which one of the following is the basis for the Hydrogen Deflagration Overpressure Limit (HDOL)?

A. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell structural capability **or** Drywell-to-Containment differential pressure.

B. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Containment structural capability **or** Drywell-to-Containment differential pressure.

C. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell structural capability **or** Containment pressurization rates.

D. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell-to-Containment differential pressure **or** Containment pressurization rates.

**QUESTION 12** **NRC RECORD # WRI 505**
**ANSWER: B.** **SYSTEM # EP Bases** **K/A 500000** **K1.01: 3.3/3.9**
**LP# GG-1-LP-RO-EP03**
**OBJ. 6** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: GGNS PSTG Appendix B** ***NEW***
**16.7 & 16.9** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 13**

The plant is in an ATWS condition and EP-2A is being implemented.

Under which one of the following conditions is the Reactor considered shutdown?

A. 12 Rods at position 02, 1 Rod at position 04, all other Rods at position 00.

B. 2 Rods at position 04, all other Rods at position 00.

C. 1 Rod at position 44, all other Rods at position 00.

D. 4 Rods at position 48, all other Rods at position 00, Standby Liquid Control has injected the entire contents of the SLC tank to the reactor.

**QUESTION 13** **NRC RECORD # WRI 506**
**ANSWER: C.** **SYSTEM # B21; C11** **K/A 295037** **K1.07: 3.4/3.8**
**LP# GG-1-LP-RO-EP02**
**OBJ. 11** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: EP-2A** ***NEW***
**GGNS PSTG RC/Q-1** MODIFIED BANK
**DIFF. 2; CA**
RO SRO ***BOTH*** **CFR 41.1/41.2/41.10**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2A** **43.5/43.6**

**QUESTION 14**

The plant was operating at full power when a malfunction during a surveillance resulted in a Recirc Flow Control Valve runback.

Reactor Power is presently 79 %.
Total Core Flow is at 62 Mlbm/hr.
Both PBDS Cards are operable.

Which one of the following best describes the actions to be taken for the present situation?

**(05-1-02-III-3 Reduction in Recirculation System Flow Rate is attached.)**

A. Immediately scram the reactor.

B. Monitor for thermal hydraulic instability, operation can continue in the region without thermal hydraulic instability.

C. Monitor for thermal hydraulic instability and verify FCBB is $\leq$ 1.0 within 15 minutes. Insert control rods to exit the region.

D. Monitor for thermal hydraulic instability and verify FCBB is $\leq$ 1.0 within 15 minutes. Reduce recirculation flow to exit the region.

**QUESTION 14** **NRC RECORD # WRI 303**
**ANSWER: B.** **SYSTEM # B33** **K/A 295001** **AA2.01: 3.5/3.8**
**LP# GG-1-LP-OP-B3300** **AK1.02: 3.3/3.5**
**OBJ 41, 42, 43, 49** **2.4.4: 4.0/4.3**
**LP# GG-1-LP-OP-ONEP1** **2.4.11: 3.4/3.6**
**OBJ 24, 25** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-III-3 P/F MAP** NEW
**sect. 3.1; 3.3 for Monitored** MODIFIED ***BANK***
**DIFF 2; CA** **Region - Recirc FCV** **NRC 12/00**
**Runback in Fast Speed** RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-III-3 w/o Imm Actions &**
**Color Power to Flow Map**

**QUESTION 15**

Which one of the following describes the automatic actions that will occur as Main Condenser vacuum degrades to 0 inches Hg vacuum?

A. 21" vac, Main Turbine trip
16" vac, Main bypass valves close
12" vac, Rx feed pumps trip
9" vac, MSIV closure

B. 21" vac, Main Turbine trip
16" vac, Rx feed pumps trip
12" vac, Main bypass valves close
9" vac, MSIV closure

C. 21" vac, Main Turbine trip
16" vac, MSIV closure
12" vac, Main bypass valves close
9" vac, Rx feed pumps trip

D. 21" vac, Main Turbine trip
16" vac, MSIV closure
12" vac, Rx feed pumps trip
9" vac, Main bypass valves close

**QUESTION 15** **NRC RECORD # WRI 40**
**ANSWER: B.** **SYSTEM # N62** **K/A 295002 AK1.03: 3.6/3.8**
**LP# GG-1-LP-OP-N6200**
**OBJ 14**
**LP# GG-1-LP-OP-ONEP1**
**OBJ 39** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-V-8 sect. 5.0** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.4**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 16**

The plant is in a normal electrical line-up with all busses fed from their preferred power source. If a lockout of BOP Transformer 12B were to occur,

Which of the following indicates the correct status of BOP busses?

| | | |
|---|---|---|
| A. | 11HD | ENERGIZED |
| | 12HE | DE-ENERGIZED |
| | 13AD | DE-ENERGIZED |
| | 14AE | ENERGIZED |
| | 18AG | ENERGIZED |
| | 28AG | DE-ENERGIZED |
| B. | 11HD | DE-ENERGIZED |
| | 12HE | ENERGIZED |
| | 13AD | ENERGIZED |
| | 14AE | DE-ENERGIZED |
| | 18AG | ENERGIZED |
| | 28AG | ENERGIZED |
| C. | 11HD | ENERGIZED |
| | 12HE | DE-ENERGIZED |
| | 13AD | DE-ENERGIZED |
| | 14AE | ENERGIZED |
| | 18AG | DE-ENERGIZED |
| | 28AG | DE-ENERGIZED |
| D. | 11HD | DE-ENERGIZED |
| | 12HE | ENERGIZED |
| | 13AD | ENERGIZED |
| | 14AE | DE-ENERGIZED |
| | 18AG | DE-ENERGIZED |
| | 28AG | ENERGIZED |

**QUESTION 16** **NRC RECORD # WRI 507**
**ANSWER: B** **SYSTEM # R21** **K/A 295003** **A1.01: 3.7/3.8**
**LP# GG-1-LP-OP-R2700.03**
**OBJ. 8 &15 A.** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE:** **04-1-01-R21-11 sect 3.2** ***NEW***
**04-1-01-R21-12 sect 3.2** MODIFIED BANK
**DIFF 1; M** **04-1-01-R21-13 sect 3.2**
**04-1-01-R21-14 sect 3.2** RO SRO ***BOTH*** **CFR 41.7**
**04-1-01-R21-18 sect 3.2**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 17**

Which of the following is the correct sequence for restoring a battery charger to service?

A. Close charger output breaker, close charger AC feeder breaker, close DC switch, close AC switch.

B. Close charger output breaker, close charger AC feeder breaker, close AC switch, close DC switch.

C. Close charger AC feeder breaker, close charger output breaker, close AC switch, close DC switch.

D. Close charger AC feeder breaker, close AC switch, close charger output breaker, close DC switch.

**QUESTION 17** **NRC RECORD # WRI 508**
**ANSWER: A.** **SYSTEM # L11** **K/A 295004** **Generic 2.1.32: 3.4/3.8**
**LP# GG-1-LP-OP-L1100**
**OBJ. 11 a** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-01-L11-1** ***NEW***
**sect 3.6 & 4.6.2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 18**

The plant was operating at 80 % power.

Reactor Narrow Range Water Level transmitter C34-N004B has failed downscale and brought in annunciator “RX WTR LVL SIG FAIL HI/LO”.

The Operator at the Controls notices the Reactor Narrow Range Level indicator C34-LI-R606A indicates offscale HIGH and annunciator “RFPT/MN TURB LVL 8 TRIP” is in.

Reactor Narrow Range Water Level indicator R606C is reading + 36 inches.

Reactor Upset Range Water Level indicator is reading + 38 inches.

Reactor Wide Range Water Level indicator on P680 is reading + 40 inches.

Reactor Wide Range Water Level indicators A & B on P601 are reading + 40 inches.

Which one of the following describes the actions to be taken?
(NO OTHER ALARMS ARE PRESENT.)

A. Immediately initiate a Reactor Scram and trip the Main Turbine and the Reactor Feed Pump Turbines because they failed to trip.

B. Manually select Reactor Water Level Control to Single Element control and verify Reactor level returns to normal.

C. Select the Master Level Controller to MANUAL to lock the level signals at the present setting to prevent any level perturbations and establish stable level control.

D. Monitor Reactor Water Level on P680 and compare with other indications on P601 and the PDS computer and contact I&C.

| | | | |
|---|---|---|---|
| **QUESTION 18** | | **NRC RECORD # WRI 275** | |
| **ANSWER: D.** | **SYSTEM # C34; N21; N30** | **K/A 295008** | **AK1.01: 3.0/3.2** |
| | | **245000** | **A3.01: 3.6/3.6** |
| **LP# GG-1-LP-RO-C3401** | | **259001** | **K6.07: 3.8/3.8** |
| **OBJ. 1.4, 1.5, 1.7** | **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2** | | |
| **REFERENCE: 04-1-02-H13-P680 4A2-A2 & D1** | | NEW | |
| | | MODIFIED | ***BANK*** |
| **DIFF 3; CA** | | | **NRC 4/00** |
| | | RO SRO ***BOTH*** | **CFR 41.4/41.5** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 19**

Which of the following is the bases for securing Containment Spray prior to going below "0" psig in Containment?

A. Containment pressure instruments are unable to monitor below 0 psig.

B. Containment vent valves sized to reject decay heat from the Containment are unable to be opened and closed below 0 psig.

C. Safety Relief Valves (SRVs) are unable to be opened and/or remain open below 0 psig.

D. Containment pressure could exceed the negative pressure design of the Containment structure.

**QUESTION 19** **NRC RECORD # WRI 509**
**ANSWER: D.** **SYSTEM # M41-1** **K/A 295011** **K1.01: 4.0/4.1**
**LP# GG-1-LP-RO-EP03**
**OBJ. 6** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: GGNS PSTG** ***NEW***
**second PC override** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 20**

The Control Room has been abandoned and control has been established at the Remote Shutdown Panels.

| | |
|---|---|
| Reactor pressure | 400 psig |
| Indicated Reactor level at the Remote Shutdown Panel | 66 inches |

With present plant conditions, which one of the following describes Narrow Range Level, Actual Level and the availability of RCIC for level control?

**05-1-02-II-1 Attachments I and II are provided.**

| | NARROW RANGE LEVEL | ACTUAL LEVEL | RCIC |
|---|---|---|---|
| A. | 55 inches | 48 inches | Not available |
| B. | 51 inches | 53 inches | Available |
| C. | 48 inches | 43 inches | Available |
| D. | 60 inches | 60 inches | Not available |

**QUESTION 20** **NRC RECORD # WRI 524**
**ANSWER: C.** **SYSTEM # C61; B21** **K/A 295016** **AA2.02: 4.2/4.3**
**2.1.25: 2.8/3.1**
**LP# GG-1-LP-OP-C6100** **2.4.11: 3.4/3.6**
**OBJ 19** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-I-1 Att I & II** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-II-1 Att. I & II**

**QUESTION 21**

The Radwaste contractor was attempting to load a High Intensity Cask (HIC) with spent Reactor Water Cleanup Resin when an equipment malfunction caused the filling equipment to spray approximately 2 cubic yards of dry spent resin out the railroad door of the Radwaste Building.

The wind has dispersed the resin and its contaminants into the air.

The Shift Manager has declared a General Emergency due to EAL 5.4.1b.

Field monitoring teams and Chemistry have reported a 5450 mRem Thyroid CDE dose commitment at the Claiborne County Emergency Operations Center.

Which one of the following is the Protective Action Recommendation to be issued to the state?

**10-S-01-1 Activation of the Emergency Plan and the 5-Mile Emergency Planning Zone Map are provided.**

A. Evacuate 2 mile radius of the plant, and evacuate the 5 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

B. Evacuate 2 mile radius of the plant, and evacuate the 10 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

C. Evacuate 2 mile radius and the 5 mile radius of the plant and evacuate the 10 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

D. Evacuate 2 mile radius, 5 mile radius, and 10 mile radius of the plant and shelter the 50 mile down wind sectors of the Emergency Planning Zone.

| | | | |
|---|---|---|---|
| **QUESTION 21** | | **NRC RECORD # WRI 112** | |
| **ANSWER: B.** | **SYSTEM # EPP PARs** | **K/A 295017** | **AK2.06: 4.6** |
| **LP# GG-1-LP-EP-EPTS6** | | | |
| **OBJ 2** | **SRO TIER 1 GROUP 1 /** | **RO TIER 1 GROUP 2** | |
| **REFERENCE:** | **10-S-01-1 sect. 6.1.4** | NEW | |
| | **EAL 5.4.1b** | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | **5 mile EPZ Map** | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.10/41.12/43.4** |
| **REFERENCE MATERIAL REQUIRED:** | **10-S-01-1 & 5 Mile EPZ Map** | | **43.5** |

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**QUESTION 22**

Which one of the following identifies the system loads allowed to be supplied by Component Cooling Water (CCW) during a **partial** loss of CCW?

**(05-1-02-V-1, Loss of Component Cooling Water is attached.)**

A. Fuel Pool Heat Exchangers, Control Rod Drive oil coolers

B. Reactor Water Clean-Up, Control Rod Drive oil coolers

C. Recirculation pump/motor, Control Rod Drive oil coolers

D. Recirculation pump/motor, Reactor Water Clean-Up

**QUESTION 22** **NRC RECORD # WRI 510**
**ANSWER: C.** **SYSTEM # P42; B33; C11-1A** **K/A 295018** **K2.01: 3.3/3.4**
**LP# GG-1-LP-OP-ONEP1**
**OBJ. 2** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE:** **GG-1-LP-OP-B3300.01/ 42** ***NEW***
**GG-1-LP-OP-G3336.00/ 14** MODIFIED BANK
**DIFF 1; M** **GG-1-LP-OP-G4146.02/ 15**
**05-1-02-V-1** RO SRO ***BOTH*** **CFR 41.7/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** **05-1-02-V-1 w/o immediate actions**

**QUESTION 23**

The plant is operating at 100 % power.

A rupture in the Instrument Air header supplying the Radwaste and Offgas Building has been isolated.

The remainder of the Instrument Air header is pressurized.

Which one of the following describes the implications of the loss of Instrument Air to the Offgas and Radwaste Buildings?

A. Offgas system valves will fail closed and isolate the Offgas System.

B. Offgas system purge is lost resulting in a possible explosion and gaseous radiation hazards in the Offgas System.

C. Offgas system valves lose stem seal air resulting in possible high airborne radiation levels in the Offgas Building.

D. Offgas Preheaters will lose the purge air required to establish the proper temperatures entering the Offgas Catalytic Recombiners.

| | | | |
|---|---|---|---|
| **QUESTION 23** | | **NRC RECORD # WRI 315** | |
| **ANSWER: C.** | **SYSTEM # P53; N64** | **K/A 295019** | **AK2.06: 2.8/2.9** |
| **LP# GG-1-LP-OP-N6465** | | **271000** | **K6.01: 2.7/2.8** |
| **OBJ. 13b** | **SRO TIER 1 GROUP 2 /** | **RO TIER 1 GROUP 2** | |
| **REFERENCE: 05-1-02-V-9** | | NEW | |
| **Section 3.12 & 5.8** | | MODIFIED | ***BANK*** |
| **DIFF 1; M** | | | **NRC 12/00** |
| | | RO SRO ***BOTH*** | **CFR 41.4/41.12/41.13/** |
| **REFERENCE MATERIAL REQUIRED:** | None | | **43.4/43.5** |

**QUESTION 24**

The plant is operating at 30 % power.

The following Main Steam Isolation Valves have closed:

B21-F022B
B21-F022D
B21-F028B

Which one of the following describes the status of the Reactor Protection System?

A. No RPS actuation.

B. Half Scram on Division I.

C. Half Scram on Division II.

D. Full Reactor Scram.

**QUESTION 24** **NRC RECORD # WRI 316**
**ANSWER: A.** **SYSTEM # B21; C71** **K/A 295020** **AK3.01: 3.8/3.8**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6c, d, 9** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: E-1173-15, 16, 17, 18, 19** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.9**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 25**

The plant is in a startup following a 32 day outage.

MSIVs are closed.

Recirc loop temperatures are at 180 ?F.

Control rods are being withdrawn to achieve criticality. (Minimal decay heat)

Feedwater is operating in long cycle cleanup.

The operating CRD Pump tripped.

What will be the response of the plant?
(ASSUME NO FURTHER OPERATOR ACTIONS)

A. The reactor water level will remain stable at its present level.

B. The reactor water level will rise to the point that a reactor scram is received on High water level.

C. The reactor water level will drop to the point that a reactor scram is received on Low water level.

D. The plant will scram due to a loss of charging water pressure to the Hydraulic Control Units.

| | | | | |
|---|---|---|---|---|
| **QUESTION 25** | | **NRC RECORD # WRI 55** | | |
| **ANSWER: C.** | **SYSTEM # C11-1A; G33/36; IOI- 1** | **K/A 295022** | **AK2.04: 2.5/2.7** | |
| | | | **AK2.05: 2.4/2.5** | |
| **LP# GG-1-LP-OP-G3336** | | | **AA1.04: 2.5/2.6** | |
| **OBJ 3c, 8f, 21** | | | | |
| **LP# GG-1-LP-OP-C111A** | | | | |
| **OBJ 23** | **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2** | | | |
| **REFERENCE:** | **03-1-01-1** | NEW | | |
| | **sect. 2.2.5; 3.3.1d; 3.3.3a** | MODIFIED | | ***BANK*** |
| **DIFF 2; CA** | | | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | | **CFR 41.5** |
| **REFERENCE MATERIAL REQUIRED:** | None | | | |

**QUESTION 26**

Suppression Pool temperature has gone up due to the performance of a Reactor Core Isolation Cooling (RCIC) quarterly surveillance.

Residual Heat Removal (RHR) ‘B’ has been place in Suppression Pool Cooling Mode of operation.

Which of the following describes the operability of the RHR ‘B’ system under these conditions?

A. RHR ‘B’ Containment Spray Mode is INOP at this time

B. RHR ‘B’ Low Pressure Core Injection (LPCI) Mode is INOP at this time

C. RHR ‘B’ Shutdown Cooling Mode is INOP at this time

D. All Modes of RHR ‘B’ are operable at this time

**QUESTION 26** **NRC RECORD # WRI 511**
**ANSWER: B.** **SYSTEM # E12** **K/A 295026** **Generic 2.1.33: 3.4/4.0**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14 A** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-01-E12-1** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 43.2/43.3**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 27**

The plant was operating at 100 % Power.

A steam leak has developed in the Containment steam tunnel.

Containment temperature has gone up to 85°F and still rising.

A power reduction has commenced but Containment temperature continues to rise.

Tech. Specs states if Containment temperature exceeds 95°F to restore to < 95°F within 8 hours.

If Containment temperature is unable to be restored to < 95°F within 8 hours; then be in MODE 3 in 12 hours and be in MODE 4 in 36 hours.

Which of the following is the basis for this action?
**Tech Spec 3.6.1.5 is provided.**

A. Shut down of the Reactor is done to prevent having to initiate Containment Spray to maintain Containment temperature below 185°F.

B. Shut down of the Reactor is done to place the plant in a MODE that the LCO does not apply.

C. Shut down of the Reactor is done to prevent having to Emergency Depressurize to maintain Containment temperature below 185°F.

D. Shut down of the Reactor is done to prevent damaging operating equipment inside Containment due to high temperature.

**QUESTION 27** **NRC RECORD # WRI 512**
**ANSWER: B.** **SYSTEM # M41-1** **K/A 295027** **K3.03: 3.7/3.7**
**LP# GG-1-LP-OP-M4101**
**OBJ. 12** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE:** **TECH. SPEC. 3.6.1.5** ***NEW***
**TECH. SPEC. BASES 3.6.1.5** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.2**
**REFERENCE MATERIAL REQUIRED:** **Tech Spec 3.6.1.5**

## QUESTION 28

The following conditions are observed after a Loss of Coolant Accident:

| | |
|---|---|
| Reactor Pressure | 50 psig |
| 166’ elev. temperature in the Drywell | 205?F |
| Drywell Pressure | 5.8 psig |
| 139’ elev. temperature in the Containment | 150 ?F |
| 119’ elev. temperature in the Containment | 130 ?F |
| Containment Pressure | 2.0 psig |
| Shutdown Range Level Indication | + 20 inches |
| Upset Range Level Indication | + 50 inches |
| Wide Range Level Indication | - 40 inches |

Operators were unable to verify any trends of level instruments.

Which one of the following indicates the most accurate level indication?

A. Upset Range

B. Wide Range

C. Level cannot be determined.

D. All level instruments may be considered accurate.

| | | | | |
|---|---|---|---|---|
| **QUESTION 28** | | **NRC RECORD # WRI 520** | | |
| **ANSWER: B.** | **SYSTEM # B21** | **K/A 295028** | **EK2.03: 3.6/3.8** | |
| | | | **EK1.01: 3.5/3.7** | |
| **LP# GG-1-LP-RO-EP02A** | | **K/A 295027** | **EK1.02: 3.0/3.2** | |
| **OBJ. 9** | **SRO TIER 1 GROUP 2 /** | **RO TIER 1** | **GROUP 2** | |
| **REFERENCE: 05-S-01-EP-2 Caution 1** | | NEW | | |
| | | ***MODIFIED*** | | BANK |
| **DIFF 2; CA** | | **NRC 3/98 WRI001** | | |
| | | RO SRO ***BOTH*** | | **CFR 41.3/43.5** |

**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2 CAUTION 1**

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**QUESTION 30**

Given the following conditions:

| | |
|---|---|
| Reactor power | 20% and stable |
| Reactor level | -120 inches and stable on Startup Level Control |
| Reactor pressure | 900 psig and stable on SRVs |
| Suppression pool temperature | 1500F and rising |
| Suppression pool level | 15.7 feet and slowly rising |
| 4 SRVs are open. | |

Which one of the following best describes the correct actions to be taken given the above conditions?

A. Maintain conditions allowing time for attachments for power reduction.

B. Reduce use of SRVs and raise pressure band allowing pressure to rise to 1050 psig.

C. Terminate and prevent injection from ECCS and Feedwater to lower reactor level to between TAF and –192 inches.

D. Terminate and prevent injection from ECCS and Feedwater and Emergency Depressurize waiting for MARFP conditions.

**QUESTION 30** **NRC RECORD # WRI 526**
**ANSWER: D.** **SYSTEM # Prim CTMT EOP** **K/A 295030** **EK1.03: 3.8/4.1**
**LP# GG-1-LP-RO-EP03**
**OBJ 3** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 05-S-01-EP-2A** NEW
**Steps 33, 51, 53, 54, 55, 58** ***MODIFIED*** BANK
**DIFF 2;CA** **Figure 1** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2/2A & 3**

**QUESTION 31**

The plant is in a Refueling Outage.

PSW RAD HI/INOP alarm was received.

PSW Rad monitor reading is 53,000 cpm.

No other alarms are present

Which of the following is the probable source of radioactive release and correct actions to be taken?

A. CCW Heat Exchangers, Swap CCW Heat Exchangers to SSW

B. CCW Heat Exchangers, Secure CCW system and isolate CCW Heat Exchangers

C. ADHR Heat Exchangers, Swap ADHR Heat Exchangers to SSW

D. ADHR Heat Exchangers, Secure ADHR system and isolate ADHR Heat Exchangers

**QUESTION 31** **NRC RECORD # WRI 514**
**ANSWER: D.** **SYSTEM # D17** **K/A 295038 A2.04: 4.1/4.5**
**LP# GG-1-LP-OP-D1721**
**OBJ. 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-02-1H13-P601-18A-F1** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.10/41.11/**
**REFERENCE MATERIAL REQUIRED:** NONE **41.12/41.13/43.4/43.5**

**QUESTION 32**

A fire has engulfed the H13-P601 panel.

The fire has forced the evacuation of the Main Control Room.

The Reactor is shutdown and control has been established at the Remote Shutdown Panel.

The appropriate attachments for a fire have been completed.

Which one of the following describes a service that may be affected by the fire in the Control Room?

A. Cooling of the Suppression Pool with Residual Heat Removal

B. Cooling of Safe Shutdown components with Standby Service Water

C. Shutdown cooling operation of Residual Heat Removal

D. Opening of up to six Safety Relief Valves for depressurizing the reactor

**QUESTION 32** **NRC RECORD # WRI 178**
**ANSWER: C.** **SYSTEM # C61; B21; E12; P41; E21** **K/A 600000 AA2.17: 3.6**
**LP# GG-1-LP-OP-C6100**
**OBJ. 4b, 6, 9, 11** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-II-1 Att III & IV** NEW
**E-1160-10 (E12-F009)** MODIFIED ***BANK***
**DIFF 2; CA** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-II-1 Att. III & IV**

**QUESTION 33**

Which of the following is the reason for raising Reactor Water Level to +82 inches with no Recirculation pumps in operation per the Inadequate Decay Heat Removal ONEP?

A. +82 inches is the height required to establish flow through Safety Relief Valves (SRVs) to the Suppression Pool.

B. +82 inches is the height required to establish alternate cooling using Fuel Pool Cooling and Clean-up system (FPCCU).

C. +82 inches is the height required to allow natural circulation through the core and feedwater annulus.

D. +82 inches is the level required for the Time to Boil Curve from the Main Steam Line to be valid.

**QUESTION 33** **NRC RECORD # WRI 515**
**ANSWER: C.** **SYSTEM # B21; B33** **K/A 295021** **K3.01: 3.3/3.4**
**LP# GG-1-LP-OP-ONEP1**
**OBJ. 17** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 05-1-02-III-1sect 3.1.2a** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.5/41.10**
**REFERENCE MATERIAL REQUIRED:** NONE **41.14/43.5**

**QUESTION 34**

The plant is operating at rated conditions.

The following indications of Secondary Containment temperatures were just obtained by the Roving Nuclear Operator ‘A’:

| | | | |
|---|---|---|---|
| RHR A Pump Room | 170 °F | RWCU Pump Room A | 150 °F |
| RHR A HX Room | 130 °F | RWCU Pump Room B | 140 °F |
| RHR B Pump Room | 150 °F | RCIC Pump Room | 130 °F |
| RHR B HX Room | 100 °F | Main Steam Tunnel | 150 °F |

Which one of the following describes the systems that will receive an isolation signal?

A. RHR A ONLY.

B. RHR A & RCIC.

C. RHR A & B.

D. RHR A & B & RCIC.

**QUESTION 34** **NRC RECORD # WRI 229**
**ANSWER: B.** **SYSTEM # E31; E12; E51** **K/A 295032** **EA1.05: 3.7/3.9**
**LP# GG-1-LP-OP-E5100**
**OBJ. 8g**
**LP# GG-1-LP-OP-M7101**
**OBJ. 8b, c** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE:** **04-1-02-H13-P601 20A-B1** NEW
**05-1-02-III-5** MODIFIED ***BANK***
**DIFF 1; M** **Isolation Checklist** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.4/41.9/**
**REFERENCE MATERIAL REQUIRED:** None **41.10/43.5**

## QUESTION 35

The plant is operating at 100% power.

Fuel Handling Area Exhaust Fan A is tagged out of service for motor replacement.

Fuel Pool Sweep System is out of service for exhaust duct work replacement.

Fuel Handling Area Exhaust Fan B trips and cannot be reset.

Auxiliary Building differential pressure is +0.3 inches wc.

Which one of the following best describes the correct actions to be taken given the above conditions?

A. Immediately shutdown and depressurize the reactor to prevent the possible release of radioactive materials to the environment.

B. Open Secondary Containment doors between the Auxiliary Building and the Turbine Building and operate both Turbine Building Exhaust Filter Trains.

C. Close Fuel Handling Area Outside Air Intake valves and secure Auxiliary Building General Area Fan Coil Units.

D. Manually initiate a train of Standby Gas Treatment and monitor Auxiliary Building pressure.

**QUESTION 35** **NRC RECORD # WRI 516**
**ANSWER: D.** **SYSTEM # Secondary CTMT** **K/A 295035** **EK1.01: 3.9/4.2**
**2.4.50: 3.3/3.3**
**LP# GG-1-LP-OP-T4200**
**OBJ 2, 22**
**LP# GG-1-LP-OP-T4800**
**OBJ 2, 18** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 04-1-02-1H13-P842** ***NEW***
**1A-E3 & 1A-E4** MODIFIED BANK
**DIFF 2; CA** **04-1-01-T42-1 sect 3.1**
**UFSAR 9.4.2; 9.4.2.1.1.d; 6.5.3.2** RO SRO ***BOTH*** **CFR 41.7/41.8/41.10/ 43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 36**

The 'B' sump pump breaker on the RHR 'C' room floor drain sump was Red Tagged for electrical maintenance to perform preventive maintenance (PMs) on the motor.

The handswitch line-up for the RHR 'C' room floor drain sump is as follows:

| | |
|---|---|
| RHR Room C Floor Drain Sump Pump "A" HS M020C | AUTO |
| RHR Room C Floor Drain Sump Pump "B" HS M021C | STOP |
| RHR Room C Floor Drain Sump Pumps A/B Mode Switch HS M019C | ALTERNATE |

Which of the following would be the response of the RHR 'C' floor drain sump to a HI level under the present conditions?

A. The 'A' sump pump would auto start on every HI level condition.

B. The 'A' sump pump would auto start on the next HI level condition but would NOT start on any subsequent HI level conditions.

C. The 'A' sump pump would auto start on a HI HI level condition.

D. The 'A' sump pump will NOT auto start on any HI level conditions.

**QUESTION 36** **NRC RECORD # WRI 517**
**ANSWER: D.** **SYSTEM # P45** **K/A 295036 K2.01: 3.1/3.2**
**LP# GG-1-LP-OP-P4500**
**OBJ. 11** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 04-1-01-P45-2 sect 3.5** ***NEW***
**04-1-02-1H13-P680-8A1-C2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 37**

The reactor is shutdown and the plant is in a forced cooldown to achieve cold shutdown conditions.

Which one of the following best describes the method used to control CRD Flow and Drive pressure during the depressurization process?

A. The Pressure Control Valve automatically throttles to maintain 250 psid Drive DP and the Flow Control Valve automatically throttles in response to a CRD flow setpoint of ≈ 60 GPM.

B. The Pressure Control Valve automatically throttles to maintain 250 psid Drive DP and the Flow Control Valve is manually throttled to maintain a CRD flow of ≈ 60 GPM.

C. The Pressure Control Valve is manually throttled to maintain 250 psid Drive DP and the Flow Control Valve automatically throttles in response to a CRD flow setpoint of ≈ 60 GPM.

D. The Pressure Control Valve is manually throttled to maintain 250 psid Drive DP and the Flow Control Valve is manually throttled to maintain a CRD flow of ≈ 60 GPM.

| | | | |
|---|---|---|---|
| **QUESTION 37** | | **NRC RECORD # WRI 059** | |
| **ANSWER: C.** | **SYSTEM # C11-1A** | **K/A 201001** | **K4.08: 3.1/3.0** |
| **LP# GG-1-LP-OP-C111A** | | | |
| **OBJ 8a & b, 9** | **SRO TIER 2 GROUP 2 /** | **RO TIER 2 GROUP 1** | |
| **REFERENCE:** | **M – 1081-B** | NEW | |
| | **E-1166- 003; 017** | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.6** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 38**

A plant start-up is in progress.

Reactor Power is 40%.

Control Rod 32-09 is at position 12.

All RC&IS functions are normal.

Control Rod 32-09 is selected and is allowed to be withdrawn to position 24 per the pull sheet.

Which of the following is correct concerning any limitations that may be imposed by Rod Control and Information System (RC&IS)?

A. A Rod Block will occur at position 16 due to Rod Withdraw Limiter (RWL).

B. A Rod Block will occur at position 16 due to Banked Position Withdrawal Sequence (BPWS).

C. A Rod Block will occur at position 20 due to Rod Withdraw Limiter (RWL).

D. A Rod Block will occur at position 20 due to Banked Position Withdrawal Sequence (BPWS).

| | | | |
|---|---|---|---|
| **QUESTION 38** | | **NRC RECORD # WRI 518** | |
| **ANSWER: C.** | **SYSTEM # C11-2** | **K/A 201005** | **K5.10: 3.2/3.3** |
| **LP# GG-1-LP-OP-C1102** | | | |
| **OBJ. 6, 12, 13c** | **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1** | | |
| **REFERENCE:** | **04-1-01-C11-2** | ***NEW*** | |
| | **sect 4.3.2.g Note** | MODIFIED | BANK |
| **DIFF 2; CA** | **06-OP-1C11-V-003** | | |
| | **TECH SPEC TR 3.3.2.1-1** | RO SRO ***BOTH*** | **CFR 41.6/43.6** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**GRAND GULF NUCLEAR STATION**
**AUDIT EXAMINATION JUNE 2001**
**REACTOR OPERATOR**

**QUESTION 39**

A shutdown is in progress with reactor power approximately 42%.

Both reactor recirculation pumps are operating on fast speed with their respective FCV's at minimum position in preparation for downshifting.

During transfer to LFMG, the Recirculation pump A tripped. The Recirculation pump 'A' discharge valve has been closed.

Present indications are:

| | |
|---|---|
| 'A' Loop Total Jet Pump flow | 5 mlbm/hr |
| 'B' Loop Total Jet Pump flow | 26 mlbm/hr |
| Total core flow | 21 mlbm/hr |
| Reactor power | 29% |

Which one of the following correctly describes the method to determine total core flow?

A. Subtract Loop 'A' Total Jet Pump flow twice from Total core flow.

B. Total core flow indication is indicating actual Total core flow.

C. Add Loop 'B' Total Jet Pump flow to Loop 'A' Total Jet Pump flow.

D. Add Loop 'A' Total Jet Pump flow to Total core flow.

**QUESTION 39** **NRC RECORD # WRI A037**
**ANSWER: C.** **SYSTEM # B33** **K/A 202002** **A1.06: 3.4/3.3; A1.07: 3.1/3.1**
**A2.01: 3.4/3.4; A2.09: 3.1/3.3**
**A4.08: 3.3/3.3; A4.09: 3.2/3.3**
**LP# GG-1-LP-OP-B3300** **295001** **AK2.01: 3.6/3.7**
**OBJ. 3** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-B33-1 sect. 3.18** NEW
MODIFIED ***BANK***
**DIFF 2; CA** **Audit 12/00**
RO SRO ***BOTH*** **CFR 41.2/41.3/41.5**
**REFERENCE MATERIAL REQUIRED:** None **41.6/41.7**

**QUESTION 40**

The plant is starting up and is currently operating at 80% power.

All systems are operating properly.

There is a spurious High Pressure Core Spray (HPCS) initiation.

All other systems respond properly.

**NO operator action is taken.**

Which of the following identifies the effect on Reactor Water Level the spurious HPCS initiation will have?

A. Reactor Water Level will RISE, Feedwater Level Control will respond, and Reactor Water level will stabilize at a HIGHER than normal condition.

B. Reactor Water level will RISE, Feedwater Level Control will respond, and Reactor Water level will be returned to NORMAL level.

C. Reactor Water level will RISE, Feedwater Level Control will respond, and Reactor Water level will stabilize at a LOWER than normal condition.

D. Reactor Water level will not be affected due to Feedwater Level Control will respond and maintain Reactor Water level at NORMAL level.

**QUESTION 40** **NRC RECORD # WRI 519**
**ANSWER: A.** **SYSTEM # C34; E22** **K/A 209002** **K3.01: 3.9/3.9**
**LP# GG-1-LP-OP-MCD7b.00**
**OBJ. 2 A** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **UFSAR 15.5.1.2.1** ***NEW***
**UFSAR FIG. 15.5-1** MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** **NONE**

## QUESTION 41

Given a prolonged loss of Instrument Air to the Standby Liquid Control (SBLC) system, which of the following identifies the SBLC component(s) that would be affected?

A. SBLC storage tank air sparge capability

B. SBLC storage tank level indication

C. SBLC test tank level indication

D. SBLC storage tank level indication ***AND*** SBLC test tank level indication

**QUESTION 41** **NRC RECORD # WRI 521**
**ANSWER: B.** **SYSTEM # C41; P53** **K/A 211000** **K1.03: 2.5/2.6**
**LP# GG-1-LP-OP-C4100**
**OBJ. 14D** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **P&ID M-1067H (F-3)** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.6/41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 42**

The plant is operating at 100% power steady state conditions.

All systems are functioning properly.

No tests or surveillance's are in progress.

The following alarms and indications were just received on P680:

RX SCRAM TRIP annunciator sealed in.

HCU TROUBLE annunciator sealed in.

DIV 1 and 3 white scram solenoid indicating lights are ON.

DIV 2 and 4 white scram solenoid indicating lights are OFF.

HCU FAULT pushbutton on the operator's control module is BACKLIT.

HCUs 12-13, 12-53, 20-05, 20-61 have blinking red LEDs for accumulator faults.

Which of the following identifies the cause for the alarms and indications?

A. A half scram has occurred due to a loss of RPS A.

B. A half scram has occurred due to a loss of RPS B.

C. Control Rods 12-13, 12-53, 20-05, and 20-61 have scrammed in.

D. A fuse has blown in the power monitoring circuit for HCUs 12-13, 12-53, 20-05, and 20-61.

**QUESTION 42** **NRC RECORD # WRI 522**
**ANSWER: B.** **SYSTEM # C71; C11-2** **K/A 212000** **A3.04: 3.9/3.8**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6a** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **04-1-02-1H13-P680-7A-A2** ***NEW***
**04-1-02-1H13-P680-4A2-D4** MODIFIED BANK
**DIFF 3; CA** **05-1-02-III-2 sect 4.2, 4.3**
RO SRO ***BOTH*** **CFR 41.6/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 43**

The plant is in a reactor startup just after reaching critical.

The Operator-at-the-Controls is withdrawing SRMs.

The following conditions exist:

All IRMs are on Range 2.

| | |
|---|---|
| SRM A reads 2 x $10^{4}$ | SRM D reads 6 x $10^{3}$ |
| SRM B reads 8 x $10^{3}$ | SRM E reads 8 x $10^{4}$ |
| SRM C reads 2 x $10^{3}$ | SRM F reads 3 x $10^{5}$ |

Which one of the following best describes plant conditions?

A. Rod block only.

B. Half scram, rod block.

C. Full scram, rod block.

D. No trips or blocks are present.

**QUESTION 43** **NRC RECORD # WRI 071**
**ANSWER: A.** **SYSTEM # C11-2; C51; C71** **K/A 215004 A1.04: 3.5/3.5**
**A3.04: 3.6/3.6**
**LP# GG-1-LP-OP-C1102** **201005 K4.03: 3.5/3.5**
**OBJ 13**
**LP# GG-1-LP-OP-C51-1**
**OBJ 8b** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: Tech Specs TR3.3.2.1** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 44**

The plant is operating at 100% power steady state.

LPRM 34-51C for APRM C has failed downscale and its mode switch has been placed in BYPASS.

The following is the status of LPRMs for APRM C

| | | | | | |
|---|---|---|---|---|---|
| 10-43B | OPERATE | 34-51C | BYPASS | 58-43D | OPERATE |
| 10-27D | BYPASS | 34-35A | OPERATE | 58-27B | BYPASS |
| 10-11B | OPERATE | 34-19C | BYPASS | | |
| 18-51A | OPERATE | 42-59D | OPERATE | | |
| 18-35C | BYPASS | 42-43B | BYPASS | | |
| 18-19A | OPERATE | 42-27D | OPERATE | | |
| 26-59B | OPERATE | 42-11B | OPERATE | | |
| 26-43D | BYPASS | 50-51A | BYPASS | | |
| 26-27B | OPERATE | 50-35C | OPERATE | | |
| 26-11D | OPERATE | 50-19A | OPERATE | | |

Which of the following identifies the condition of APRM C per Technical Specifications?

A. APRM C is OPERABLE

B. APRM C is INOPERABLE

C. PBDS A is INOPERABLE

D. PBDS B is INOPERABLE

**QUESTION 44** **NRC RECORD # WRI 523**
**ANSWER: B.** **SYSTEM # C71; C51** **K/A 215005** **A4.04: 3.2/3.2**
**LP# GG-1-LP-OP-C5104**
**OBJ. 14** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **TECH SPEC B 3.3.1.1** ***NEW***
**04-1-01-C51-1** MODIFIED BANK
**DIFF 2; CA** **sect 5.2.2 Caution**
**17-S-02-40 ATT. V** RO SRO ***BOTH*** **CFR 41.7/43.2**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 45**

The plant was operating at full power when a failure of the Reactor Feedwater System caused a reactor scram due to lowering reactor water level.

During the transient, workers in Containment caused the reference leg of condensing pot D004A to rupture.

Which one of the following describes the response of the ECCS Systems as reactor water level drops?

| Answer: | Division I | Division II | Division III | RCIC |
|---|---|---|---|---|
| **A.** | Will initiate | Will initiate | Will initiate | Manual initiation |
| **B.** | Manual initiation | Will initiate | Will initiate | Will initiate |
| **C.** | Manual initiation | Manual initiation | Will initiate | Manual initiation |
| **D.** | Will initiate | Manual initiation | Manual initiation | Will initiate |

**QUESTION 45** **NRC RECORD # WRI 529**
**ANSWER: B.** **SYSTEM # E12; E21; E22; E51** **K/A 216000 K4.05: 3.9/4.1**
**LP# GG-1-LP-OP-B2101**
**OBJ. 8b**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9, 23**
**LP# GG-1-LP-OP-E2201**
**OBJ. 11, 23**
**LP# GG-1-LP-OP-E5100**
**OBJ. 10, 22**
**LP# GG-1-LP-OP-E2100**
**OBJ. 9, 19** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **E-1181-67, 68, 82; M-1077B** NEW
**E-1182-26, 29** ***MODIFIED*** BANK
**DIFF 2; CA** **E-1183-23, 27** **NRC 4/00 WRI 243**
**E-1185-34, 42, 44**
**04-1-01-B21-1 Att V Data Sh 3 B21-D004A** RO SRO ***BOTH*** **CFR 41.7/41.14**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 46**

Reactor Core Isolation Cooling (RCIC) is being operated for performance of its quarterly surveillance.

A ground develops on DC bus 1DA1 causing it to de-energize.

Which of the following RCIC components will be without power due to the loss of 1DA1?

A. E51-F046 RCIC WTR TO TURB LUBE OIL CLR ***AND*** E51-F064 RCIC STM SPLY DRWL OTBD ISOL VLV.

B. E51-F019 RCIC MIN FLO TO SUPP POOL ***AND*** E51-F063 RCIC STM SPLY DRWL INBD ISOL VLV

C. E51-F022 RCIC INBD TEST RTN TO CST ***AND*** E51-F076 RCIC STM LINE WARMUP VLV.

D. E51-F045 RCIC STM SPLY TO RCIC TURB ***AND*** E51-C002 RCIC TURB TRIP/THROT VLV.

**QUESTION 46** **NRC RECORD # WRI 525**
**ANSWER: D.** **SYSTEM # E51** **K/A 217000** **K2.04: 2.6/2.6**
**LP# GG-1-LP-OP-E5100**
**OBJ. 6A** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-E51-1 ATT. III** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.6/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 47**

A LOCA has occurred.

Plant conditions are as follows:

Reactor water level is -163 inches

Drywell pressure is 2 psig

All Low Pressure ECCS pumps are operating.

ADS A (B) MANUAL INHIBIT keylock switches are in NORMAL.

ADS has AUTO initiated and 8 ADS valves are open.

Which of the following would result in the 8 ADS valves going closed ***and*** remaining closed?

A. Placing the ADS A (B) MANUAL INHIBIT keylock switches to INHIBIT.

B. Depress the ADS RESET pushbuttons.

C. Reactor water level being restored to > +11.4 inches.

D. Trip all low-pressure ECCS pumps.

**QUESTION 47** **NRC RECORD # WRI 527**
**ANSWER: D.** **SYSTEM # E22-2** **K/A 218000** **A4.01: 4.4/4.4**
**LP# GG-1-LP-OP-E2202**
**OBJ. 12 B & C** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: E1161-005** ***NEW***
**E1161-011** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.5/41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 48**

The plant is operating at 100% power steady state.

All power from offsite is lost.

All systems respond and function properly.

All plant parameters remain in their normal band.

Division 1 and 2 Load Shedding and Sequencing (LSS) functions properly.

Which of the following components is without power at this time?

A. Drywell Chillers A.

B. Division 1 Drywell Cooler Fans.

C. Drywell Chillers B.

D. Division 2 Drywell Cooler Fans.

**QUESTION 48** **NRC RECORD # WRI 528**
**ANSWER: A.** **SYSTEM # M51** **K/A 223001** **K2.09: 2.7/2.9**
**LP# GG-1-LP-OP-M5100**
**OBJ. 7A&C** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **04-1-01-R21-1 Table 1** ***NEW***
**04-1-01-M51-1 Att III** MODIFIED BANK
**DIFF 2; CA** **04-1-01-P72-1 Att II**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 49**

The plant is operating at 100% power steady state.

All electrical busses are being supplied from their preferred power source.

I&C is performing a half scram surveillance on RPS "B" High Scram Discharge Volume.

RPS logic channel "B" is tripped at this time.

A fault occurs on ESF transformer 11 causing it to de-energize.

Which of the following identifies the status of RPS and the MSIVs at this time?

**(Consider only the immediate effects of the ESF transformer loss and given plant conditions)**

A. Full Reactor Scram and MSIVs closed

B. Full Reactor Scram and MSIVs open

C. Half Reactor Scram and MSIVs closed

D. Half Reactor Scram and MSIVs open

**QUESTION 49** **NRC RECORD # WRI 530**
**ANSWER: D.** **SYSTEM # B21; C71; E31** **K/A 223002 K6.01: 3.1/3.3**
**LP# GG-1-LP-RO-E3100**
**OBJ. 9j**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6a** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-R21-16 sect 3.3** ***NEW***
**04-1-01-R21-15 sect 3.3; Att I** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.7/41.9**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 50**

A LOCA has occurred.

The ADS A (B) MANUAL INHIBIT keylock switches to INHIBIT.

The ADS Inhibit white status lights are on.

Emergency Depressurization is required to allow low-pressure ECCS pumps to restore Reactor level.

An operator places the handswitches for the 8 ADS valves on 1H13-P601 to OPEN.

The following conditions exist:

| | |
|---|---|
| Reactor pressure | 0 psig |
| Reactor water level | -205 inches |
| Drywell pressure | 3.5 psig |
| All low-pressure ECCS pumps are operating | |

Which of the following identifies the correct RED light indication for the 8 ADS valves on the specified panel locations under current plant conditions?

| | **P601 Handswitch** | **P601 Vertical** | **P628** **Upper Control Room** | **P631** **Main Control Room** |
|---|---|---|---|---|
| **A.** | ON | OFF | ON | OFF |
| **B.** | OFF | ON | OFF | ON |
| **C.** | ON | ON | ON | ON |
| **D.** | OFF | OFF | ON | OFF |

**QUESTION 50** **NRC RECORD # WRI 531**
**ANSWER: D.** **SYSTEM # B21** **K/A 239002** **A4.07: 3.6/3.6**
**LP# GG-1-LP-OP-E2202.00**
**OBJ. 10 E & 18** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-B21-1sect 4.2.2f** ***NEW***
MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOT***H **CFR 41.3/41.7**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 51**

The plant is operating at rated conditions steady state.

The Initial Pressure Control (IPC) subsystem of the Main Turbine EHC Control System has failed in a manner that has opened the Bypass Valves to 30% when the valves should be closed.

If the operator activates the Bypass Valve Manual Jack and tries to close the bypass valves using the jack,

Which of the following describes the results of these actions?

A. The Bypass valves will remain open.

B. The Bypass valves will close to 25%, but no further.

C. The Bypass valves will close to 10%, but no further.

D. The Bypass valves will close and remain closed.

**QUESTION 51** **NRC RECORD # WRI 533**
**ANSWER: A.** **SYSTEM # N32-2** **K/A 241000** **A2.03: 4.1/4.2**
**LP# GG-1-LP-RO-N3202**
**OBJ. 3E&8B** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **T/G Instruction Manual** NEW
**Volume 1 460000665** MODIFIED ***BANK***
**DIFF 2; CA** **Volume 2 460000353** **LORT 6/00**
RO SRO ***BOTH*** **CFR 41.5/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 52**

Concerning P53-F026A and F026B (Instrument Air Supply Header to Aux. Building Isolation Valves), which of the following correctly identifies how these valves would respond to a Loss of Instrument Air?

A. FAIL OPEN.

B. FAIL CLOSED.

C. FAIL AS IS.

D. FAIL CLOSED, but could be reopened by taking DIV I and II AUX BLD ISO BYPASS switches to BYPASS.

**QUESTION 52** **NRC RECORD # WRI 534**
**ANSWER: B.** **SYSTEM # P53** **K/A 290001** **K1.09: 2.9/2.9**
**LP# GG-1-LP-OP-P5300**
**OBJ. 30** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: GGNS P&ID 1067M** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7/41.9**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 53

The plant was operating at 80% power when an Offsite Power fluctuation caused the reactor to scram.

The following subsequent events occurred at the times indicated:

| **Time** | **Event/Manipulation** |
|---|---|
| 09:05:56 | Reactor Scram; reactor water level immediately drops to +8 inches NR |
| 09:06:12 | Reactor water level bottom peaks at +2.5 inches NR |
| 09:06:20 | Reactor water level is +10.4 inches NR |

Which one of the following is the setpoint indicated on the Master Level Controller at **Time 09:06:20**?

A. + 12.4 inches

B. + 18.0 inches

C. + 36.0 inches

D. + 54.0 inches

**QUESTION 53** **NRC RECORD # WRI 274**
**ANSWER: B.** **SYSTEM # C34** **K/A 259002** **A3.06: 3.0/3.0**
**LP# GG-1-LP-RO-C3401**
**OBJ. 1.8** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 05-1-02-I-1sect 5.3** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 54**

Standby Gas Treatment Trains 'A' and 'B' have received an initiation signal on Reactor Water Level.

Which one of the following describes the response of the Process Radiation Monitoring (D17) System?

A. The SBGT Radiation Monitors are in standby until a High Radiation signal is received by SBGT logic.

B. The SBGT Radiation Monitors are in service continuously requiring NO further action.

C. The SBGT Radiation Monitor Sample Pumps will automatically start on SBGT initiation.

D. The SBGT Radiation Monitor Sample Pumps require an operator to be dispatched to start the pumps locally.

| | | | | |
|---|---|---|---|---|
| **QUESTION 54** | | **NRC RECORD # WRI 265** | | |
| **ANSWER: C.** | **SYSTEM # T48; D17** | **K/A 261000** | **K1.08: 2.8/3.1** | |
| | | | **K4.01: 3.7/3.8** | |
| **LP# GG-1-LP-OP-D1721** | | | | |
| **OBJ. 18** | **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1** | | | |
| **REFERENCE:** | **04-1-01-T48-1 sect 5.2.2d** | NEW | | |
| | **04-1-01-D17-1** | MODIFIED | | ***BANK*** |
| **DIFF 1, M** | **Sect 3.4, 4.5, Att V** | | | **NRC 4/00** |
| | | RO SRO ***BOTH*** | | **CFR 41.7/41.11** |
| **REFERENCE MATERIAL REQUIRED:** | None | | | |

**QUESTION 55**

The plant was operating at 100% power with all electrical busses powered from their preferred power source.

A lockout of ESF Transformer 21 occurred along with a small break LOCA.

Division 3 Diesel Generator is running and carrying Bus 17AC.

The High Pressure Core Spray (HPCS) system auto initiated and is operating properly.

Plant conditions are as follows:

| | |
|---|---|
| Reactor Level | +25 inches |
| Drywell Pressure | 3.2 psig |
| Drywell Temperature | 185°F |

Which of the following would be the correct response of the Division 3 Diesel Generator and output breaker if an operator depressed the HPCS INIT RESET pushbutton and then a "Generator Loss of Excitation" condition occurred on Division 3 Diesel Generator?

A. The output breaker would TRIP and the engine would TRIP.

B. The output breaker would remain CLOSED and the engine would remain RUNNING.

C. The output breaker would TRIP and the engine would remain RUNNING.

D. The output breaker would remain CLOSED and the engine would TRIP.

**QUESTION 55** **NRC RECORD # WRI 536**
**ANSWER: A.** **SYSTEM # P81** **K/A 264000** **A1.09: 3.0/3.1**
**LP# GG-1-LP-OP-P8100**
**OBJ. 13&14 (A,B,C)** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-P81-1 sect 3.26** ***NEW***
**E-1188-014, 015, 018** MODIFIED BANK
**DIFF 3; CA** **E-1183-023**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 56**

The plant was operating at 100% power.

An ATWS has occurred along with a steam leak inside the Drywell.

All systems responded properly (except CRD)

Actions are being taken per EP 2A.

All Low Pressure ECCS pumps and injection valves have been OVERRIDDEN OFF/CLOSED with OVERRIDE annunciators sealed in for RHR A, RHR B, RHR C and LPCS pumps and injection valves.

Plant conditions are as follows:

| | |
|---|---|
| Reactor level | -180 inches |
| Reactor pressure | 900 psig |
| Drywell pressure | 4 psig |
| Bypass valves available | |
| Feedwater available | |

If power were lost to the 16AB bus and the Division 2 diesel generator restored power to the 16AB bus, which of the following would be correct concerning the response of RHR C, under current plant conditions and NO operator actions?

A. RHR C pump would start and RHR C injection valve would open.

B. RHR C pump would start and RHR C injection valve would remain closed.

C. RHR C pump would remain off and RHRC injection valve would remain closed.

D. RHR C pump would remain off and RHR C injection valve would open.

**QUESTION 56** **NRC RECORD # WRI 537**
**ANSWER: B.** **SYSTEM # E12** **K/A 203000 K6.01: 3.6/3.7**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9G** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: GG-1-FIG-OP-E1200.02** ***NEW***
**04-1-01-E12-1 sect 3.3, 3.4** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 57**

The plant is in a refuel outage.

Bus 15AA is being tagged out for electrical maintenance.

Which of the following ECCS pumps will be affected by this tagout?

A. RHR B

B. RHR C

C. HPCS

D. LPCS

**QUESTION 57** **NRC RECORD # WRI 538**
**ANSWER: D.** **SYSTEM # E21** **K/A 209001 K2.01: 3.03.1**
**LP# GG-1-LP-OP-E2100**
**OBJ. 7B** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-E21-1 Att III** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 58**

The plant was operating at 80% power.

A small steam leak developed in the Drywell.

The Reactor has been scrammed and Standby Gas Treatment Systems (SBGTS) ‘A’ and ‘B’ have AUTO initiated.

All systems responded properly.

SBGT ‘A’ has been placed in STANDBY per the SOI.

Which of the following set of conditions would restart the SBGT ‘A’ system from STANDBY?

CONSIDER EACH ANSWER AS A SET OF PLANT CONDITIONS.

| | Enclosure Building Recirc Fan ‘B’ Flow | Exhaust Filter Train ‘B’ Flow | Enclosure Building Pressure |
|---|---|---|---|
| **A.** | 9,000 scfm | 2500 scfm | -0.55 inches wc |
| **B.** | 12,300 scfm | 1650 scfm | -0.65 inches wc |
| **C.** | 11, 250 scfm | 2200 scfm | -0.05 inches wc |
| **D.** | 10, 500 scfm | 1375 scfm | -0.35 inches wc |

**QUESTION 58** **NRC RECORD # WRI 539**
**ANSWER: C.** **SYSTEM # T48** **K/A 261000** **A2.01: 2.9/3.1**
**LP# GG-1-LP-OP-T4801**
**OBJ. 8G&H** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **04-1-01-T48-1 sect 5.2.2c3** ***NEW***
**04-1-02-1H13-P870-2A-D2** MODIFIED BANK
**DIFF 2; CA** **04-1-02-1H13-P870-2A-E3**
**04-1-02-1H13-P870-2A-F3** RO SRO ***BOTH*** **CFR 41.7/41.10**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 59**

Select the statement that describes the MOST probable cause of the following plant conditions:

Annunciator "**RECIRC PMP B SEAL STG FLO HI/LO**" alarms.

Annunciator "**RECIRC PMP B OUTR SEAL LEAK HI**" alarms.

Recirc pump 'B' # 1 seal cavity pressure: 1020 psig.

Recirc pump 'B' # 2 seal cavity pressure: 100 psig

A. Failure of the # 1 seal.

B. Failure of the # 2 seal.

C. Failure of the CRD seal purge regulator.

D. Plugging of the orifice between # 1 and # 2 seals.

**QUESTION 59** **NRC RECORD # WRI 540**
**ANSWER: B.** **SYSTEM # B33** **K/A 202001** **A2.10: 3.5/3.9**
**LP# GG-1-LP-OP-B3300**
**OBJ. 29D** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-02-1H13-P680-3A-A12** NEW
**04-1-02-1H13-P680-3A-B11** MODIFIED ***BANK***
**DIFF 2; CA** **LOT 7/95**
RO SRO ***BOTH*** **CFR 41.3/41.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 60**

An ATWS has occurred.

Standby Liquid Control Pump 'A' is tagged out.

The Control Room Operator starts Standby Liquid Control Pump 'B'.

Which one of the following describes the response of the Reactor Water Cleanup System?

A. RWCU will isolate the Filter Demineralizers and open G33-F044, RWCU F/D Byp to continue circulation of reactor water for level control and sampling purposes.

B. RWCU will isolate G33-F004, RWCU Pmp Suct Isol causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

C. RWCU will isolate G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

D. RWCU will isolate G33-F004 and G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

**QUESTION 60** **NRC RECORD # WRI 251**
**ANSWER: C.** **SYSTEM # G33; C41** **K/A 204000** **K6.07: 3.3/3.5**
**LP# GG-1-LP-OP-G3336**
**OBJ. 8f, 9a** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04--1-01-C41-1** NEW
**Sect 5.3.2b4** MODIFIED ***BANK***
**DIFF 1; M** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 61**

The plant is in a refuel outage.

Reactor Water Clean-Up (RWCU) is operating.

Residual Heat Removal (RHR) B is in Shutdown Cooling.

E12-F048B RHR B Heat Exchanger Bypass valve is FULL OPEN.

E12-F003B RHR B Heat Exchanger Outlet valve is FULL CLOSED.

Which of the following would be a valid indication of Reactor Coolant Temperature under present plant conditions?
**P & IDs M-1079 and M-1085A are provided.**

A. RHR B heat exchanger B001B inlet temperature E12 TE-N004B

B. RHR B heat exchanger B002B inlet temperature E12 TE-N002B.

C. RHR B heat exchanger discharge temperature E12 TE-N027B.

D. RWCU Non-Regen heat exchanger inlet temperature G33 TE-N006.

**QUESTION 61** **NRC RECORD # WRI 541**
**ANSWER: C.** **SYSTEM # E12** **K/A 205000** **K1.03: 3.4/3.5**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-E12-1** ***NEW***
**sect 4.2.2.e.13 Caution** MODIFIED BANK
**DIFF 2; CA** **P&ID M1085A**
**M-1079** RO SRO ***BOTH*** **CFR 41.2/41.3/41.4**
**REFERENCE MATERIAL REQUIRED:** **M-1079 & M-1085A** **41.5**

**QUESTION 62**

The plant was operating at full power steady state.

A Loss of Coolant Accident (LOCA) has occurred.

High Pressure Core Spray (HPCS) and Reactor Core Isolation Cooling (RCIC) are operating and maintaining Reactor Water Level.

All low pressure ECCS AUTO initiated properly.

The injection valves for all low pressure ECCS systems have OVERRIDDEN closed.

Residual Heat Removal (RHR) 'B' has been placed in Suppression Pool Cooling and annunciator RHR TEST RTN VLV F024B MAN OVERRD was received.

Which of the following is correct concerning operation of E12-F024B, RHR 'B' Test Return to Suppression Pool?

A. E12-F024B would AUTO close on a Division 2 Containment Spray initiation.

B. E12-F024B would AUTO close, if RHR 'B' injection valve E12-F042B is opened.

C. E12-F024B would remain open, if power were lost to the 16AB bus and then restored.

D. E12-F024B with a Manual Override signal sealed in has all AUTO signals removed.

**QUESTION 62** **NRC RECORD # WRI 542**
**ANSWER: A.** **SYSTEM # E12** **K/A 219000** **A4.14: 3.7/3.5**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9G** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **GG-1-FIG-OP-E1200** ***NEW***
**04-1-01-E12-1 sect 3.3** MODIFIED BANK
**DIFF 2; CA** **04-1-02-1H13-P601-17A-B2**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 63**

The plant was operating at rated conditions steady state.

A steam line rupture occurs in the Drywell at 3:00 A.M.

All low pressure ECCS AUTO Initiate and respond properly.

The SRO directs MANUAL initiation of Containment spray due to Containment temperature exceeding 185°F at 3:05 A.M.

Plant conditions are as follows:

| | |
|---|---|
| Reactor level | -130 inches |
| Drywell pressure | 6.2 psig |

Containment Spray is initiated at 3:06 A.M.

Which of the following is correct concerning the E12-F048A RHR ‘A’ Heat Exchanger Bypass valve?

A. E12- F048A will remain open for 5 minutes then auto close.

B. E12-F048A will auto close for 5 minutes then auto open.

C. E12-F048A will cycle open and closed for 5 minutes then remain closed.

D. E12-F048A will cycle open and closed for 5 minutes then remain open.

**QUESTION 63** **NRC RECORD # WRI 543**
**ANSWER: C.** **SYSTEM # E12** **K/A 226001** **A2.03: 3.1/3.1**
**LP# GG-1-LP-OP-E1200**
**OBJ. 8G** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
**REFERENCE: GG-1-FIG-OP-E1200** ***NEW***
**E-1181-27,68,69** MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 64**

The following are the current conditions of the RHR A circuit breaker 152-1509:

Racked in open
Control fuses installed
Closing springs charged
Charging motor off

Considering only the current conditions, which one of the following describes the operational status of the circuit breaker?

A. The circuit breaker will electrically close and open locally as many times as required.

B. The circuit breaker will close locally one time only. Once closed the circuit breaker will NOT open.

C. The circuit breaker will close remotely one time only. Once closed the circuit breaker CANNOT be opened remotely.

D. The circuit breaker will close remotely one time only. Once closed the circuit breaker can be opened remotely.

**QUESTION 64** **NRC RECORD # WRI 335**
**ANSWER: D.** **SYSTEM # R21** **K/A 262001** **K4.03: 3.2/3.4**
**LP# GG-1-LP-OP-PROC** **2.1.30: 3.9/3.4**
**OBJ. 42o; 55b(2)**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14**
**LP# OP-NOB-EL-LP-011**
**OBJ. 3**
**LP# GG-1-LP-OP-ELBKR**
**OBJ. 11, 22** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-E12-1 sect 3.2.7** NEW
**04-S-04-2 sect 4.4** MODIFIED ***BANK***
**DIFF 2; CA** **02-S-01-2 Att III, III A** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.4/41.7/41.10**
**REFERENCE MATERIAL REQUIRED:** None **43.5**

**QUESTION 65**

Static inverter 1Y95 has automatically transferred to its alternate power source because of a fault on its normal power source.

Two hours later, the electricians have repaired the fault and the normal power source for 1Y95 is re-energized.

Which one of the following statements describes the restoration of the inverter to its NORMAL source?

A. The inverter static switch can be manually transferred back to the normal power source, only if the power sources are IN SYNC.

B. The inverter static switch will automatically transfer back to the normal power source, only if the power sources are IN SYNC.

C. The inverter static switch will automatically transfer back to the normal power source, regardless of whether the power sources are IN SYNC.

D. The inverter static switch can be manually transferred back to the normal power source, regardless of whether the power sources are IN SYNC.

**QUESTION 65** **NRC RECORD # WRI 544**
**ANSWER: A.** **SYSTEM # L62** **K/A 262002 A3.01: 2.8/3.1**
**LP# GG-1-LP-OP-L6200**
**OBJ. 7b&8b** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-L62-1 sect 3.2 & 3.5** NEW
MODIFIED ***BANK***
**DIFF 1; M** **LP L62 SQ #3**
RO SRO ***BOTH*** **CFR 41.7/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 66**

The plant is operating at 85% power with the Offgas System in its normal SOI lineup.

The ADSORBER TRAIN BYPASS VALVE, N64-F045 is in TREAT.

The OFFGAS DISCHARGE VALVE, N64-F060 in AUTO.

In the Control Room, the Operator observes the closure of the following valves:

- N64-F060, OFFGAS DISCHARGE TO VENT
- N64-F054, PRE FILTER INLET DRAIN
- N64-F034A & B, COOLER CONDENSER DRAIN A & B
- N64-F441, HOLDUP LINE DRAIN

Which one of the following signals could cause all these valves to close almost simultaneously?

A. Main Steam Line radiation HI-HI (all channels)

B. Radwaste Ventilation Exhaust radiation HI-HI (all channels)

C. Offgas Post-Treatment radiation HI-HI-HI (all channels)

D. Offgas Pre-Treat radiation HI-HI (all channels)

**QUESTION 66** **NRC RECORD # WRI 545**
**ANSWER: C.** **SYSTEM # N64; D17** **K/A 271000** **A3.01: 3.3/3.3**
**LP# GG-1-LP-OP-N6465**
**OBJ. 10i&12** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 05-1-02-II-2 sect 5.2** NEW
MODIFIED ***BANK***
**DIFF 1; M** **LP-N64-SQ-#1**
RO SRO ***BOTH*** **CFR 41.7/41.13**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 67**

Drywell and Containment airborne activity has been going up over the past few days.

Annunciators "CTMT CLG EXH DIV 1, 4 RAD HI-HI" and "CTMT CLG EXH DIV 2, 3 RAD HI-HI" are received.

All other plant parameters are below their TRIP setpoints.

Which of the following identifies the correct valve configuration due to present plant conditions?

**(Assume all valves were open initially)**

A. M41-F034 CTMT CLG EXH TO CTMT VENT OPEN
M41 F035 CTMT CLG EXH TO CTMT VENT OPEN
M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL OPEN
M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL OPEN

B. M41-F034 CTMT CLG EXH TO CTMT VENT CLOSED
M41 F035 CTMT CLG EXH TO CTMT VENT CLOSED
M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL CLOSED
M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL CLOSED

C. M41-F034 CTMT CLG EXH TO CTMT VENT CLOSED
M41 F035 CTMT CLG EXH TO CTMT VENT CLOSED
M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL OPEN
M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL OPEN

D. M41-F034 CTMT CLG EXH TO CTMT VENT OPEN
M41 F035 CTMT CLG EXH TO CTMT VENT OPEN
M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL CLOSED
M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL CLOSED

**QUESTION 67** **NRC RECORD # WRI 546**
**ANSWER: C.** **SYSTEM # D17/D21** **K/A 272000** **K4.02: 3.7/4.1**
**LP# GG-1-LP-OP-D1721**
**OBJ. 8** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-02-1H13-P601-18A-D5** ***NEW***
**04-1-02-1H13-P601-18A-D6** MODIFIED BANK
**DIFF 1; M** **05-1-02-III-5 Group 7 &**
**Aux Bldg Vent** RO SRO ***BOTH*** **CFR 41.7/41.11/43.4**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 68

Concerning the Fire Protection CO2 storage tank;

Which of the following conditions would the CO2 storage tank be considered **OPERABLE** per Technical specifications?

A. CO2 storage tank level 55% **and** pressure 275 psig

B. CO2 storage tank level 70% **and** pressure 280 psig

C. CO2 storage tank level 70% **and** pressure 270 psig

D. CO2 storage tank level 65% **and** pressure 265 psig

**QUESTION 68** **NRC RECORD # WRI 547**
**ANSWER: B.** **SYSTEM # P64** **K/A 286000** **A1.06: 2.9/3.0**
**LP# GG-1-LP-OP-N4400**
**OBJ. 10, 15**
**LP# GG-1-LP-OP-P6400**
**OBJ. 10** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **TECH. SPECS. 6.2.4** ***NEW***
**04-1-01-N44-1 sect 3.8** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.8/43.2**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 69**

Concerning the operation of the Reactor Feed Pump (RFP) Turbines governor control in MANUAL and SPEED AUTO,

Which of the following correctly identifies the limitations imposed when in MANUAL **and** in SPEED AUTO if the raise pushbutton is depressed and held from 0 to 100%?

A. In MANUAL, the governor will stroke 0-100% in 15 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 10 rpm/sec for one second and 120 rpm/ second thereafter.

B. In MANUAL, the governor will stroke 0-100% in 10 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 15 rpm/sec for one second and 120 rpm/ second thereafter.

C. In MANUAL, the governor will stroke 0-100% in 15 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 10 rpm/sec for one second and 150 rpm/ second thereafter.

D. In MANUAL, the governor will stroke 0-100% in 10 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 15 rpm/sec for one second and 150 rpm/ second thereafter.

**QUESTION 69** **NRC RECORD # WRI 548**
**ANSWER: A.** **SYSTEM # N21** **K/A 259001** **K5.03: 2.8/2.8**
**LP# GG-1-LP-OP-N2100**
**OBJ. 19** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-N21-1 sect 3.14** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 70**

Which of the following sets of conditions correctly identifies those required for Control Room HVAC to isolate and Control Room Fresh Air Units to start?

A. Reactor water level –150.3 inches **and** Drywell pressure + 1.39 psig **and** Control Room Vent Rad monitor reading 3.6 mR/hr.

B. Reactor water level –150.3 inches **or** Drywell pressure + 1.39 psig **or** Control Room Vent Rad monitor reading 3.6 mR/hr.

C. Reactor water level –41.6 inches **and** Drywell pressure + 1.23 psig **and** Control Room Vent Rad monitor reading 5 mR/hr.

D. Reactor water level –41.6 inches **or** Drywell pressure + 1.23 psig **or** Control Room Vent Rad monitor reading 5 mR/hr.

**QUESTION 70** **NRC RECORD # WRI 549**
**ANSWER: D.** **SYSTEM # Z51** **K/A 290003 A3.01: 3.3/3.5**
**LP# GG-1-LP-OP-Z5100**
**OBJ. 11** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-S-01-Z51-1 sect 5.4.1** ***NEW***
**05-1-02-III-5 Aux Bldg Vent** MODIFIED BANK
**DIFF 1; M** **TECH. SPECS. 3.3.7.1**
RO SRO ***BOTH*** **CFR 41.7/41.11/43.4**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 71**

The plant is operating at 100% power steady state.

Which of the following heat loads of Component Cooling Water (CCW) would be of most concern, under present conditions, if a Loss of CCW were to occur?

A. Reactor Water Clean-up

B. Fuel Pool Cooling and Clean-up

C. Reactor Recirculation pumps

D. Control Rod Drive pumps

**QUESTION 71** **NRC RECORD # WRI 550**
**ANSWER: C.** **SYSTEM # P42** **K/A 400000** **K3.01: 2.9/3.3**
**LP# GG-1-LP-OP-P4200**
**OBJ. 11A&12A&B** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **04-1-01-P42-1 sect 3.7** ***NEW***
**05-1-02-V-1 Note &** MODIFIED BANK
**DIFF 1; M** **sect 2.1.2, 3.3**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** **NONE**

**QUESTION 72**

Which one of the following will cause a running Fuel Pool Cooling and Clean-up (FPCCU) pump to trip?

A. FPCCU pump discharge flow of 440 gpm for 32 seconds.

B. Fuel Pool drain tank level at 16%.

C. System differential flow of 92 gpm for 50 seconds.

D. Pump suction pressure at 8 psig for 5 seconds.

| | | | |
|---|---|---|---|
| **QUESTION 72** | | **NRC RECORD # WRI A024** | |
| **ANSWER: B.** | **SYSTEM # G41** | **K/A 233000** | **A3.02: 2.6/2.6** |
| **LP# GG-1-LP-OP-G4146** | | | |
| **OBJ. 7b** | **SRO TIER 2 GROUP 3 /** | **RO TIER 2 GROUP 3** | |
| **REFERENCE: 04-1-02-1H13-P680-4A2-C7** | | NEW | |
| | | MODIFIED | ***<u>BANK</u>*** |
| **DIFF 1; M** | | | **AUDIT 12/00** |
| | | RO SRO ***<u>BOTH</u>*** | **CFR 41.7** |
| **REFERENCE MATERIAL REQUIRED: NONE** | | | |

**QUESTION 73**

Which of the following methods is correct for verifying proper Fuel Bundle Orientation in a fuel cell?

A. The channel fastener of each assembly must be pointed toward the outside of the control cell.

B. All channel spacer buttons on each fuel assembly must face inwards in the cell.

C. The fuel orientation boss on the lifting bail must point toward the outside of the cell.

D. The serial number of the assemblies must be readable, right to left, from the outside of the cell looking inward.

**QUESTION 73** **NRC RECORD # WRI 551**
**ANSWER: B.** **SYSTEM # J11** **K/A 234000 K5.05: 3.0/3.7**
**LP# GG-1-LP-OP-B1300**
**OBJ. 5i** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 3**
**REFERENCE: 17-S-02-108sect 6.2.3** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.2/41.10/43.7**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 74**

The plant is operating at rated conditions steady state.

"RCIC PIPE/EQUIP AMBIENT TEMP HI" annunciator is received.

The Alarm Response Instruction (ARI) directs to check area temperature on recorder E31-R608.

The Control Room Supervisor has ordered the Riley Temperature indicators NOT be used.

Which of the following indicate the location of recorder E31-R608?

A. 1H13-P601 in main control room.

B. 1H13-P632 in upper control room.

C. 1H13-P642 in main control room back panel area.

D. 1H22-P150 in remote shutdown panel area.

**QUESTION 74** **NRC RECORD # WRI 552**
**ANSWER: B.** **SYSTEM # E31** **K/A 288000** **A4.02: 2.8/2.8**
**LP# GG-1-QC-RO-CRO01**
**OBJ. Qual Card Rounds**
**LP# GG-1-LP-RO-E3100**
**OBJ. 6c** **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
**REFERENCE: GG-1-LP-OP-E5100.02** ***NEW***
**04-1-02-1H13-P601-21A-H2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 75**

The plant is performing the Reactor Vessel In-Service Leak Test after 15 EFPY of operation at the end of RF11.
The following parameters existed during the test:

| Time | Rx Pressure | Rx Metal Temp |
|---|---|---|
| 1000 | 100 psig | 160 °F |
| 1030 | 200 psig | 158 °F |
| 1100 | 250 psig | 158 °F |
| 1130 | 500 psig | 157 °F |
| 1200 | 600 psig | 150 °F |
| 1230 | 800 psig | 140 °F |
| 1300 | 1025 psig | 140 °F |
| 1330 | 1025 psig | 138 °F |
| 1400 | 1025 psig | 135 °F |

Which one of the following statements is correct concerning the Reactor Coolant System? (Assume depressurization will straight drop within rate limits set in the IOI.)

**Tech Specs are provided.**

A. RPV pressure vs temperature limits are within specifications.

B. RPV pressure vs. temperature limits are satisfied, but the reactor requires heatup to complete the test.

C. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction within 30 minutes.

D. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction immediately.

**QUESTION 75** **NRC RECORD # WRI 532**
**ANSWER: A.** **SYSTEM # B13** **K/A 290002** **K5.05: 3.1/3.3**
**LP# GG-1-LP-OP-B1300** **2.1.25: 2.8/3.1**
**OBJ. 16**
**LP# GG-1-LP-OP-IOI03**
**OBJ. 2c, d** **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
**REFERENCE:** **Figure 3.4.11-1 curve A** NEW
**03-1-01-6 Caution** ***MODIFIED*** BANK
**DIFF 3, CA** **03-1-01-3 sect 2.5, 2.6, 2.7** **NRC 4/00 WRI 261**
RO SRO ***BOTH*** **CFR 41.3/41.14/ 43.2**
**REFERENCE MATERIAL REQUIRED:** **Tech Spec 3.4.11 & curves**

**QUESTION 76**

Which one of the following is the reason the LPCI Injection Valves, E12-F042A, B, and C, are designed to remain closed at normal reactor vessel pressure following a LOCA initiation signal?

A. This allows the pump time to pressurize the header, thus minimizing the differential pressure across the injection valve.

B. This ensures reactor pressure has dropped sufficiently to prevent the possibility of over pressurizing low pressure piping.

C. This allows the pump to develop enough discharge head to overcome reactor pressure for injection preventing back flow of hot reactor water into LPCI piping.

D. This ensures reactor pressure has equalized with LPCI pressure to prevent the injection check valves E12-F041A, B, C from slamming the injection piping causing damage.

**QUESTION 76 RO** **NRC RECORD # WRI 060**
**ANSWER: B.** **SYSTEM # E12** **K/A 203000** **K1.17: 4.0/4.0**
**K4.01: 4.2/4.2**
**K4.02: 3.3/3.4**
**A3.01: 3.8/3.7**
**A3.08: 4.1/4.1**
**LP# GG-1-LP-OP-E1200** **A4.08: 4.3/4.3**
**OBJ 8i, 14b** **SRO TIER GROUP / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-E12-1 sect. 3.4** NEW
**Tech Spec Bases B3.3.5.1** MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
***RO*** SRO BOTH **CFR 41.8**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 77**

A LOCA has occurred and plant conditions are as follows:

| | |
|---|---|
| Reactor pressure | 900 psig |
| Reactor water level | - 100 inches |
| Drywell pressure | 1.10 psig |
| LPCS Injection Line pressure | 450 psig |

Which of the following describes how the LPCS injection valve E21-F005 would respond if its handswitch is taken to the OPEN position?

A. The valve will NOT open.

B. The valve will open and remain open.

C. The valve will open and remain open for 15 minutes at which time it will stroke closed.

D. The valve will NOT open until reactor level or drywell pressure has reached the LPCS System initiation setpoint.

| | | | |
|---|---|---|---|
| **QUESTION 77 RO** | | **NRC RECORD # WRI 002** | |
| **ANSWER: B.** | **SYSTEM # E21** | **K/A 209001** | **K4.01: 3.2/3.4** |
| | | | **A3.01: 3.6/3.6** |
| **LP# GG-1-LP-OP-E2100** | | | **A4.03: 3.7/3.6** |
| **OBJ. 8c, 11** | **SRO TIER GROUP** | **/ RO TIER 2** | **GROUP 1** |
| **REFERENCE: 04-1-01-E21-1 sect. 3.11** | | NEW | |
| **sect. 3.12** | | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | | | **NRC 3/98** |
| | | ***RO*** SRO BOTH | **CFR 41.7/41.8** |
| **REFERENCE MATERIAL REQUIRED:** None | | | |

**QUESTION 78**

The plant is in mode 2 after a normal refueling outage.

The following parameters are indicated in the Main Control Room:

**IRMs (range/reading)**

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| R2/ 100 | R3/ 30 | R2/ 39 | R3/ 37 | R2/ 80 | R3/ 15 | R3/ 18 | R3/ 33 |

With present plant conditions, which one of the following is correct with regard to the status of the Reactor Protection System (RPS)?

A. No RPS actuation and no Control Rod Blocks

B. Control Rod Block only.

C. Half scram and Control Rod Block.

D. Full scram and Control Rod Block.

**QUESTION 78 RO** **NRC RECORD # WRI 581**
**ANSWER: B.** **SYSTEM # C51; C11-2; C71** **K/A 215003** **K6.01: 3.8**
**LP# GG-1-LP-OP-C5102**
**OBJ. 8a&c** **SRO TIER** **GROUP** **RO TIER 2 GROUP 1**
**REFERENCE: 04-1-02-1H13-P680-7A-A9** NEW
**04-1-02-1H13-P680-7A-B8** ***MODIFIED*** BANK
**DIFF 2; CA** **04-1-02-1H13-P680-7A-B9** **NRC 5/00**
***RO*** SRO BOTH **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** **NONE**

## QUESTION 79

The plant was operating at 100 % power.

Standby Liquid Control (SLC) was being lined up to the SLC Test Tank for surveillance testing.

Operators had opened the SLC Test Tank Outlet Valve, C41-F031 to 50% when a transient occurred causing a plant scram.

Multiple control rods failed to fully insert, resulting in reactor power staying at 45%.

The Shift Manager ordered a Containment evacuation.

Standby Liquid Control ‘A’ and ‘B’ injection was ordered.

Which one of the following describes the SLC response with the SLC Test Tank outlet valve 50% open?

A. SLC will inject the contents of the SLC Test Tank into the reactor.

B. SLC will inject the contents of the SLC Boron Tank into the reactor.

C. SLC will inject the contents of the SLC Boron Tank and SLC Test Tank into the reactor.

D. SLC will NOT inject the contents of the SLC Boron Tank into the reactor.

**QUESTION 79 RO** **NRC RECORD # WRI 239**
**ANSWER: D.** **SYSTEM # C41** **K/A 211000 A1.09: 4.0**
**LP# GG-1-LP-OP-C4100**
**OBJ. 10a,b&c** **SRO TIER GROUP** **RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-C41-1 section 3.5** NEW
**06-OP-1C41-Q-0001 sect.2.2** MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
***RO*** SRO BOTH **CFR 41.6/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 80**

The plant was operating at 100% power steady state.

The Reactor Protection System (RPS) "B" MG Set output breaker C71-S003B tripped causing a loss of RPS B normal power supply.

An operator responded to transfer RPS B to ALTERNATE power supply. He inadvertently swapped RPS A to the ALTERNATE power source.

The Reactor scrammed and Reactor water level dipped down to –45 inches and is now in the normal band.

All systems functioned properly following the scram.

Which one of the following is the correct status of Scram pilot solenoids, Backup scram solenoids, and ARI solenoids?

(ASSUME NO OPERATOR ACTION HAS BEEN TAKEN SINCE THE RPS A TRANSFER.)

| | SCRAM PILOT VALVE SOLENOIDS | BACKUP SCRAM VALVE SOLENOIDS | ARI VALVE SOLENOIDS |
|---|---|---|---|
| A. | De-energized | Energized | Energized |
| B. | De-energized | Energized | De-energized |
| C. | Energized | De-energized | Energized |
| D. | Energized | De-energized | De-energized |

**QUESTION 80 RO** **NRC RECORD # WRI 302**
**ANSWER: A.** **SYSTEM # C71; C11-1A** **K/A 212000** **K3.06: 4.0**
**LP# GG-1-LP-OP-C111A**
**OBJ. 5c,d&e** **SRO TIER GROUP** **RO TIER 2 GROUP 1**
**REFERENCE:** **04-1-01-C11-1sect 3.2** NEW
**E-1173-14** MODIFIED ***BANK***
**DIFF 2; CA** **NRC 12/00**
***RO*** SRO BOTH **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 81**

The Electrical line up is normal.

A LOCA condition has caused Drywell Pressure to rise to 1.6 psig.

A switching error causes 500 kV voltage to drop.

The voltage to ALL ESF busses drops to 3290 volts.

The voltage transient duration is 10 seconds and then voltage returns to normal.

Which one of the following statements is the condition of the ESF busses after this voltage transient?

A. 15AA is being supplied from ESF 11
16AB is being supplied from ESF 21
17AC is being supplied from ESF 21

B. 15AA is being supplied from Div I D/G
16AB is being supplied from Div II D/G
17AC is being supplied from Div III D/G

C. 15AA is being supplied from ESF 11
16AB is being supplied from ESF 21
17AC is being supplied from Div III D/G

D. 15AA is being supplied from Div I D/G
16AB is being supplied from Div II D/G
17AC is being supplied from ESF 21

**QUESTION 81 RO** **NRC RECORD # WRI 11**
**ANSWER: B.** **SYSTEM # R21** **K/A 264000 2.4.4: 4.0**
**LP# GG-1-LP-OP-R2100**
**OBJ. 12,20&22** **SRO TIER GROUP** **RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-R21-1 sect 5.1.1a** NEW
**04-1-01-P81-1 sect 3.22** MODIFIED ***BANK***
**DIFF 2; CA** **NRC 3/98**
***RO*** SRO BOTH **CFR 41.8**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 82**

Which of the following conditions is ***NOT*** associated with an Uncoupled Control Rod?

A. Neutron monitoring indication does not change when attempting to move control rods.

B. Loss of position 48 indicators.

C. Rod position indication does not change when attempting to move control rods.

D. Loss of FULL OUT red LED lights.

**QUESTION 82 RO** **NRC RECORD # WRI 586**
**ANSWER: C.** **SYSTEM # C11-2; C11-1B** **K/A 201003 A1.01: 3.7**
**LP# GG-1-LP-OP-C111B**
**OBJ. 5b** **SRO TIER GROUP** **RO TIER 2 GROUP 2**
**REFERENCE: GG-1-FIG-OP-C111B fig. 3** ***NEW***
**05-1-02-IV-1 sect 4.4, 4.5** MODIFIED BANK
**DIFF 1; M**
***RO*** SRO BOTH **CFR 41.6/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: NONE**

## QUESTION 83

The plant has scrammed.

Main Condenser Vacuum is 15 inches Hg.

Which one of the following identifies the status of the Main and Reheat Steam System?

(ASSUME NO OPERATOR ACTION.)

| | RFP High Press Steam Valve | RFP Low Press Steam Valve | Main Steam Bypass Valves | Combined Main Stop & Control Valves |
|---|---|---|---|---|
| **A.** | Closed | Closed | Open | Closed |
| **B.** | Open | Open | Closed | Open |
| **C.** | Open | Closed | Open | Closed |
| **D.** | Closed | Open | Closed | Open |

**QUESTION 83 RO** **NRC RECORD # WRI 269**
**ANSWER: A.** **SYSTEM # N11; N62** **K/A 239001** **A3.01: 4.2**
**LP# GG-1-LP-OP-N6200**
**OBJ. 14** **SRO TIER GROUP** **RO TIER 2 GROUP 2**
**REFERENCE: 05-1-02-V-8 sect. 5.0** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 5/00**
***RO*** SRO BOTH **CFR 41.4/41.14**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 84**

The plant is starting up from a refueling outage and is operating at 41% power as sensed by turbine 1$^{st}$ stage pressure.

An Electro Hydraulic Control (EHC) fluid leak develops on the header, which supplies control oil to the Main Turbine Control valves.

Turbine Control valve trip fluid pressures are as follows:

| | |
|---|---|
| A turbine control valve trip fluid pressure | 45 psig |
| B turbine control valve trip fluid pressure | 48 psig |
| C turbine control valve trip fluid pressure | 45 psig |
| D turbine control valve trip fluid pressure | 45 psig |

Which of the following indicate the correct status of the Reactor Protection System (RPS) under these plant conditions?

**(Assume all other parameters are within an acceptable band)**

A. RPS A and RPS B are reset.

B. RPS A only is tripped.

C. RPS B only is tripped.

D. Both RPS A and RPS B are tripped.

**QUESTION 84 RO** **NRC RECORD # WRI 588**
**ANSWER: D.** **SYSTEM # C71** **K/A 245000 K1.04: 3.6**
**LP# GG-1-LP-OP-C7100**
**OBJ. 9** **SRO TIER GROUP** **RO TIER 2 GROUP 2**
**REFERENCE: 04-1-02-1H13-P680-7A-A1** ***NEW***
**05-1-02-I-1 sect. 4.5.7** MODIFIED BANK
**DIFF 2; CA** **05-1-02-I-2 sect. 5.4**
**TECH. SPEC TR3.3.1.1-1** ***RO*** SRO BOTH **CFR 41.4/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 85**

The plant is operating at 50 % power.

The “A” Circulating Water Pump develops a phase to phase short that trips the Circ Water Pump.

The “B” Circulating Water Pump is tagged out for motor bearing replacement.

Which one of the following best describes the response of the Main Condenser and Condensate System?

(ASSUME NO OPERATOR ACTION.)

A. Main Condenser vacuum will drop approaching 0 inches Hg Vacuum and Condensate Depression will rise.

B. Main Condenser vacuum will drop approaching 0 inches Hg Vacuum and Condensate Depression will be reduced.

C. Main Condenser vacuum will drop and stabilize just below the turbine trip setpoint and Condensate Depression will rise.

D. Main Condenser vacuum will drop and stabilize just below the turbine trip setpoint and Condensate Depression will be reduced.

**QUESTION 85 RO** **NRC RECORD # WRI 589**
**ANSWER: B.** **SYSTEM # N19; N71** **K/A 256000** **K1.18: 2.9/3.0**
**K6.02: 3.1/3.1**
**LP# GG-1-LP-OP-N1900** **A1.10: 3.1/3.1**
**A2.11: 3.2/3.2**
**OBJ 22b, 30** **SRO TIER GROUP / RO TIER 2 GROUP 2**
**REFERENCE: 05-1-02-V-8 sect. 4.1 & 3.3** ***NEW***
**UFSAR Tables 15.2.7 & 15.2.8** MODIFIED BANK
**DIFF 2; CA** **Steam Tables**
***RO*** SRO BOTH **CFR 41.4/41.14**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 86**

DC Control Power is lost to Bus 13AD (4160 volt).

Which one of the following describes the operation of circuit breakers supplying loads from 13AD?

A. The circuit breakers can be closed from the Main Control Room but opened only at the local cubicle.

B. The circuit breakers can only be manually closed and opened at the local cubicle.

C. The circuit breakers can only be closed locally however, all circuit breaker trips are available local and remote.

D. The circuit breakers can be closed and opened from the Main Control Room however, all automatic breaker closures and trips are disabled.

**QUESTION 86 RO** **NRC RECORD # WRI 254**
**ANSWER: B.** **SYSTEM # L11; R27** **K/A 263000** **K3.02: 3.5/3.8**
**LP# GG-1-LP-OP-L1100**
**OBJ. 8a, 10a**
**LP# GG-1-LP-OP-R2700**
**OBJ. 14** **SRO TIER GROUP / RO TIER 2 GROUP 2**
**REFERENCE: E-0111-01** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 4/00**
***RO*** SRO BOTH **CFR 41.4**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 87**

The plant is operating at rated conditions.

A rupture on the Instrument Air header in the Auxiliary Building has depleted the header to 0 psig.

Which one of the following describes the response of the Reactor Water Cleanup (RWCU) System?

(ASSUME NO OPERATOR ACTION; ALL SYSTEMS FUNCTION NORMALLY.)

A. RWCU will continue to operate by automatically opening the Filter Demineralizer Bypass Valve G33-F044.

B. RWCU will continue to operate until the RWCU pumps trip on motor overload due to operating at shutoff head.

C. RWCU will isolate and shutdown the system due to system differential flow being exceeded.

D. RWCU Filter Demineralizers will isolate and the RWCU pumps will trip on low flow.

**QUESTION 87 RO** **NRC RECORD # WRI 587**
**ANSWER: D.** **SYSTEM # P53; G33/36** **K/A 300000 K3.02: 3.3**
**LP# GG-1-LP-OP-P5300** **204000 K6.04: 2.7**
**OBJ. 30** **A2.07: 2.5**
**LP# GG-1-LP-OP-G3336**
**OBJ. 8a, 9e** **SRO TIER GROUP / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-02-1H13-P680** ***NEW***
**11A-C4 & A6** MODIFIED BANK
**DIFF 2; CA 05-1-02-V-9 sect 5.9**
**05-1-02-III-5 Ck list Group 8** ***RO*** SRO BOTH **CFR 41.4/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**U.S. NUCLEAR REGULATORY COMMISSION**
**WRITTEN EXAMINATION JUNE 2001**
**REACTOR OPERATOR**

**QUESTION 88**

The plant is at 135?F.

All ECCS systems are in standby.

The Reactor Mode Switch is in SHUTDOWN.

Refuel Floor Surveillances are being performed on the Refuel Bridge.

The Reactor Head is installed with the first head closure bolt is de-tensioned.

Secondary Containment is in effect.

With the above conditions, which one of the following is the Plant Operational Mode?

A. Mode 2 - Startup

B. Mode 3 - Hot Shutdown

C. Mode 4 - Cold Shutdown

D. Mode 5 - Refueling

**QUESTION 88 RO** **NRC RECORD # WRI 585**
**ANSWER: D.** **SYSTEM # ADMIN Conduct of Ops.** **K/A Generic 2.1.22: 2.8**
**LP# GG-1-LP-LO-TS001**
**OBJ. 5** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: Tech Specs sect. 1.1 table 1.1-1** NEW ***MODIFIED*** BANK
**DIFF 1; M** **NRC 3/98 WRI 142**
***RO*** SRO BOTH **CFR 41.10/43.1**
**REFERENCE MATERIAL REQUIRED:** None

## QUESTION 89

Which one of the following describes the purpose of the Equipment Drain System?

The Equipment Drain System:

A. collects high conductivity liquid wastes from potentially radioactive systems throughout the protected area.

B. collects drains from all systems carrying radioactive or potentially radioactive liquids inside the power block.

C. collects clean drains from systems carrying radioactive or potentially radioactive liquids inside the power block.

D. collects high conductivity liquid wastes from ECCS Rooms and systems throughout the power block

**QUESTION 89 RO** **NRC RECORD # WRI 584**
**ANSWER: C.** **SYSTEM # P45; G17** **K/A 268000 2.1.27: 2.8**
**LP# GG-1-LP-OP-P4500**
**OBJ. 1, 2, 4a**
**LP# GG-1-LP-OP-G1718**
**OBJ. 3a1** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: FSAR 9.3.3.2.3b** ***NEW***
**M-1094A, B, C, E** MODIFIED BANK
**DIFF 1; M**
***RO*** SRO BOTH **CFR 41.13/43.4**
**REFERENCE MATERIAL REQUIRED:** None

**U.S. NUCLEAR REGULATORY COMMISSION**
**WRITTEN EXAMINATION JUNE 2001**
**REACTOR OPERATOR**

**QUESTION 90**

A plant startup is in progress following a forced outage at the end of the operating cycle.

Reactor Recirculation Pumps are being shifted to fast speed.

Which one of the following personnel is allowed to shift Reactor Recirculation Pumps to fast speed?

A. The Shift Engineer under instruction for a license with the supervision of the Control Room Supervisor.

B. The Reactor Engineer working as a member of the shift to assess core operating performance during the startup.

C. The B33 System Engineer with the supervision of the Control Room Supervisor.

D. The NRC Senior Resident Inspector with the supervision of the Operator at the Controls.

**QUESTION 90 RO** **NRC RECORD # WRI 583**
**ANSWER: A.** **SYSTEM # Conduct of Operations** **K/A Generics 2.1.2: 3.0**
**LP# GG-1-LP-OP-PROC**
**OBJ. 11 v & w** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 01-S-06-2** ***NEW***
**sect 5.1; 5.2; 6.4.5; 6.4.6** MODIFIED BANK
**DIFF 1; M** **10 CFR 50.54 i & j**
**10 CFR 55.13** ***RO*** SRO BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 91**

A plant startup is in progress following a forced outage.

The reactor is at the point of adding heat with reactor pressure at 400 psig.

An NPE engineer has returned a Condition Report to the Control Room that indicates the sealant used on the A & B Control Room Fresh Air Units seals fail to meet the ASME specifications.

The Operations Representative has dispositioned both Control Room Fresh Air Units as INOP.

Which one of the following describes the actions to be taken?

**Technical Specifications 3.0 and 3.7.3 are provided as references.**

A. The Control Room has 24 hours to perform an operability determination during which time the plant is allowed to remain in the current operational Mode.

B. Restore the Control Room Fresh Air systems to operable status within 7 days. Power ascension may continue.

C. Immediately enter LCO 3.0.3 and within one hour initiate actions to be in Mode 3 within 13 hours and Mode 4 within 37 hours.

D. Be in Mode 3 within 12 hours and Mode 4 within 36 hours.

**QUESTION 91 RO** — **NRC RECORD # WRI 582**
**ANSWER: C.** — **SYSTEM # Tech Specs** — **K/A Generics 2.1.12: 2.9**
**LP# GG-1-LP-LO-TS001**
**OBJ. 34** — **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: Tech Specs 3.0.3** — ***NEW***
**3.7.3 condition D** — MODIFIED — BANK
**DIFF 2; CA**
***RO*** SRO BOTH — **CFR 41.10/43.2**
**REFERENCE MATERIAL REQUIRED: Tech Specs 3.0.3 & 3.7.3**

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**WRITTEN EXAMINATION JUNE 2001**
**REACTOR OPERATOR**

**QUESTION 92**

Which of the following statements best describes the reason personnel performing core alterations shall be in constant communications with the Operator-at-the-Controls?

A. To allow the on-duty STA to perform a shutdown margin check required during Core Alterations.

B. To allow the Operator-at-the-Controls to monitor for and notify the Refuel floor in the event of an inadvertent criticality.

C. Core alterations are considered a special evolution requiring constant communication with the Control Room.

D. A core alteration is considered a change in reactivity that requires the knowledge and consent of the Operator-at-the-Controls.

**QUESTION 92 RO** **NRC RECORD # WRI 576**
**ANSWER: B.** **SYSTEM # Refueling** **K/A Generics 2.2.30: 3.0**
**LP# GG-1-LP-OP-PROC**
**OBJ. 10dd** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 01-S-06-2 sect 6.7.16** NEW
MODIFIED ***BANK***
**DIFF 1; M** **LOT 6/01 ADMIN**
***RO*** SRO BOTH **CFR 41.10/43.5/43.7**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 93**

The Component Cooling Water Supply to the Non-Regenerative Heat Exchangers P42-F103 is to be used as a boundary valve for a tagout for Mechanical Maintenance.

Which one of the following describes the items to be tagged to utilize this valve as a boundary valve?

**P&IDs M-1063B and M-1067H, and Electrical E-1226-05 are provided as reference.**

A. Handswitch tagged in closed position.
Air supply P53-FY087 tagged in closed position.
Air supply to actuator vented and tagged.

B. Handswitch tagged in closed position.
P42-F103 jacked closed with an installed jacking device.
Air supply to actuator vented and tagged.

C. Air supply P53-FY087 tagged in closed position.
P42-F103 jacked closed with an installed jacking device.
Air supply to actuator vented and tagged.

D. Handswitch tagged in closed position.
Air supply P53-FY087 tagged in closed position.
P42-F103 jacked closed with an installed jacking device.

**QUESTION 93 RO** **NRC RECORD # WRI 580**
**ANSWER: A.** **SYSTEM # Protective Tagging** **K/A Generics 2.2.13: 3.6**
**LP# GG-1-LP-OP-PROC**
**OBJ. 10j, k, l** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 01-S-06-1 sect 6.2.1g – i** ***<u>NEW</u>***
**M-1067H** MODIFIED BANK
**DIFF 2; CA** **M-1063B**
**E-1226-05** ***<u>RO</u>*** SRO BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: M-1063B , M-1067H, & E-1226-05**

## QUESTION 94

A Radwaste Contractor is needed for a job in a Very High Radiation Area.

The dose rate in the area of the job is 1.2 Rem/hr.

The job is expected to take 1 hour and 45 minutes.

The contractor's exposure history to date for the year is 3000 mRem.

Can the contractor be utilized for this job and WHY?

A. Yes, the contractor will NOT exceed his administrative limits.

B. Yes, however the contractor must have an approved extension on dose limits before the job.

C. No, the contractor will exceed his federal dose limits.

D. No, the contractor will exceed administrative dose limits that are NOT allowed to be extended.

**QUESTION 94 RO** **NRC RECORD # WRI 277**
**ANSWER: C.** **SYSTEM # Rad Con – Exposure Limits** **K/A Generics 2.3.4: 2.5**
**LP# EOI-S-LP-GET-RWT01**
**OBJ. RWT 30 – 33** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 01-S-08-2 Sect 6.3** NEW
MODIFIED ***BANK***
**DIFF 2; CA** **NRC 4/00**
***RO*** SRO BOTH **CFR 41.10/43.4**
**REFERENCE MATERIAL REQUIRED:** None

## QUESTION 95

Residual Heat Removal 'A' is being lined up to operate in Suppression Pool Cooling.

The Plant Supervisor has requested you contact Health Physics.

Which one of the following describes the purpose of this phone notification?

A. Allows Health Physics personnel to evacuate any personnel from the Containment.

B. Allows Health Physics personnel to perform surveys of the RHR rooms and Containment for elevated radiation levels.

C. Informs Health Physics of elevated heat and noise levels in the vicinity of the RHR Rooms such that personnel entering the areas may be informed.

D. Informs Health Physics that the transient High Radiation areas for the RHR loop are now in effect.

| | | | |
|---|---|---|---|
| **QUESTION 95 RO** | | **NRC RECORD # WRI 287** | |
| **ANSWER: B.** | **SYSTEM # Rad Con – ALARA** | **K/A Generic** | **2.3.2: 2.5**<br>**2.1.32: 3.4** |
| **LP# GG-1-LP-OP-E1200** | | | |
| **OBJ. 11** | **SRO TIER GROUP** | **/ RO TIER 3 GROUP** | |
| **REFERENCE: 04-1-01-E12-1 sect 3.1** | | NEW | |
| | | MODIFIED | ***BANK*** |
| **DIFF 1, M** | | | **NRC 4/00** |
| | | ***RO*** SRO BOTH | **CFR 41.10/43.4** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 96**

While in Mode 1, the "A" CRD Pump tripped.

Following an improper start of the "B" CRD Pump, the Operator-at-the-Controls noticed four (4) control rods drifting in with no drive command.

What is the proper action to take?

A. Reduce core flow to 60%.

B. Immediately scram the reactor.

C. Take no action until the control rod motion has stopped or reached the full-in position, then immediately return the control rods to their required position.

D. Select the control rod closest to the center of the core and apply a continuous insert signal to it until it reaches position 00.

**QUESTION 96 RO** **NRC RECORD # WRI 101**
**ANSWER: B.** **SYSTEM # C11-1A** **K/A Generic 2.4.1: 4.3**
**LP# GG-1-LP-OP-C111A**
**OBJ. 15**
**LP# GG-1-LP-OP-ONEP1**
**OBJ. 1** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 05-1-02-IV-1 sect. 2.2.3** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
***RO*** SRO BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 97**

An emergency condition has resulted in an Alert being declared.

The Emergency Response Organization is in route for manning.

How many and what are the responsibilities of Non-Licensed Operators dispatched to the Control Room during the initial phase of the emergency?

A. One Non-Licensed Operator is to perform the duties of safe shutdown operator, communications will be handled by the TSC when manned. All other operators report to the OSC.

B. Two Non-Licensed Operators are to perform the duties of communicators. All other operators report to the OSC.

C. Two Non-Licensed Operators are to perform the duties of communicators and one operator as the safe shutdown operator. All other operators report to the OSC.

D. Two Non-Licensed Operators are to perform the duties of communicators and two operators to perform equipment operations required outside the Control Room. All other operators report to the OSC.

**QUESTION 97 RO** | **NRC RECORD # WRI 577**
**ANSWER: D.** | **SYSTEM # E-Plan** | **K/A Generics 2.4.35: 3.3**
**LP# GG-1-LP-OP-PROC**
**OBJ. 11d** | **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 01-S-10-6 Att II & III** | ***NEW***
**01-S-06-2 sect 6.2.1d** | MODIFIED | BANK
**DIFF 1; M** | **Recent E-plan change 2/2001**
***RO*** SRO BOTH | **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 98**

A LOCA has occurred.

The Control Room Supervisor during the execution of the Emergency Procedures has identified a step directing the use of the Severe Accident Procedures.

Which one of the following describes implementation of the Emergency and Severe Accident Procedures?

When conditions warrant entry,:

A. all Emergency Procedures are exited with the concurrence of the Emergency Director and Severe Accident Procedures are utilized to control all plant parameters.

B. the RPV Control Emergency Procedure is exited with the concurrence of the Emergency Director and Severe Accident Procedures are utilized to minimize further core degradation.

C. the Control Room Supervisor executes the Emergency Procedures and Severe Accident Procedures concurrently with the Severe Accident actions taking priority direction to control all plant parameters.

D. the Control Room Supervisor immediately exits all Emergency Procedures and informs the Emergency Director of transition to Severe Accident Procedures to minimize further core degradation.

**QUESTION 98 RO** **NRC RECORD # WRI 579**
**ANSWER: A.** **SYSTEM # SAPs** **K/A Generics 2.4.6: 3.1**
**LP# GG-1-LP-EP-EPT19**
**OBJ. 1** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: SAP General Note and NOTE** ***NEW***
**05-S-01-EP-2 step 74** MODIFIED BANK
**DIFF 1; M** **05-S-01-EP-2A steps 64 & 96**
**05-S-01-EP-3 step 61** ***RO*** SRO BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: EPs and SAPs without General Note and NOTE**

**QUESTION 99**

In which one of the following situations would a Peer Check NOT be expected?

A. An operator is performing subsequent actions of an ONEP.

B. An operator is overriding low pressure ECCS injection in accordance with the EPs.

C. An electrician is lifting a lead that requires a concurrent verification.

D. An operator is placing the standby CRD pump in service after the running pump tripped.

| | | | |
|---|---|---|---|
| **QUESTION 99 RO** | | **NRC RECORD # WRI 391** | |
| **ANSWER: D.** | **SYSTEM # Emergency Procedures/Plan - Peer Checking Expections** | **K/A Generic 2.4.12: 3.4** | |
| **LP# GG-1-LP-OP-PROC** | | | |
| **OBJ. 55c** | **SRO TIER GROUP** | **RO TIER 3 GROUP** | |
| **REFERENCE:** | **Operations Expectations and Standards sect 9.0** | NEW | |
| | **05-1-02-IV-1 sect 2.1.2** | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | **02-S-01-27 sect 6.5.1** | | **NRC 12/00 RO NOT USED** |
| | | ***RO*** SRO BOTH | **CFR 41.10/43.5** |
| **REFERENCE MATERIAL EQUIRED:** None | | | |

**QUESTION 100**

A fire has been reported in the Division I Diesel Generator Room.

The Fire Brigade is in route to the fire.

Which one of the following describes responses of the Control Room Operator?

A. Manually start all three fire pumps and the outside air fans for Division II and III Diesel Generator Rooms.

B. Manually start the motor driven fire pump and the outside air fans for Division II and III Diesel Generator Rooms.

C. Manually start all three fire pumps and the outside air fans for all three Diesel Generator Rooms.

D. Manually start the motor driven fire pump and the outside air fans for all three Diesel Generator Rooms.

**QUESTION 100 RO** **NRC RECORD # WRI 578**
**ANSWER: B.** **SYSTEM # Fire Protection** **K/A Generics 2.4.25: 2.9**
**LP# GG-1-LP-OP-PROC**
**OBJ. 61c(1)** **SRO TIER GROUP / RO TIER 3 GROUP**
**REFERENCE: 10-S-03-2** ***NEW***
**Sect 6.2.2 NOTE & 6.2.2d** MODIFIED BANK
**DIFF 1; M**
***RO*** SRO BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

## QUESTION 1

Given a spurious Main Turbine Generator Trip from 100 % power,

Determine the **instantaneous** effect it will have on Reactor Power and Reactor Pressure. (Disregard the effects of reactor scram and other plant response and just consider the initial reactor response.)

A. Reactor Power will go up and Reactor Pressure will go up.

B. Reactor Power will go down and Reactor Pressure will go down.

C. Reactor Power will go up and Reactor Pressure will go down.

D. Reactor Power will go down and Reactor Pressure will go up.

**QUESTION 1** **NRC RECORD # WRI 501**
**ANSWER: A** **SYSTEM # B33** **K/A 295005 A2.05: 3.7/3.9**
**LP# GG-1-LP-OP-B3300**
**OBJ. 27 a.** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 1**
**REFERENCE: Tech. Spec Bases 3.3.4.1** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.5/41.6**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 2**

The reactor was operating at the end of cycle just prior to a refueling outage when a reactor scram occurred.

Which one of the following is a correct method of verifying the position of the control rods? (The scram has NOT been reset.)

A. Using the full core display on H13-P680, depress ALL RODS with RCIS in Raw Data and observe a blank display with only green LEDs for all control rods.

B. Using the full core display on H13-P680, depress ALL RODS with RCIS in Raw Data and observe all control rods indicate 00 with a green LED for all control rods.

C. Using the full core display on H13-P680, depress ALL RODS with RCIS out of Raw Data and observe a blank display with only red LEDs for all control rods.

D. Using the full core display on H13-P680, depress ALL RODS with RCIS out of Raw Data and observe all control rods indicate 00 with a red LED for all control rods.

**QUESTION 2** **NRC RECORD # WRI 10**
**ANSWER: A.** **SYSTEM # C11-2;** **K/A 295006** **AA2.02: 4.3/4.4**
**C11-1B** **201005** **A3.02: 3.5/3.5**
**LP# GG-1-LP-OP-C111B** **A4.02: 3.7/3.7**
**OBJ. 3c, 3f**
**LP# GG-1-LP-OP-C1102**
**OBJ. 12** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 04-1-01-C11-2** NEW
**sect. 4.7.2p & 4.8.2i** MODIFIED ***BANK***
**DIFF: 2; CA** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.6/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 3**

Plant conditions are as follows:

| | |
|---|---|
| MODE: | Mode 1 |
| Rx power: | 28 % |
| T-G Load: | 365 MWE |
| Load Demand | 390 MWE |
| Bypass position: | 0 % |

All other parameters are per plant design.

The operator withdraws a control rod that raises Reactor power to 29 %.

How will the Turbine EHC Control System respond?

A. The Bypass Control Valves will open by whatever amount is required to maintain Rx pressure.

B. The Turbine Control Valves will open by whatever amount is required to maintain Rx pressure.

C. The Bypass Control Valves will close by whatever amount is required to maintain Rx pressure.

D. The Turbine Control Valves will close by whatever amount is required to maintain Rx pressure.

**QUESTION 3** **NRC RECORD # WRI 69**
**ANSWER: B.** **SYSTEM # N32-2** **K/A 295007 AK2.01: 3.5/3.7**
**241000 A2.02: 3.7/3.7**
**LP# GG-1-LP-RO-N3202** **K4.01: 3.8/3.8**
**OBJ 4b, 6b, 7b** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 03-1-01-2 sect. 5.2** NEW
MODIFIED ***BANK***
**DIFF: 2; CA** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 4**

The plant is operating at 70 % power.

Which of the following best describes the response of the Reactor Water Level Control System on a failure of a single Feed Flow Transmitter UPSCALE?

A. The Digital Feed System will recognize the failure and de-select 3 - element control and return level to the level setpoint.

B. The Digital Feed System will lower feed flow until reactor level drops to 32 inches at which time it will become level dominant remaining in 3 - element control.

C. The Digital Feed System will lower feed flow and reactor level will stabilize out at a new low level below the low level alarm setpoint.

D. The Digital Feed System will lock up the controls and hold level at the normal level, remain in 3 - element control, and actuate the DFCS TROUBLE annunciator on P680.

| | | | |
|---|---|---|---|
| **QUESTION 4** | | **NRC RECORD # WRI 68** | |
| **ANSWER: A.** | **SYSTEM # C34** | **K/A 295009 AA1.02: 4.0/4.0** | |
| | | **AA2.02: 3.6/3.7** | |
| **LP# GG-1-LP-RO-C3401** | | **259002 K6.04: 3.1/3.1** | |
| **OBJ 1.10** | **SRO TIER 1 GROUP 1 /** | **RO TIER 1 GROUP 1** | |
| **REFERENCE: ARI 04-1-02-H13-P680** | | NEW | |
| **2A-C9** | | MODIFIED | ***BANK*** |
| **DIFF: 2; CA** | | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.7** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 5**

The plant is operating at 70 % power.

Determine the calculated Drywell Floor Drain (Unidentified Leakage) rate and Drywell Total Leakage.

Calculated Drywell Equipment Drain (Identified Leakage) Rate is 2.16 gpm.

**ATTACHED are indications from the Drywell Floor Drain Sump Chart Recorder E31-LR-R618 and information provided from the Daily Operations Log 06-OP-1000-D-0001 item 25 and 26**

PDS Computer is inoperable.

| | Drywell Unidentified Leakage rate | Drywell Total Leakage rate |
|---|---|---|
| **A.** | 1.50 | 5.00 |
| **B.** | 1.50 | 3.66 |
| **C.** | 2.03 | 5.00 |
| **D.** | 2.03 | 3.66 |

**QUESTION 5** **NRC RECORD # WRI 502**
**ANSWER: B.** **SYSTEM # E31** **K/A 295010** **AA2.01: 3.4/3.8**
**2.1.2: 3.0/4.0**
**LP# GG-1-QC-RO-CRO01** **2.1.18: 2.9/3.0**
**2.1.25: 2.8/3.1**
**OBJ** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE:** **06-OP-1000-D-0001** ***NEW***
**Drywell Floor Drain Chart** MODIFIED BANK
**DIFF: 2; CA** **E31-LR-R618**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** **06-OP-1000-D-0001**
**Attachment I Item 25 &**
**method 1 & calculator**
**Chart paper indications**
**of sump readings**

**QUESTION 6**

The plant is performing a reactor startup from cold shutdown.

The reactor was at the point of adding heat.

The Control Room Supervisor instructed the operators to stop the startup for a short duration to perform a surveillance.

During this time, the reactor went subcritical and power dropped to range 3 of the IRMs.

The At-The-Controls Operator, noting that reactor power had dropped selected the next control rod and withdrew the control rod from 20 to 48 with continuous motion as allowed by the Control Rod Movement Sequence Sheet.

This resulted in a sustained 20-second period.

The following are the plant parameters at present:

| | |
|---|---|
| Reactor Pressure | 80 psig |
| Reactor Level | + 40 inches |

Which one of the following describes the next action the At-The-Controls operator should take?

A. Immediately range all IRMs to range 10 and monitor overlap data between IRMs and APRMs.

B. Perform the coupling checks for the Control Rod, and inform the Reactor Engineer of the power rise.

C. Withdraw the next in sequence Control Rod to maintain the power rise to reach the point of adding heat.

D. Insert the Control Rod to a position which causes reactor period to be > 50 seconds.

**QUESTION 6** **NRC RECORD # WRI 204**
**ANSWER: D.** **SYSTEM # C11-2; C51** **K/A 295014** **AK3.01: 4.1/4.1**
**LP# GG-1-LP-OP-IOI01**
**OBJ. 3c & d** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE:** **03-1-01-1 sect. 2.1.4** NEW
**Susquehanna reactivity** MODIFIED ***BANK***
**DIFF 1; M** **Event 7/98** **NRC 4/00**
**04-1-01-C51-1 sect 4.3.2 NOTE** RO SRO ***BOTH*** **CFR 41.1/41.2/ 41.6/43.6**
**REFERENCE MATERIAL REQUIRED:** None

## QUESTION 7

Scram conditions exist. All control rods did NOT fully insert.

Reactor water level is being maintained at –60 inches.

Reactor pressure is being maintained at 910 psig.

Reactor power is 20 %.

The following indications exist:

RPS white lights on H13-P680 are extinguished.

Scram Air Header Pressure low annunciator is illuminated.

RX SCRAM TRIP annunciator is illuminated.

Which one of the following contains the minimum actions required to drive the control rods to position 00 using Rod Control and Information System?

A. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

B. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods in sequence and insert.

C. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive insert and withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

D. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, confirm a CRD pump is operating, select control rods in sequence and insert.

**QUESTION 7** **NRC RECORD # WRI 203**
**ANSWER: C.** **SYSTEM # C11-2; C71; C11-1A** **K/A 295015 AK3.01: 3.4/3.7**
**LP# GG-1-LP-RO-EP02A**
**OBJ. 5** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: EP 05-S-01-EP-2A** NEW
**Step 48 Att. 18, 19 & 20** MODIFIED ***BANK***
**DIFF 3; CA** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.6/43.6**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2 EP-2A**

**QUESTION 8**

Which one of the following identifies the significance of exceeding the maximum Drywell pressure?

A. The Drywell Purge Compressor discharge valve differential pressure limit would be exceeded preventing the operation of the Drywell Purge Compressors and the combustible gas control function.

B. The Drywell structure could be breached resulting in the loss of the pressure suppression function resulting in the direct pressurization of Containment in a DBA that would result in a failure of Containment.

C. The resultant Suppression Pool surge upon depressurization of the Drywell would cause the structures inside the Containment to exceed the maximum loading and could result in a compounded failure.

D. The Suppression Pool surge upon depressurization of the Drywell would result in the overflowing of the Weir Wall and the degradation of equipment in the lower elevation of the Drywell required for accident mitigation.

**QUESTION 8** **NRC RECORD # WRI 259**
**ANSWER: B.** **SYSTEM # M41** **K/A 295024** **EK1.01: 4.1/4.2**
**LP# GG-1-LP-OP-M4101**
**OBJ. 4, 5** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: FSAR sect 3.8.1; 6.2.1.1.1j** NEW
**Table 6.2-1** MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.9**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 9**

Which of the following is the basis for the correlation between Reactor Pressure and Suppression Pool Temperature concerning Heat Capacity Temperature Limit (HCTL) during an ATWS?

A. It is the highest suppression pool temperature from which an Emergency Depressurization will not raise suppression pool temperature above the capability to monitor suppression pool temperature with the reactor still pressurized.

B. It is the highest suppression pool temperature from which an Emergency Depressurization can be performed and the suppression pool still capable of absorbing all the energy from the reactor at all pressures.

C. It is the highest suppression pool temperature from which an Emergency Depressurization will not raise containment temperature above the maximum temperature capability of the containment and equipment in containment that may be required to operate with the reactor still pressurized.

D. It is the highest suppression pool temperature from which an Emergency Depressurization will not result in direct steam introduction into the containment through a Suppression Pool approaching saturation conditions with the reactor still pressurized.

**QUESTION 9** **NRC RECORD # WRI 503**
**ANSWER: C.** **SYSTEM # M41-1** **K/A 295025** **A2.03: 3.9/4.1**
**LP# GG-1-LP-RO-EP02.01**
**OBJ. 12** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: GGNS PSTG Appendix B** ***NEW***
MODIFIED BANK
**DIFF 1;M**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 10**

The plant is in an ATWS condition. Reactor power was at 80% after the scram condition occurred. Standby Liquid Control has been initiated but failed to inject.

Which of the following conditions would adequate core cooling ***NOT*** be assured?

A. Drywell Temperature 185°F
Reactor Pressure 600 psig
Suppression Pool Level 18 feet
2 SRVs open
Reactor Water Level -187 inches Fuel Zone
Feedwater is injecting.

B. Drywell Temperature 200°F
Reactor Pressure 350 psig
Suppression Pool Level 21.5 feet
8 SRVs open
Reactor Water Level -215 inches Fuel Zone
No high pressure injection systems available

C. Drywell Temperature 190°F
Reactor Pressure 150 psig
Suppression Pool Level 22 feet
8 SRVs open
Reactor Water Level -205 inches Fuel Zone
LPCS is injecting, no other systems available

D. Drywell Temperature 220°F
Reactor Pressure 200 psig
Suppression Pool Level ` 23 feet
8 SRVs open
Reactor Water Level -165 inches Fuel Zone (level instruments are suspect per caution 1)
Feedwater is injecting.

**QUESTION 10** **NRC RECORD # WRI 504**
**ANSWER: C.** **SYSTEM # B21; EP** **K/A 295031** **A2.04: 4.6/4.8**
**LP# GG-1-LP-RO-EP02A**
**OBJ. 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 05-S-01-EP-2A** ***NEW***
**GGNS PSTG** MODIFIED BANK
**DIFF 3;CA**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2A**

**QUESTION 11**

Which one of the following describes the conditions that Cold Shutdown Boron Weight is designed to over come?

A. 68 °F, xenon free, water level at steam lines, 50 % rod density.

B. 68 °F, xenon free, water level in normal band, all rods fully withdrawn.

C. 110 °F, xenon free, water level in normal band, all rods fully withdrawn.

D. 110 °F, xenon free, water level at steam lines, 50 % rod density.

**QUESTION 11** **NRC RECORD # WRI 38**
**ANSWER: B.** **SYSTEM #** **K/A 295037** **EK3.05: 3.2/3.7**
**EOP-2A BASES**
**LP# GG-1-LP-RO-EP02A**
**OBJ 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE: 05-S-01-EP-2A Bases** NEW
**Step 21 PSTG App C 2.1** MODIFIED ***BANK***
**DIFF 1; M** **Tech Spec 3.1.7 Bases** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.6/41.10/43.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 12**

Which one of the following is the basis for the Hydrogen Deflagration Overpressure Limit (HDOL)?

A. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell structural capability **or** Drywell-to-Containment differential pressure.

B. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Containment structural capability **or** Drywell-to-Containment differential pressure.

C. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell structural capability **or** Containment pressurization rates.

D. Ignition of excess Hydrogen concentrations could result in peak pressures in excess of either Drywell-to-Containment differential pressure **or** Containment pressurization rates.

**QUESTION 12** **NRC RECORD # WRI 505**
**ANSWER: B.** **SYSTEM # EP Bases** **K/A 500000** **K1.01: 3.3/3.9**
**LP# GG-1-LP-RO-EP03**
**OBJ. 6** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE:** **GGNS PSTG Appendix B** ***NEW***
**16.7 & 16.9** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 13**

The plant is in an ATWS condition and EP-2A is being implemented.

Under which one of the following conditions is the Reactor considered shutdown?

A. 12 Rods at position 02, 1 Rod at position 04, all other Rods at position 00.

B. 2 Rods at position 04, all other Rods at position 00.

C. 1 Rod at position 44, all other Rods at position 00.

D. 4 Rods at position 48, all other Rods at position 00, Standby Liquid Control has injected the entire contents of the SLC tank to the reactor.

**QUESTION 13** **NRC RECORD # WRI 506**
**ANSWER: C.** **SYSTEM # B21; C11** **K/A 295037** **K1.07: 3.4/3.8**
**LP# GG-1-LP-RO-EP02**
**OBJ. 11** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
**REFERENCE:** **EP-2A** ***NEW***
**GGNS PSTG RC/Q-1** MODIFIED BANK
**DIFF. 2; CA**
RO SRO ***BOTH*** **CFR 41.1/41.2/41.10**
**REFERENCE MATERIAL REQUIRED:** **05-S-01-EP-2A** **43.5/43.6**

**QUESTION 14**

The plant was operating at full power when a malfunction during a surveillance resulted in a Recirc Flow Control Valve runback.

Reactor Power is presently 79 %.
Total Core Flow is at 62 Mlbm/hr.
Both PBDS Cards are operable.

Which one of the following best describes the actions to be taken for the present situation?

**(05-1-02-III-3 Reduction in Recirculation System Flow Rate is attached.)**

A. Immediately scram the reactor.

B. Monitor for thermal hydraulic instability, operation can continue in the region without thermal hydraulic instability.

C. Monitor for thermal hydraulic instability and verify FCBB is $\leq 1.0$ within 15 minutes. Insert control rods to exit the region.

D. Monitor for thermal hydraulic instability and verify FCBB is $\leq 1.0$ within 15 minutes. Reduce recirculation flow to exit the region.

**QUESTION 14** **NRC RECORD # WRI 303**
**ANSWER: B.** **SYSTEM # B33** **K/A 295001** **AA2.01: 3.5/3.8**
**LP# GG-1-LP-OP-B3300** **AK1.02: 3.3/3.5**
**OBJ 41, 42, 43, 49** **2.4.4: 4.0/4.3**
**LP# GG-1-LP-OP-ONEP1** **2.4.11: 3.4/3.6**
**OBJ 24, 25** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-III-3 P/F MAP** NEW
**sect. 3.1; 3.3 for Monitored** MODIFIED ***BANK***
**DIFF 2; CA** **Region - Recirc FCV** **NRC 12/00**
**Runback in Fast Speed** RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-III-3 w/o Imm Actions & Color Power to Flow Map**

**QUESTION 15**

Which one of the following describes the automatic actions that will occur as Main Condenser vacuum degrades to 0 inches Hg vacuum?

A. 21" vac, Main Turbine trip
16" vac, Main bypass valves close
12" vac, Rx feed pumps trip
9" vac, MSIV closure

B. 21" vac, Main Turbine trip
16" vac, Rx feed pumps trip
12" vac, Main bypass valves close
9" vac, MSIV closure

C. 21" vac, Main Turbine trip
16" vac, MSIV closure
12" vac, Main bypass valves close
9" vac, Rx feed pumps trip

D. 21" vac, Main Turbine trip
16" vac, MSIV closure
12" vac, Rx feed pumps trip
9" vac, Main bypass valves close

**QUESTION 15** **NRC RECORD # WRI 40**
**ANSWER: B.** **SYSTEM # N62** **K/A 295002** **AK1.03: 3.6/3.8**
**LP# GG-1-LP-OP-N6200**
**OBJ 14**
**LP# GG-1-LP-OP-ONEP1**
**OBJ 39** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-V-8 sect. 5.0** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.4**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 16**

The plant is in a normal electrical line-up with all busses fed from their preferred power source. If a lockout of BOP Transformer 12B were to occur,

Which of the following indicates the correct status of BOP busses?

A. 11HD ENERGIZED
12HE DE-ENERGIZED
13AD DE-ENERGIZED
14AE ENERGIZED
18AG ENERGIZED
28AG DE-ENERGIZED

B. 11HD DE-ENERGIZED
12HE ENERGIZED
13AD ENERGIZED
14AE DE-ENERGIZED
18AG ENERGIZED
28AG ENERGIZED

C. 11HD ENERGIZED
12HE DE-ENERGIZED
13AD DE-ENERGIZED
14AE ENERGIZED
18AG DE-ENERGIZED
28AG DE-ENERGIZED

D. 11HD DE-ENERGIZED
12HE ENERGIZED
13AD ENERGIZED
14AE DE-ENERGIZED
18AG DE-ENERGIZED
28AG ENERGIZED

**QUESTION 16** **NRC RECORD # WRI 507**
**ANSWER: B** **SYSTEM # R21** **K/A 295003 A1.01: 3.7/3.8**
**LP# GG-1-LP-OP-R2700.03**
**OBJ. 8 &15 A.** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE:** **04-1-01-R21-11 sect 3.2** ***NEW***
**04-1-01-R21-12 sect 3.2** MODIFIED BANK
**DIFF 1; M** **04-1-01-R21-13 sect 3.2**
**04-1-01-R21-14 sect 3.2** RO SRO ***BOTH*** **CFR 41.7**
**04-1-01-R21-18 sect 3.2**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 17

Which of the following is the correct sequence for restoring a battery charger to service?

A. Close charger output breaker, close charger AC feeder breaker, close DC switch, close AC switch.

B. Close charger output breaker, close charger AC feeder breaker, close AC switch, close DC switch.

C. Close charger AC feeder breaker, close charger output breaker, close AC switch, close DC switch.

D. Close charger AC feeder breaker, close AC switch, close charger output breaker, close DC switch.

**QUESTION 17** **NRC RECORD # WRI 508**
**ANSWER: A.** **SYSTEM # L11** **K/A 295004** **Generic 2.1.32: 3.4/3.8**
**LP# GG-1-LP-OP-L1100**
**OBJ. 11 a** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-01-L11-1** ***NEW***
**sect 3.6 & 4.6.2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 18**

The plant was operating at 80 % power.

Reactor Narrow Range Water Level transmitter C34-N004B has failed downscale and brought in annunciator "RX WTR LVL SIG FAIL HI/LO".

The Operator at the Controls notices the Reactor Narrow Range Level indicator C34-LI-R606A indicates offscale HIGH and annunciator "RFPT/MN TURB LVL 8 TRIP" is in.

Reactor Narrow Range Water Level indicator R606C is reading + 36 inches.

Reactor Upset Range Water Level indicator is reading + 38 inches.

Reactor Wide Range Water Level indicator on P680 is reading + 40 inches.

Reactor Wide Range Water Level indicators A & B on P601 are reading + 40 inches.

Which one of the following describes the actions to be taken?
(NO OTHER ALARMS ARE PRESENT.)

A. Immediately initiate a Reactor Scram and trip the Main Turbine and the Reactor Feed Pump Turbines because they failed to trip.

B. Manually select Reactor Water Level Control to Single Element control and verify Reactor level returns to normal.

C. Select the Master Level Controller to MANUAL to lock the level signals at the present setting to prevent any level perturbations and establish stable level control.

D. Monitor Reactor Water Level on P680 and compare with other indications on P601 and the PDS computer and contact I&C.

**QUESTION 18** **NRC RECORD # WRI 275**
**ANSWER: D.** **SYSTEM # C34; N21; N30** **K/A 295008 AK1.01: 3.0/3.2**
**245000 A3.01: 3.6/3.6**
**LP# GG-1-LP-RO-C3401** **259001 K6.07: 3.8/3.8**
**OBJ. 1.4, 1.5, 1.7** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-02-H13-P680** NEW
**4A2-A2 & D1** MODIFIED ***BANK***
**DIFF 3; CA** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.4/41.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 19**

Which of the following is the bases for securing Containment Spray prior to going below "0" psig in Containment?

A. Containment pressure instruments are unable to monitor below 0 psig.

B. Containment vent valves sized to reject decay heat from the Containment are unable to be opened and closed below 0 psig.

C. Safety Relief Valves (SRVs) are unable to be opened and/or remain open below 0 psig.

D. Containment pressure could exceed the negative pressure design of the Containment structure.

**QUESTION 19** **NRC RECORD # WRI 509**
**ANSWER: D.** **SYSTEM # M41-1** **K/A 295011** **K1.01: 4.0/4.1**
**LP# GG-1-LP-RO-EP03**
**OBJ. 6** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: GGNS PSTG** ***NEW***
**second PC override** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 20**

The Control Room has been abandoned and control has been established at the Remote Shutdown Panels.

| | |
|---|---|
| Reactor pressure | 400 psig |
| Indicated Reactor level at the Remote Shutdown Panel | 66 inches |

With present plant conditions, which one of the following describes Narrow Range Level, Actual Level and the availability of RCIC for level control?

**05-1-02-II-1 Attachments I and II are provided.**

| | NARROW RANGE LEVEL | ACTUAL LEVEL | RCIC |
|---|---|---|---|
| A. | 55 inches | 48 inches | Not available |
| B. | 51 inches | 53 inches | Available |
| C. | 48 inches | 43 inches | Available |
| D. | 60 inches | 60 inches | Not available |

**QUESTION 20** **NRC RECORD # WRI 524**
**ANSWER: C.** **SYSTEM # C61; B21** **K/A 295016** **AA2.02: 4.2/4.3**
**2.1.25: 2.8/3.1**
**LP# GG-1-LP-OP-C6100** **2.4.11: 3.4/3.6**
**OBJ 19** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-I-1 Att I & II** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-II-1 Att. I & II**

**QUESTION 21**

The Radwaste contractor was attempting to load a High Intensity Cask (HIC) with spent Reactor Water Cleanup Resin when an equipment malfunction caused the filling equipment to spray approximately 2 cubic yards of dry spent resin out the railroad door of the Radwaste Building.

The wind has dispersed the resin and its contaminants into the air.

The Shift Manager has declared a General Emergency due to EAL 5.4.1b.

Field monitoring teams and Chemistry have reported a 5450 mRem Thyroid CDE dose commitment at the Claiborne County Emergency Operations Center.

Which one of the following is the Protective Action Recommendation to be issued to the state?

**10-S-01-1 Activation of the Emergency Plan and the 5-Mile Emergency Planning Zone Map are provided.**

A. Evacuate 2 mile radius of the plant, and evacuate the 5 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

B. Evacuate 2 mile radius of the plant, and evacuate the 10 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

C. Evacuate 2 mile radius and the 5 mile radius of the plant and evacuate the 10 mile down wind sectors and shelter the remaining of the 10 mile Emergency Planning Zone.

D. Evacuate 2 mile radius, 5 mile radius, and 10 mile radius of the plant and shelter the 50 mile down wind sectors of the Emergency Planning Zone.

**QUESTION 21** **NRC RECORD # WRI 112**
**ANSWER: B.** **SYSTEM # EPP PARs** **K/A 295017** **AK2.06: 4.6**
**LP# GG-1-LP-EP-EPTS6**
**OBJ 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 10-S-01-1 sect. 6.1.4** NEW
**EAL 5.4.1b** MODIFIED ***BANK***
**DIFF 2; CA** **5 mile EPZ Map** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.10/41.12/43.4**
**REFERENCE MATERIAL REQUIRED: 10-S-01-1 & 5 Mile EPZ Map** **43.5**

**QUESTION 22**

Which one of the following identifies the system loads allowed to be supplied by Component Cooling Water (CCW) during a **partial** loss of CCW?

**(05-1-02-V-1, Loss of Component Cooling Water is attached.)**

A. Fuel Pool Heat Exchangers, Control Rod Drive oil coolers

B. Reactor Water Clean-Up, Control Rod Drive oil coolers

C. Recirculation pump/motor, Control Rod Drive oil coolers

D. Recirculation pump/motor, Reactor Water Clean-Up

| | | | |
|---|---|---|---|
| **QUESTION 22** | | **NRC RECORD # WRI 510** | |
| **ANSWER: C.** | **SYSTEM # P42; B33; C11-1A** | **K/A 295018** | **K2.01: 3.3/3.4** |
| **LP# GG-1-LP-OP-ONEP1** | | | |
| **OBJ. 2** | **SRO TIER 1 GROUP 2 /** | **RO TIER 1 GROUP 2** | |
| **REFERENCE:** | **GG-1-LP-OP-B3300.01/ 42** | ***NEW*** | |
| | **GG-1-LP-OP-G3336.00/ 14** | MODIFIED | BANK |
| **DIFF 1; M** | **GG-1-LP-OP-G4146.02/ 15** | | |
| | **05-1-02-V-1** | RO SRO ***BOTH*** | **CFR 41.7/41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED:** | | **05-1-02-V-1 w/o immediate actions** | |

**QUESTION 23**

The plant is operating at 100 % power.

A rupture in the Instrument Air header supplying the Radwaste and Offgas Building has been isolated.

The remainder of the Instrument Air header is pressurized.

Which one of the following describes the implications of the loss of Instrument Air to the Offgas and Radwaste Buildings?

A. Offgas system valves will fail closed and isolate the Offgas System.

B. Offgas system purge is lost resulting in a possible explosion and gaseous radiation hazards in the Offgas System.

C. Offgas system valves lose stem seal air resulting in possible high airborne radiation levels in the Offgas Building.

D. Offgas Preheaters will lose the purge air required to establish the proper temperatures entering the Offgas Catalytic Recombiners.

| | | | |
|---|---|---|---|
| **QUESTION 23** | | **NRC RECORD # WRI 315** | |
| **ANSWER: C.** | **SYSTEM # P53; N64** | **K/A 295019** | **AK2.06: 2.8/2.9** |
| **LP# GG-1-LP-OP-N6465** | | **271000** | **K6.01: 2.7/2.8** |
| **OBJ. 13b** | **SRO TIER 1 GROUP 2 /** | **RO TIER 1 GROUP 2** | |
| **REFERENCE: 05-1-02-V-9** | | NEW | |
| **Section 3.12 & 5.8** | | MODIFIED | ***<u>BANK</u>*** |
| **DIFF 1; M** | | | **NRC 12/00** |
| | | RO SRO ***<u>BOTH</u>*** | **CFR 41.4/41.12/41.13/** |
| **REFERENCE MATERIAL REQUIRED:** | None | | **43.4/43.5** |

**QUESTION 24**

The plant is operating at 30 % power.

The following Main Steam Isolation Valves have closed:

B21-F022B
B21-F022D
B21-F028B

Which one of the following describes the status of the Reactor Protection System?

A. No RPS actuation.

B. Half Scram on Division I.

C. Half Scram on Division II.

D. Full Reactor Scram.

**QUESTION 24** **NRC RECORD # WRI 316**
**ANSWER: A.** **SYSTEM # B21; C71** **K/A 295020** **AK3.01: 3.8/3.8**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6c, d, 9** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: E-1173-15, 16, 17, 18, 19** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.9**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 25**

The plant is in a startup following a 32 day outage.

MSIVs are closed.

Recirc loop temperatures are at 180 ?F.

Control rods are being withdrawn to achieve criticality. (Minimal decay heat)

Feedwater is operating in long cycle cleanup.

The operating CRD Pump tripped.

What will be the response of the plant?
(ASSUME NO FURTHER OPERATOR ACTIONS)

A. The reactor water level will remain stable at its present level.

B. The reactor water level will rise to the point that a reactor scram is received on High water level.

C. The reactor water level will drop to the point that a reactor scram is received on Low water level.

D. The plant will scram due to a loss of charging water pressure to the Hydraulic Control Units.

| | | | |
|---|---|---|---|
| **QUESTION 25** | | **NRC RECORD # WRI 55** | |
| **ANSWER: C.** | **SYSTEM # C11-1A; G33/36; IOI- 1** | **K/A 295022** | **AK2.04: 2.5/2.7**<br>**AK2.05: 2.4/2.5**<br>**AA1.04: 2.5/2.6** |
| **LP# GG-1-LP-OP-G3336** | | | |
| **OBJ 3c, 8f, 21** | | | |
| **LP# GG-1-LP-OP-C111A** | | | |
| **OBJ 23** | **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2** | | |
| **REFERENCE:** | **03-1-01-1** | NEW | |
| | **sect. 2.2.5; 3.3.1d; 3.3.3a** | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | | | **NRC 3/98** |
| | | RO SRO ***BOTH*** | **CFR 41.5** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 26**

Suppression Pool temperature has gone up due to the performance of a Reactor Core Isolation Cooling (RCIC) quarterly surveillance.

Residual Heat Removal (RHR) ‘B’ has been place in Suppression Pool Cooling Mode of operation.

Which of the following describes the operability of the RHR ‘B’ system under these conditions?

A. RHR ‘B’ Containment Spray Mode is INOP at this time

B. RHR ‘B’ Low Pressure Core Injection (LPCI) Mode is INOP at this time

C. RHR ‘B’ Shutdown Cooling Mode is INOP at this time

D. All Modes of RHR ‘B’ are operable at this time

**QUESTION 26** **NRC RECORD # WRI 511**
**ANSWER: B.** **SYSTEM # E12** **K/A 295026** **Generic 2.1.33: 3.4/4.0**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14 A** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-01-E12-1** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 43.2/43.3**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 27

The plant was operating at 100 % Power.

A steam leak has developed in the Containment steam tunnel.

Containment temperature has gone up to 85°F and still rising.

A power reduction has commenced but Containment temperature continues to rise.

Tech. Specs states if Containment temperature exceeds 95°F to restore to < 95°F within 8 hours.

If Containment temperature is unable to be restored to < 95°F within 8 hours; then be in MODE 3 in 12 hours and be in MODE 4 in 36 hours.

Which of the following is the basis for this action?
**Tech Spec 3.6.1.5 is provided.**

A. Shut down of the Reactor is done to prevent having to initiate Containment Spray to maintain Containment temperature below 185°F.

B. Shut down of the Reactor is done to place the plant in a MODE that the LCO does not apply.

C. Shut down of the Reactor is done to prevent having to Emergency Depressurize to maintain Containment temperature below 185°F.

D. Shut down of the Reactor is done to prevent damaging operating equipment inside Containment due to high temperature.

| | | | |
|---|---|---|---|
| **QUESTION 27** | | **NRC RECORD # WRI 512** | |
| **ANSWER: B.** | **SYSTEM # M41-1** | **K/A 295027** | **K3.03: 3.7/3.7** |
| **LP# GG-1-LP-OP-M4101** | | | |
| **OBJ. 12** | **SRO TIER 1 GROUP 1 /** | **RO TIER 1 GROUP 2** | |
| **REFERENCE:** | **TECH. SPEC. 3.6.1.5** | ***NEW*** | |
| | **TECH. SPEC. BASES 3.6.1.5** | MODIFIED | BANK |
| **DIFF 1; M** | | RO SRO ***BOTH*** | **CFR 41.9/41.10/43.2** |
| **REFERENCE MATERIAL REQUIRED:** | | **Tech Spec 3.6.1.5** | |

**QUESTION 28**

The following conditions are observed after a Loss of Coolant Accident:

| | |
|---|---|
| Reactor Pressure | 50 psig |
| 166’ elev. temperature in the Drywell | 205?F |
| Drywell Pressure | 5.8 psig |
| 139’ elev. temperature in the Containment | 150 ?F |
| 119’ elev. temperature in the Containment | 130 ?F |
| Containment Pressure | 2.0 psig |
| Shutdown Range Level Indication | + 20 inches |
| Upset Range Level Indication | + 50 inches |
| Wide Range Level Indication | - 40 inches |

Operators were unable to verify any trends of level instruments.

Which one of the following indicates the most accurate level indication?

A. Upset Range

B. Wide Range

C. Level cannot be determined.

D. All level instruments may be considered accurate.

**QUESTION 28** **NRC RECORD # WRI 520**
**ANSWER: B.** **SYSTEM # B21** **K/A 295028** **EK2.03: 3.6/3.8**
**EK1.01: 3.5/3.7**
**LP# GG-1-LP-RO-EP02A** **K/A 295027** **EK1.02: 3.0/3.2**
**OBJ. 9** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-S-01-EP-2 Caution 1** NEW
***MODIFIED*** BANK
**DIFF 2; CA** **NRC 3/98 WRI001**
RO SRO ***BOTH*** **CFR 41.3/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2 CAUTION 1**

**QUESTION 29**

Which of the following is the basis for Emergency Reactor Pressure Vessel (RPV) Depressurization when Suppression Pool Level CANNOT be maintained below 24.4 feet?

A. 24.4 feet is the highest Suppression Pool level at which the pressure suppression capability of Containment can be maintained.

B. 24.4 feet is the highest Suppression Pool level at which the Suppression Pool will not overflow the weir wall resulting in flooding the Drywell.

C. 24.4 feet is the highest Suppression Pool level at which Suppression Pool level instrumentation taps will become covered resulting in loss of ability to monitor Suppression Pool level.

D. 24.4 feet is the highest Suppression Pool level at which opening Safety Relief Valves (SRVs) will not exceed the design pressure for the SRV discharge piping.

**QUESTION 29** **NRC RECORD # WRI 513**
**ANSWER: A.** **SYSTEM # M41-1** **K/A 295029** **K1.01: 3.4/3.7**
**LP# GG-1-LP-OP-EP03**
**OBJ. 6** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: GGNS PSTG APP B 16.11** ***NEW***
**SP/L-3** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.9/41.10**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 30**

Given the following conditions:

| | |
|---|---|
| Reactor power | 20% and stable |
| Reactor level | -120 inches and stable on Startup Level Control |
| Reactor pressure | 900 psig and stable on SRVs |
| Suppression pool temperature | 1500F and rising |
| Suppression pool level | 15.7 feet and slowly rising |
| 4 SRVs are open. | |

Which one of the following best describes the correct actions to be taken given the above conditions?

A. Maintain conditions allowing time for attachments for power reduction.

B. Reduce use of SRVs and raise pressure band allowing pressure to rise to 1050 psig.

C. Terminate and prevent injection from ECCS and Feedwater to lower reactor level to between TAF and –192 inches.

D. Terminate and prevent injection from ECCS and Feedwater and Emergency Depressurize waiting for MARFP conditions.

**QUESTION 30** **NRC RECORD # WRI 526**
**ANSWER: D.** **SYSTEM # Prim CTMT EOP** **K/A 295030 EK1.03: 3.8/4.1**
**LP# GG-1-LP-RO-EP03**
**OBJ 3** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 05-S-01-EP-2A** NEW
**Steps 33, 51, 53, 54, 55, 58** ***MODIFIED*** BANK
**DIFF 2;CA** **Figure 1** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-2/2A & 3**

**QUESTION 31**

The plant is in a Refueling Outage.

PSW RAD HI/INOP alarm was received.

PSW Rad monitor reading is 53,000 cpm.

No other alarms are present

Which of the following is the probable source of radioactive release and correct actions to be taken?

A. CCW Heat Exchangers, Swap CCW Heat Exchangers to SSW

B. CCW Heat Exchangers, Secure CCW system and isolate CCW Heat Exchangers

C. ADHR Heat Exchangers, Swap ADHR Heat Exchangers to SSW

D. ADHR Heat Exchangers, Secure ADHR system and isolate ADHR Heat Exchangers

**QUESTION 31** **NRC RECORD # WRI 514**
**ANSWER: D.** **SYSTEM # D17** **K/A 295038 A2.04: 4.1/4.5**
**LP# GG-1-LP-OP-D1721**
**OBJ. 2** **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
**REFERENCE: 04-1-02-1H13-P601-18A-F1** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.10/41.11/**
**REFERENCE MATERIAL REQUIRED:** NONE **41.12/41.13/43.4/43.5**

**QUESTION 32**

A fire has engulfed the H13-P601 panel.

The fire has forced the evacuation of the Main Control Room.

The Reactor is shutdown and control has been established at the Remote Shutdown Panel.

The appropriate attachments for a fire have been completed.

Which one of the following describes a service that may be affected by the fire in the Control Room?

A. Cooling of the Suppression Pool with Residual Heat Removal

B. Cooling of Safe Shutdown components with Standby Service Water

C. Shutdown cooling operation of Residual Heat Removal

D. Opening of up to six Safety Relief Valves for depressurizing the reactor

**QUESTION 32** **NRC RECORD # WRI 178**
**ANSWER: C.** **SYSTEM # C61; B21; E12; P41; E21** **K/A 600000 AA2.17: 3.6**
**LP# GG-1-LP-OP-C6100**
**OBJ. 4b, 6, 9, 11** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
**REFERENCE: 05-1-02-II-1 Att III & IV** NEW
**E-1160-10 (E12-F009)** MODIFIED ***BANK***
**DIFF 2; CA** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-1-02-II-1 Att. III & IV**

**QUESTION 33**

Which of the following is the reason for raising Reactor Water Level to +82 inches with no Recirculation pumps in operation per the Inadequate Decay Heat Removal ONEP?

A. +82 inches is the height required to establish flow through Safety Relief Valves (SRVs) to the Suppression Pool.

B. +82 inches is the height required to establish alternate cooling using Fuel Pool Cooling and Clean-up system (FPCCU).

C. +82 inches is the height required to allow natural circulation through the core and feedwater annulus.

D. +82 inches is the level required for the Time to Boil Curve from the Main Steam Line to be valid.

**QUESTION 33** **NRC RECORD # WRI 515**
**ANSWER: C.** **SYSTEM # B21; B33** **K/A 295021** **K3.01: 3.3/3.4**
**LP# GG-1-LP-OP-ONEP1**
**OBJ. 17** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 05-1-02-III-1sect 3.1.2a** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.5/41.10**
**REFERENCE MATERIAL REQUIRED:** NONE **41.14/43.5**

**QUESTION 34**

The plant is operating at rated conditions.

The following indications of Secondary Containment temperatures were just obtained by the Roving Nuclear Operator ‘A’:

| | | | |
|---|---|---|---|
| RHR A Pump Room | 170 °F | RWCU Pump Room A | 150 °F |
| RHR A HX Room | 130 °F | RWCU Pump Room B | 140 °F |
| RHR B Pump Room | 150 °F | RCIC Pump Room | 130 °F |
| RHR B HX Room | 100 °F | Main Steam Tunnel | 150 °F |

Which one of the following describes the systems that will receive an isolation signal?

A. RHR A ONLY.

B. RHR A & RCIC.

C. RHR A & B.

D. RHR A & B & RCIC.

**QUESTION 34** **NRC RECORD # WRI 229**
**ANSWER: B. SYSTEM # E31; E12; E51** **K/A 295032 EA1.05: 3.7/3.9**
**LP# GG-1-LP-OP-E5100**
**OBJ. 8g**
**LP# GG-1-LP-OP-M7101**
**OBJ. 8b, c** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 04-1-02-H13-P601 20A-B1** NEW
**05-1-02-III-5** MODIFIED ***BANK***
**DIFF 1; M Isolation Checklist** **NRC 4/00**
RO SRO ***BOTH*** **CFR 41.4/41.9/**
**REFERENCE MATERIAL REQUIRED:** None **41.10/43.5**

**QUESTION 35**

The plant is operating at 100% power.

Fuel Handling Area Exhaust Fan A is tagged out of service for motor replacement.

Fuel Pool Sweep System is out of service for exhaust duct work replacement.

Fuel Handling Area Exhaust Fan B trips and cannot be reset.

Auxiliary Building differential pressure is +0.3 inches wc.

Which one of the following best describes the correct actions to be taken given the above conditions?

A. Immediately shutdown and depressurize the reactor to prevent the possible release of radioactive materials to the environment.

B. Open Secondary Containment doors between the Auxiliary Building and the Turbine Building and operate both Turbine Building Exhaust Filter Trains.

C. Close Fuel Handling Area Outside Air Intake valves and secure Auxiliary Building General Area Fan Coil Units.

D. Manually initiate a train of Standby Gas Treatment and monitor Auxiliary Building pressure.

| | | | |
|---|---|---|---|
| **QUESTION 35** | | **NRC RECORD # WRI 516** | |
| **ANSWER: D.** | **SYSTEM # Secondary CTMT** | **K/A 295035** | **EK1.01: 3.9/4.2**<br>**2.4.50: 3.3/3.3** |
| **LP# GG-1-LP-OP-T4200** | | | |
| **OBJ 2, 22** | | | |
| **LP# GG-1-LP-OP-T4800** | | | |
| **OBJ 2, 18** | **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3** | | |
| **REFERENCE:** | **04-1-02-1H13-P842**<br>**1A-E3 & 1A-E4** | ***NEW***<br>MODIFIED | <br>BANK |
| **DIFF 2; CA** | **04-1-01-T42-1 sect 3.1**<br>**UFSAR 9.4.2; 9.4.2.1.1.d; 6.5.3.2** | <br>RO SRO ***BOTH*** | <br>**CFR 41.7/41.8/41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED:** | None | | |

**QUESTION 36**

The ‘B’ sump pump breaker on the RHR ‘C’ room floor drain sump was Red Tagged for electrical maintenance to perform preventive maintenance (PMs) on the motor.

The handswitch line-up for the RHR ‘C’ room floor drain sump is as follows:

| | |
|---|---|
| RHR Room C Floor Drain Sump Pump “A” HS M020C | AUTO |
| RHR Room C Floor Drain Sump Pump “B” HS M021C | STOP |
| RHR Room C Floor Drain Sump Pumps A/B Mode Switch HS M019C | ALTERNATE |

Which of the following would be the response of the RHR ‘C’ floor drain sump to a HI level under the present conditions?

A. The ‘A’ sump pump would auto start on every HI level condition.

B. The ‘A’ sump pump would auto start on the next HI level condition but would NOT start on any subsequent HI level conditions.

C. The ‘A’ sump pump would auto start on a HI HI level condition.

D. The ‘A’ sump pump will NOT auto start on any HI level conditions.

**QUESTION 36** **NRC RECORD # WRI 517**
**ANSWER: D.** **SYSTEM # P45** **K/A 295036 K2.01: 3.1/3.2**
**LP# GG-1-LP-OP-P4500**
**OBJ. 11** **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
**REFERENCE: 04-1-01-P45-2 sect 3.5** ***NEW***
**04-1-02-1H13-P680-8A1-C2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 37**

The reactor is shutdown and the plant is in a forced cooldown to achieve cold shutdown conditions.

Which one of the following best describes the method used to control CRD Flow and Drive pressure during the depressurization process?

A. The Pressure Control Valve automatically throttles to maintain 250 psid Drive DP and the Flow Control Valve automatically throttles in response to a CRD flow setpoint of ≈ 60 GPM.

B. The Pressure Control Valve automatically throttles to maintain 250 psid Drive DP and the Flow Control Valve is manually throttled to maintain a CRD flow of ≈ 60 GPM.

C. The Pressure Control Valve is manually throttled to maintain 250 psid Drive DP and the Flow Control Valve automatically throttles in response to a CRD flow setpoint of ≈ 60 GPM.

D. The Pressure Control Valve is manually throttled to maintain 250 psid Drive DP and the Flow Control Valve is manually throttled to maintain a CRD flow of ≈ 60 GPM.

**QUESTION 37** **NRC RECORD # WRI 059**
**ANSWER: C.** **SYSTEM # C11-1A** **K/A 201001** **K4.08: 3.1/3.0**
**LP# GG-1-LP-OP-C111A**
**OBJ 8a & b, 9** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 1**
**REFERENCE:** **M – 1081-B** NEW
**E-1166- 003; 017** MODIFIED ***BANK***
**DIFF 2; CA** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 38**

A plant start-up is in progress.

Reactor Power is 40%.

Control Rod 32-09 is at position 12.

All RC&IS functions are normal.

Control Rod 32-09 is selected and is allowed to be withdrawn to position 24 per the pull sheet.

Which of the following is correct concerning any limitations that may be imposed by Rod Control and Information System (RC&IS)?

A. A Rod Block will occur at position 16 due to Rod Withdraw Limiter (RWL).

B. A Rod Block will occur at position 16 due to Banked Position Withdrawal Sequence (BPWS).

C. A Rod Block will occur at position 20 due to Rod Withdraw Limiter (RWL).

D. A Rod Block will occur at position 20 due to Banked Position Withdrawal Sequence (BPWS).

**QUESTION 38** **NRC RECORD # WRI 518**
**ANSWER: C.** **SYSTEM # C11-2** **K/A 201005** **K5.10: 3.2/3.3**
**LP# GG-1-LP-OP-C1102**
**OBJ. 6, 12, 13c** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-C11-2** ***NEW***
**sect 4.3.2.g Note** MODIFIED BANK
**DIFF 2; CA 06-OP-1C11-V-003**
**TECH SPEC TR 3.3.2.1-1** RO SRO ***BOTH*** **CFR 41.6/43.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 39**

A shutdown is in progress with reactor power approximately 42%.

Both reactor recirculation pumps are operating on fast speed with their respective FCV's at minimum position in preparation for downshifting.

During transfer to LFMG, the Recirculation pump A tripped. The Recirculation pump 'A' discharge valve has been closed.

Present indications are:

| | |
|---|---|
| 'A' Loop Total Jet Pump flow | 5 mlbm/hr |
| 'B' Loop Total Jet Pump flow | 26 mlbm/hr |
| Total core flow | 21 mlbm/hr |
| Reactor power | 29% |

Which one of the following correctly describes the method to determine total core flow?

A. Subtract Loop 'A' Total Jet Pump flow twice from Total core flow.

B. Total core flow indication is indicating actual Total core flow.

C. Add Loop 'B' Total Jet Pump flow to Loop 'A' Total Jet Pump flow.

D. Add Loop 'A' Total Jet Pump flow to Total core flow.

**QUESTION 39** **NRC RECORD # WRI A037**
**ANSWER: C.** **SYSTEM # B33** **K/A 202002** **A1.06: 3.4/3.3; A1.07: 3.1/3.1**
**A2.01: 3.4/3.4; A2.09: 3.1/3.3**
**A4.08: 3.3/3.3; A4.09: 3.2/3.3**
**LP# GG-1-LP-OP-B3300** **295001** **AK2.01: 3.6/3.7**
**OBJ. 3** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-B33-1 sect. 3.18** NEW
MODIFIED ***BANK***
**DIFF 2; CA** **Audit 12/00**
RO SRO ***BOTH*** **CFR 41.2/41.3/41.5**
**REFERENCE MATERIAL REQUIRED:** None **41.6/41.7**

**QUESTION 40**

The plant is starting up and is currently operating at 80% power.

All systems are operating properly.

There is a spurious High Pressure Core Spray (HPCS) initiation.

All other systems respond properly.

**NO operator action is taken.**

Which of the following identifies the effect on Reactor Water Level the spurious HPCS initiation will have?

A. Reactor Water Level will RISE, Feedwater Level Control will respond, and Reactor Water level will stabilize at a HIGHER than normal condition.

B. Reactor Water level will RISE, Feedwater Level Control will respond, and Reactor Water level will be returned to NORMAL level.

C. Reactor Water level will RISE, Feedwater Level Control will respond, and Reactor Water level will stabilize at a LOWER than normal condition.

D. Reactor Water level will not be affected due to Feedwater Level Control will respond and maintain Reactor Water level at NORMAL level.

**QUESTION 40** **NRC RECORD # WRI 519**
**ANSWER: A.** **SYSTEM # C34; E22** **K/A 209002** **K3.01: 3.9/3.9**
**LP# GG-1-LP-OP-MCD7b.00**
**OBJ. 2 A** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: UFSAR 15.5.1.2.1** ***NEW***
**UFSAR FIG. 15.5-1** MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 41**

Given a prolonged loss of Instrument Air to the Standby Liquid Control (SBLC) system, which of the following identifies the SBLC component(s) that would be affected?

A. SBLC storage tank air sparge capability

B. SBLC storage tank level indication

C. SBLC test tank level indication

D. SBLC storage tank level indication ***AND*** SBLC test tank level indication

**QUESTION 41** **NRC RECORD # WRI 521**
**ANSWER: B.** **SYSTEM # C41; P53** **K/A 211000** **K1.03: 2.5/2.6**
**LP# GG-1-LP-OP-C4100**
**OBJ. 14D** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **P&ID M-1067H (F-3)** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.6/41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 42**

The plant is operating at 100% power steady state conditions.

All systems are functioning properly.

No tests or surveillance's are in progress.

The following alarms and indications were just received on P680:

RX SCRAM TRIP annunciator sealed in.

HCU TROUBLE annunciator sealed in.

DIV 1 and 3 white scram solenoid indicating lights are ON.

DIV 2 and 4 white scram solenoid indicating lights are OFF.

HCU FAULT pushbutton on the operator's control module is BACKLIT.

HCUs 12-13, 12-53, 20-05, 20-61 have blinking red LEDs for accumulator faults.

Which of the following identifies the cause for the alarms and indications?

A. A half scram has occurred due to a loss of RPS A.

B. A half scram has occurred due to a loss of RPS B.

C. Control Rods 12-13, 12-53, 20-05, and 20-61 have scrammed in.

D. A fuse has blown in the power monitoring circuit for HCUs 12-13, 12-53, 20-05, and 20-61.

**QUESTION 42** **NRC RECORD # WRI 522**
**ANSWER: B.** **SYSTEM # C71; C11-2** **K/A 212000** **A3.04: 3.9/3.8**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6a** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-02-1H13-P680-7A-A2** ***NEW***
**04-1-02-1H13-P680-4A2-D4** MODIFIED BANK
**DIFF 3; CA** **05-1-02-III-2 sect 4.2, 4.3**
RO SRO ***BOTH*** **CFR 41.6/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 43**

The plant is in a reactor startup just after reaching critical.

The Operator-at-the-Controls is withdrawing SRMs.

The following conditions exist:

All IRMs are on Range 2.

| | |
|---|---|
| SRM A reads 2 x $10^4$ | SRM D reads 6 x $10^3$ |
| SRM B reads 8 x $10^3$ | SRM E reads 8 x $10^4$ |
| SRM C reads 2 x $10^3$ | SRM F reads 3 x $10^5$ |

Which one of the following best describes plant conditions?

A. Rod block only.

B. Half scram, rod block.

C. Full scram, rod block.

D. No trips or blocks are present.

**QUESTION 43** **NRC RECORD # WRI 071**
**ANSWER: A.** **SYSTEM # C11-2; C51; C71** **K/A 215004 A1.04: 3.5/3.5**
**A3.04: 3.6/3.6**
**201005 K4.03: 3.5/3.5**
**LP# GG-1-LP-OP-C1102**
**OBJ 13**
**LP# GG-1-LP-OP-C51-1**
**OBJ 8b** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: Tech Specs TR3.3.2.1** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
RO SRO ***BOTH*** **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 44**

The plant is operating at 100% power steady state.

LPRM 34-51C for APRM C has failed downscale and its mode switch has been placed in BYPASS.

The following is the status of LPRMs for APRM C

| | | | | | |
|---|---|---|---|---|---|
| 10-43B | OPERATE | 34-51C | BYPASS | 58-43D | OPERATE |
| 10-27D | BYPASS | 34-35A | OPERATE | 58-27B | BYPASS |
| 10-11B | OPERATE | 34-19C | BYPASS | | |
| 18-51A | OPERATE | 42-59D | OPERATE | | |
| 18-35C | BYPASS | 42-43B | BYPASS | | |
| 18-19A | OPERATE | 42-27D | OPERATE | | |
| 26-59B | OPERATE | 42-11B | OPERATE | | |
| 26-43D | BYPASS | 50-51A | BYPASS | | |
| 26-27B | OPERATE | 50-35C | OPERATE | | |
| 26-11D | OPERATE | 50-19A | OPERATE | | |

Which of the following identifies the condition of APRM C per Technical Specifications?

A. APRM C is OPERABLE

B. APRM C is INOPERABLE

C. PBDS A is INOPERABLE

D. PBDS B is INOPERABLE

**QUESTION 44** **NRC RECORD # WRI 523**
**ANSWER: B.** **SYSTEM # C71; C51** **K/A 215005** **A4.04: 3.2/3.2**
**LP# GG-1-LP-OP-C5104**
**OBJ. 14** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **TECH SPEC B 3.3.1.1** ***NEW***
**04-1-01-C51-1** MODIFIED BANK
**DIFF 2; CA** **sect 5.2.2 Caution**
**17-S-02-40 ATT. V** RO SRO ***BOTH*** **CFR 41.7/43.2**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 45**

The plant was operating at full power when a failure of the Reactor Feedwater System caused a reactor scram due to lowering reactor water level.

During the transient, workers in Containment caused the reference leg of condensing pot D004A to rupture.

Which one of the following describes the response of the ECCS Systems as reactor water level drops?

| Answer: | Division I | Division II | Division III | RCIC |
|---|---|---|---|---|
| **A.** | Will initiate | Will initiate | Will initiate | Manual initiation |
| **B.** | Manual initiation | Will initiate | Will initiate | Will initiate |
| **C.** | Manual initiation | Manual initiation | Will initiate | Manual initiation |
| **D.** | Will initiate | Manual initiation | Manual initiation | Will initiate |

**QUESTION 45** **NRC RECORD # WRI 529**
**ANSWER: B.** **SYSTEM # E12; E21; E22; E51** **K/A 216000 K4.05: 3.9/4.1**
**LP# GG-1-LP-OP-B2101**
**OBJ. 8b**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9, 23**
**LP# GG-1-LP-OP-E2201**
**OBJ. 11, 23**
**LP# GG-1-LP-OP-E5100**
**OBJ. 10, 22**
**LP# GG-1-LP-OP-E2100**
**OBJ. 9, 19** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **E-1181-67, 68, 82; M-1077B** NEW
**E-1182-26, 29** ***MODIFIED*** BANK
**DIFF 2; CA** **E-1183-23, 27** **NRC 4/00 WRI 243**
**E-1185-34, 42, 44**
**04-1-01-B21-1 Att V Data Sh 3 B21-D004A** RO SRO ***BOTH*** **CFR 41.7/41.14**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 46**

Reactor Core Isolation Cooling (RCIC) is being operated for performance of its quarterly surveillance.

A ground develops on DC bus 1DA1 causing it to de-energize.

Which of the following RCIC components will be without power due to the loss of 1DA1?

A. E51-F046 RCIC WTR TO TURB LUBE OIL CLR ***AND*** E51-F064 RCIC STM SPLY DRWL OTBD ISOL VLV.

B. E51-F019 RCIC MIN FLO TO SUPP POOL ***AND*** E51-F063 RCIC STM SPLY DRWL INBD ISOL VLV

C. E51-F022 RCIC INBD TEST RTN TO CST ***AND*** E51-F076 RCIC STM LINE WARMUP VLV.

D. E51-F045 RCIC STM SPLY TO RCIC TURB ***AND*** E51-C002 RCIC TURB TRIP/THROT VLV.

**QUESTION 46** **NRC RECORD # WRI 525**
**ANSWER: D.** **SYSTEM # E51** **K/A 217000** **K2.04: 2.6/2.6**
**LP# GG-1-LP-OP-E5100**
**OBJ. 6A** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-E51-1 ATT. III** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.6/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 47**

A LOCA has occurred.

Plant conditions are as follows:

Reactor water level is -163 inches

Drywell pressure is 2 psig

All Low Pressure ECCS pumps are operating.

ADS A (B) MANUAL INHIBIT keylock switches are in NORMAL.

ADS has AUTO initiated and 8 ADS valves are open.

Which of the following would result in the 8 ADS valves going closed ***and*** remaining closed?

A. Placing the ADS A (B) MANUAL INHIBIT keylock switches to INHIBIT.

B. Depress the ADS RESET pushbuttons.

C. Reactor water level being restored to > +11.4 inches.

D. Trip all low-pressure ECCS pumps.

**QUESTION 47** **NRC RECORD # WRI 527**
**ANSWER: D.** **SYSTEM # E22-2** **K/A 218000** **A4.01: 4.4/4.4**
**LP# GG-1-LP-OP-E2202**
**OBJ. 12 B & C** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: E1161-005** ***NEW***
**E1161-011** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.5/41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 48**

The plant is operating at 100% power steady state.

All power from offsite is lost.

All systems respond and function properly.

All plant parameters remain in their normal band.

Division 1 and 2 Load Shedding and Sequencing (LSS) functions properly.

Which of the following components is without power at this time?

A. Drywell Chillers A.

B. Division 1 Drywell Cooler Fans.

C. Drywell Chillers B.

D. Division 2 Drywell Cooler Fans.

**QUESTION 48** **NRC RECORD # WRI 528**
**ANSWER: A.** **SYSTEM # M51** **K/A 223001 K2.09: 2.7/2.9**
**LP# GG-1-LP-OP-M5100**
**OBJ. 7A&C** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-R21-1 Table 1** ***NEW***
**04-1-01-M51-1 Att III** MODIFIED BANK
**DIFF 2; CA 04-1-01-P72-1 Att II**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 49**

The plant is operating at 100% power steady state.

All electrical busses are being supplied from their preferred power source.

I&C is performing a half scram surveillance on RPS "B" High Scram Discharge Volume.

RPS logic channel "B" is tripped at this time.

A fault occurs on ESF transformer 11 causing it to de-energize.

Which of the following identifies the status of RPS and the MSIVs at this time?

**(Consider only the immediate effects of the ESF transformer loss and given plant conditions)**

A. Full Reactor Scram and MSIVs closed

B. Full Reactor Scram and MSIVs open

C. Half Reactor Scram and MSIVs closed

D. Half Reactor Scram and MSIVs open

**QUESTION 49** **NRC RECORD # WRI 530**
**ANSWER: D.** **SYSTEM # B21; C71; E31** **K/A 223002** **K6.01: 3.1/3.3**
**LP# GG-1-LP-RO-E3100**
**OBJ. 9j**
**LP# GG-1-LP-OP-C7100**
**OBJ. 6a** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-R21-16 sect 3.3** ***NEW***
**04-1-01-R21-15 sect 3.3; Att I** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.7/41.9**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 50**

A LOCA has occurred.

The ADS A (B) MANUAL INHIBIT keylock switches to INHIBIT.

The ADS Inhibit white status lights are on.

Emergency Depressurization is required to allow low-pressure ECCS pumps to restore Reactor level.

An operator places the handswitches for the 8 ADS valves on 1H13-P601 to OPEN.

The following conditions exist:

| | |
|---|---|
| Reactor pressure | 0 psig |
| Reactor water level | -205 inches |
| Drywell pressure | 3.5 psig |
| All low-pressure ECCS pumps are operating | |

Which of the following identifies the correct RED light indication for the 8 ADS valves on the specified panel locations under current plant conditions?

| | **P601 Handswitch** | **P601 Vertical** | **P628** **Upper Control Room** | **P631** **Main Control Room** |
|---|---|---|---|---|
| **A.** | ON | OFF | ON | OFF |
| **B.** | OFF | ON | OFF | ON |
| **C.** | ON | ON | ON | ON |
| **D.** | OFF | OFF | ON | OFF |

**QUESTION 50** **NRC RECORD # WRI 531**
**ANSWER: D.** **SYSTEM # B21** **K/A 239002** **A4.07: 3.6/3.6**
**LP# GG-1-LP-OP-E2202.00**
**OBJ. 10 E & 18** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-B21-1sect 4.2.2f** ***NEW***
MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOT***H **CFR 41.3/41.7**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 51**

The plant is operating at rated conditions steady state.

The Initial Pressure Control (IPC) subsystem of the Main Turbine EHC Control System has failed in a manner that has opened the Bypass Valves to 30% when the valves should be closed.

If the operator activates the Bypass Valve Manual Jack and tries to close the bypass valves using the jack,

Which of the following describes the results of these actions?

A. The Bypass valves will remain open.

B. The Bypass valves will close to 25%, but no further.

C. The Bypass valves will close to 10%, but no further.

D. The Bypass valves will close and remain closed.

**QUESTION 51** **NRC RECORD # WRI 533**
**ANSWER: A.** **SYSTEM # N32-2** **K/A 241000** **A2.03: 4.1/4.2**
**LP# GG-1-LP-RO-N3202**
**OBJ. 3E&8B** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE:** **T/G Instruction Manual** NEW
**Volume 1 460000665** MODIFIED ***BANK***
**DIFF 2; CA** **Volume 2 460000353** **LORT 6/00**
RO SRO ***BOTH*** **CFR 41.5/41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 52**

Concerning P53-F026A and F026B (Instrument Air Supply Header to Aux. Building Isolation Valves), which of the following correctly identifies how these valves would respond to a Loss of Instrument Air?

A. FAIL OPEN.

B. FAIL CLOSED.

C. FAIL AS IS.

D. FAIL CLOSED, but could be reopened by taking DIV I and II AUX BLD ISO BYPASS switches to BYPASS.

**QUESTION 52** **NRC RECORD # WRI 534**
**ANSWER: B.** **SYSTEM # P53** **K/A 290001 K1.09: 2.9/2.9**
**LP# GG-1-LP-OP-P5300**
**OBJ. 30** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: GGNS P&ID 1067M** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7/41.9**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 53**

The plant was operating at 80% power when an Offsite Power fluctuation caused the reactor to scram.

The following subsequent events occurred at the times indicated:

| **Time** | **Event/Manipulation** |
|---|---|
| 09:05:56 | Reactor Scram; reactor water level immediately drops to +8 inches NR |
| 09:06:12 | Reactor water level bottom peaks at +2.5 inches NR |
| 09:06:20 | Reactor water level is +10.4 inches NR |

Which one of the following is the setpoint indicated on the Master Level Controller at **Time 09:06:20**?

A. + 12.4 inches

B. + 18.0 inches

C. + 36.0 inches

D. + 54.0 inches

**QUESTION 53** **NRC RECORD # WRI 274**
**ANSWER: B.** **SYSTEM # C34** **K/A 259002 A3.06: 3.0/3.0**
**LP# GG-1-LP-RO-C3401**
**OBJ. 1.8** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 05-1-02-I-1sect 5.3** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 54**

Standby Gas Treatment Trains ‘A’ and ‘B’ have received an initiation signal on Reactor Water Level.

Which one of the following describes the response of the Process Radiation Monitoring (D17) System?

A. The SBGT Radiation Monitors are in standby until a High Radiation signal is received by SBGT logic.

B. The SBGT Radiation Monitors are in service continuously requiring NO further action.

C. The SBGT Radiation Monitor Sample Pumps will automatically start on SBGT initiation.

D. The SBGT Radiation Monitor Sample Pumps require an operator to be dispatched to start the pumps locally.

| | | | | |
|---|---|---|---|---|
| **QUESTION 54** | | **NRC RECORD # WRI 265** | | |
| **ANSWER: C.** | **SYSTEM # T48; D17** | **K/A 261000** | **K1.08: 2.8/3.1** | |
| | | | **K4.01: 3.7/3.8** | |
| **LP# GG-1-LP-OP-D1721** | | | | |
| **OBJ. 18** | **SRO TIER 2 GROUP 1 /** | **RO TIER 2 GROUP 1** | | |
| **REFERENCE:** | **04-1-01-T48-1 sect 5.2.2d** | NEW | | |
| | **04-1-01-D17-1** | MODIFIED | | ***BANK*** |
| **DIFF 1, M** | **Sect 3.4, 4.5, Att V** | | | **NRC 4/00** |
| | | RO SRO ***BOTH*** | | **CFR 41.7/41.11** |
| **REFERENCE MATERIAL REQUIRED:** | None | | | |

**QUESTION 55**

The plant was operating at 100% power with all electrical busses powered from their preferred power source.

A lockout of ESF Transformer 21 occurred along with a small break LOCA.

Division 3 Diesel Generator is running and carrying Bus 17AC.

The High Pressure Core Spray (HPCS) system auto initiated and is operating properly.

Plant conditions are as follows:

| | |
|---|---|
| Reactor Level | +25 inches |
| Drywell Pressure | 3.2 psig |
| Drywell Temperature | 185°F |

Which of the following would be the correct response of the Division 3 Diesel Generator and output breaker if an operator depressed the HPCS INIT RESET pushbutton and then a "Generator Loss of Excitation" condition occurred on Division 3 Diesel Generator?

A. The output breaker would TRIP and the engine would TRIP.

B. The output breaker would remain CLOSED and the engine would remain RUNNING.

C. The output breaker would TRIP and the engine would remain RUNNING.

D. The output breaker would remain CLOSED and the engine would TRIP.

**QUESTION 55** **NRC RECORD # WRI 536**
**ANSWER: A.** **SYSTEM # P81** **K/A 264000** **A1.09: 3.0/3.1**
**LP# GG-1-LP-OP-P8100**
**OBJ. 13&14 (A,B,C)** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-P81-1 sect 3.26** ***NEW***
**E-1188-014, 015, 018** MODIFIED BANK
**DIFF 3; CA** **E-1183-023**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 56**

The plant was operating at 100% power.

An ATWS has occurred along with a steam leak inside the Drywell.

All systems responded properly (except CRD)

Actions are being taken per EP 2A.

All Low Pressure ECCS pumps and injection valves have been OVERRIDDEN OFF/CLOSED with OVERRIDE annunciators sealed in for RHR A, RHR B, RHR C and LPCS pumps and injection valves.

Plant conditions are as follows:

| | |
|---|---|
| Reactor level | -180 inches |
| Reactor pressure | 900 psig |
| Drywell pressure | 4 psig |
| Bypass valves available | |
| Feedwater available | |

If power were lost to the 16AB bus and the Division 2 diesel generator restored power to the 16AB bus, which of the following would be correct concerning the response of RHR C, under current plant conditions and NO operator actions?

A. RHR C pump would start and RHR C injection valve would open.

B. RHR C pump would start and RHR C injection valve would remain closed.

C. RHR C pump would remain off and RHRC injection valve would remain closed.

D. RHR C pump would remain off and RHR C injection valve would open.

**QUESTION 56** **NRC RECORD # WRI 537**
**ANSWER: B.** **SYSTEM # E12** **K/A 203000 K6.01: 3.6/3.7**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9G** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: GG-1-FIG-OP-E1200.02** ***NEW***
**04-1-01-E12-1 sect 3.3, 3.4** MODIFIED BANK
**DIFF 3; CA**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 57**

The plant is in a refuel outage.

Bus 15AA is being tagged out for electrical maintenance.

Which of the following ECCS pumps will be affected by this tagout?

A. RHR B

B. RHR C

C. HPCS

D. LPCS

**QUESTION 57** **NRC RECORD # WRI 538**
**ANSWER: D.** **SYSTEM # E21** **K/A 209001** **K2.01: 3.0 3.1**
**LP# GG-1-LP-OP-E2100**
**OBJ. 7B** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-E21-1 Att III** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 58**

The plant was operating at 80% power.

A small steam leak developed in the Drywell.

The Reactor has been scrammed and Standby Gas Treatment Systems (SBGTS) 'A' and 'B' have AUTO initiated.

All systems responded properly.

SBGT 'A' has been placed in STANDBY per the SOI.

Which of the following set of conditions would restart the SBGT 'A' system from STANDBY?

CONSIDER EACH ANSWER AS A SET OF PLANT CONDITIONS.

| | **Enclosure Building Recirc Fan 'B' Flow** | **Exhaust Filter Train 'B' Flow** | **Enclosure Building Pressure** |
|---|---|---|---|
| **A.** | 9,000 scfm | 2500 scfm | -0.55 inches wc |
| **B.** | 12,300 scfm | 1650 scfm | -0.65 inches wc |
| **C.** | 11, 250 scfm | 2200 scfm | -0.05 inches wc |
| **D.** | 10, 500 scfm | 1375 scfm | -0.35 inches wc |

**QUESTION 58** **NRC RECORD # WRI 539**
**ANSWER: C.** **SYSTEM # T48** **K/A 261000 A2.01: 2.9/3.1**
**LP# GG-1-LP-OP-T4801**
**OBJ. 8G&H** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
**REFERENCE: 04-1-01-T48-1 sect 5.2.2c3** ***NEW***
**04-1-02-1H13-P870-2A-D2** MODIFIED BANK
**DIFF 2; CA** **04-1-02-1H13-P870-2A-E3**
**04-1-02-1H13-P870-2A-F3** RO SRO ***BOTH*** **CFR 41.7/41.10**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 59**

Select the statement that describes the MOST probable cause of the following plant conditions:

Annunciator “**RECIRC PMP B SEAL STG FLO HI/LO**” alarms.

Annunciator “**RECIRC PMP B OUTR SEAL LEAK HI**” alarms.

Recirc pump ‘B’ # 1 seal cavity pressure: 1020 psig.

Recirc pump ‘B’ # 2 seal cavity pressure: 100 psig

A. Failure of the # 1 seal.

B. Failure of the # 2 seal.

C. Failure of the CRD seal purge regulator.

D. Plugging of the orifice between # 1 and # 2 seals.

| | | | |
|---|---|---|---|
| **QUESTION 59** | | **NRC RECORD # WRI 540** | |
| **ANSWER: B.** | **SYSTEM # B33** | **K/A 202001** | **A2.10: 3.5/3.9** |
| **LP# GG-1-LP-OP-B3300** | | | |
| **OBJ. 29D** | **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2** | | |
| **REFERENCE:** | **04-1-02-1H13-P680-3A-A12** | NEW | |
| | **04-1-02-1H13-P680-3A-B11** | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | | | **LOT 7/95** |
| | | RO SRO ***BOTH*** | **CFR 41.3/41.5** |
| **REFERENCE MATERIAL REQUIRED:** | NONE | | |

**QUESTION 60**

An ATWS has occurred.

Standby Liquid Control Pump 'A' is tagged out.

The Control Room Operator starts Standby Liquid Control Pump 'B'.

Which one of the following describes the response of the Reactor Water Cleanup System?

A. RWCU will isolate the Filter Demineralizers and open G33-F044, RWCU F/D Byp to continue circulation of reactor water for level control and sampling purposes.

B. RWCU will isolate G33-F004, RWCU Pmp Suct Isol causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

C. RWCU will isolate G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

D. RWCU will isolate G33-F004 and G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

**QUESTION 60** **NRC RECORD # WRI 251**
**ANSWER: C.** **SYSTEM # G33; C41** **K/A 204000** **K6.07: 3.3/3.5**
**LP# GG-1-LP-OP-G3336**
**OBJ. 8f, 9a** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **04--1-01-C41-1** NEW
**Sect 5.3.2b4** MODIFIED ***<u>BANK</u>***
**DIFF 1; M** **NRC 4/00**
RO SRO ***<u>BOTH</u>*** **CFR 41.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 61**

The plant is in a refuel outage.

Reactor Water Clean-Up (RWCU) is operating.

Residual Heat Removal (RHR) B is in Shutdown Cooling.

E12-F048B RHR B Heat Exchanger Bypass valve is FULL OPEN.

E12-F003B RHR B Heat Exchanger Outlet valve is FULL CLOSED.

Which of the following would be a valid indication of Reactor Coolant Temperature under present plant conditions?
**P & IDs M-1079 and M-1085A are provided.**

A. RHR B heat exchanger B001B inlet temperature E12 TE-N004B

B. RHR B heat exchanger B002B inlet temperature E12 TE-N002B.

C. RHR B heat exchanger discharge temperature E12 TE-N027B.

D. RWCU Non-Regen heat exchanger inlet temperature G33 TE-N006.

**QUESTION 61** **NRC RECORD # WRI 541**
**ANSWER: C.** **SYSTEM # E12** **K/A 205000** **K1.03: 3.4/3.5**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-E12-1** ***NEW***
**sect 4.2.2.e.13 Caution** MODIFIED BANK
**DIFF 2; CA** **P&ID M1085A**
**M-1079** RO SRO ***BOTH*** **CFR 41.2/41.3/41.4**
**REFERENCE MATERIAL REQUIRED:** **M-1079 & M-1085A** **41.5**

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**WRITTEN EXAMINATION JUNE 2001**
**SENIOR REACTOR OPERATOR**

**QUESTION 62**

The plant was operating at full power steady state.

A Loss of Coolant Accident (LOCA) has occurred.

High Pressure Core Spray (HPCS) and Reactor Core Isolation Cooling (RCIC) are operating and maintaining Reactor Water Level.

All low pressure ECCS AUTO initiated properly.

The injection valves for all low pressure ECCS systems have OVERRIDDEN closed.

Residual Heat Removal (RHR) 'B' has been placed in Suppression Pool Cooling and annunciator RHR TEST RTN VLV F024B MAN OVERRD was received.

Which of the following is correct concerning operation of E12-F024B, RHR 'B' Test Return to Suppression Pool?

A. E12-F024B would AUTO close on a Division 2 Containment Spray initiation.

B. E12-F024B would AUTO close, if RHR 'B' injection valve E12-F042B is opened.

C. E12-F024B would remain open, if power were lost to the 16AB bus and then restored.

D. E12-F024B with a Manual Override signal sealed in has all AUTO signals removed.

**QUESTION 62** **NRC RECORD # WRI 542**
**ANSWER: A.** **SYSTEM # E12** **K/A 219000** **A4.14: 3.7/3.5**
**LP# GG-1-LP-OP-E1200**
**OBJ. 9G** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **GG-1-FIG-OP-E1200** ***NEW***
**04-1-01-E12-1 sect 3.3** MODIFIED BANK
**DIFF 2; CA** **04-1-02-1H13-P601-17A-B2**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 63**

The plant was operating at rated conditions steady state.

A steam line rupture occurs in the Drywell at 3:00 A.M.

All low pressure ECCS AUTO Initiate and respond properly.

The SRO directs MANUAL initiation of Containment spray due to Containment temperature exceeding 185°F at 3:05 A.M.

Plant conditions are as follows:

Reactor level -130 inches
Drywell pressure 6.2 psig

Containment Spray is initiated at 3:06 A.M.

Which of the following is correct concerning the E12-F048A RHR 'A' Heat Exchanger Bypass valve?

A. E12- F048A will remain open for 5 minutes then auto close.

B. E12-F048A will auto close for 5 minutes then auto open.

C. E12-F048A will cycle open and closed for 5 minutes then remain closed.

D. E12-F048A will cycle open and closed for 5 minutes then remain open.

**QUESTION 63** **NRC RECORD # WRI 543**
**ANSWER: C.** **SYSTEM # E12** **K/A 226001** **A2.03: 3.1/3.1**
**LP# GG-1-LP-OP-E1200**
**OBJ. 8G** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
**REFERENCE: GG-1-FIG-OP-E1200** ***NEW***
**E-1181-27,68,69** MODIFIED BANK
**DIFF 2; CA**
RO SRO ***BOTH*** **CFR 41.7/41.8**
**REFERENCE MATERIAL REQUIRED: NONE**

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**SENIOR REACTOR OPERATOR**

**QUESTION 64**

The following are the current conditions of the RHR A circuit breaker 152-1509:

Racked in open
Control fuses installed
Closing springs charged
Charging motor off

Considering only the current conditions, which one of the following describes the operational status of the circuit breaker?

A. The circuit breaker will electrically close and open locally as many times as required.

B. The circuit breaker will close locally one time only. Once closed the circuit breaker will NOT open.

C. The circuit breaker will close remotely one time only. Once closed the circuit breaker CANNOT be opened remotely.

D. The circuit breaker will close remotely one time only. Once closed the circuit breaker can be opened remotely.

**QUESTION 64** **NRC RECORD # WRI 335**
**ANSWER: D.** **SYSTEM # R21** **K/A 262001** **K4.03: 3.2/3.4**
**LP# GG-1-LP-OP-PROC** **2.1.30: 3.9/3.4**
**OBJ. 42o; 55b(2)**
**LP# GG-1-LP-OP-E1200**
**OBJ. 14**
**LP# OP-NOB-EL-LP-011**
**OBJ. 3**
**LP# GG-1-LP-OP-ELBKR**
**OBJ. 11, 22** **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-E12-1 sect 3.2.7** NEW
**04-S-04-2 sect 4.4** MODIFIED ***BANK***
**DIFF 2; CA** **02-S-01-2 Att III, III A** **NRC 12/00**
RO SRO ***BOTH*** **CFR 41.4/41.7/41.10**
**REFERENCE MATERIAL REQUIRED:** None **43.5**

**QUESTION 65**

Static inverter 1Y95 has automatically transferred to its alternate power source because of a fault on its normal power source.

Two hours later, the electricians have repaired the fault and the normal power source for 1Y95 is re-energized.

Which one of the following statements describes the restoration of the inverter to its NORMAL source?

A. The inverter static switch can be manually transferred back to the normal power source, only if the power sources are IN SYNC.

B. The inverter static switch will automatically transfer back to the normal power source, only if the power sources are IN SYNC.

C. The inverter static switch will automatically transfer back to the normal power source, regardless of whether the power sources are IN SYNC.

D. The inverter static switch can be manually transferred back to the normal power source, regardless of whether the power sources are IN SYNC.

**QUESTION 65** **NRC RECORD # WRI 544**
**ANSWER: A.** **SYSTEM # L62** **K/A 262002** **A3.01: 2.8/3.1**
**LP# GG-1-LP-OP-L6200**
**OBJ. 7b&8b** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-L62-1 sect 3.2 & 3.5** NEW
MODIFIED ***BANK***
**DIFF 1; M** **LP L62 SQ #3**
RO SRO ***BOTH*** **CFR 41.7/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 66**

The plant is operating at 85% power with the Offgas System in its normal SOI lineup.

The ADSORBER TRAIN BYPASS VALVE, N64-F045 is in TREAT.

The OFFGAS DISCHARGE VALVE, N64-F060 in AUTO.

In the Control Room, the Operator observes the closure of the following valves:

- N64-F060, OFFGAS DISCHARGE TO VENT
- N64-F054, PRE FILTER INLET DRAIN
- N64-F034A & B, COOLER CONDENSER DRAIN A & B
- N64-F441, HOLDUP LINE DRAIN

Which one of the following signals could cause all these valves to close almost simultaneously?

A. Main Steam Line radiation HI-HI (all channels)

B. Radwaste Ventilation Exhaust radiation HI-HI (all channels)

C. Offgas Post-Treatment radiation HI-HI-HI (all channels)

D. Offgas Pre-Treat radiation HI-HI (all channels)

**QUESTION 66** **NRC RECORD # WRI 545**
**ANSWER: C.** **SYSTEM # N64; D17** **K/A 271000** **A3.01: 3.3/3.3**
**LP# GG-1-LP-OP-N6465**
**OBJ. 10i&12** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 05-1-02-II-2 sect 5.2** NEW
MODIFIED ***BANK***
**DIFF 1; M** **LP-N64-SQ-#1**
RO SRO ***BOTH*** **CFR 41.7/41.13**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 67**

Drywell and Containment airborne activity has been going up over the past few days.

Annunciators "CTMT CLG EXH DIV 1, 4 RAD HI-HI" and "CTMT CLG EXH DIV 2, 3 RAD HI-HI" are received.

All other plant parameters are below their TRIP setpoints.

Which of the following identifies the correct valve configuration due to present plant conditions?

**(Assume all valves were open initially)**

| | | |
|---|---|---|
| A. | M41-F034 CTMT CLG EXH TO CTMT VENT | OPEN |
| | M41 F035 CTMT CLG EXH TO CTMT VENT | OPEN |
| | M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL | OPEN |
| | M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL | OPEN |
| B. | M41-F034 CTMT CLG EXH TO CTMT VENT | CLOSED |
| | M41 F035 CTMT CLG EXH TO CTMT VENT | CLOSED |
| | M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL | CLOSED |
| | M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL | CLOSED |
| C. | M41-F034 CTMT CLG EXH TO CTMT VENT | CLOSED |
| | M41 F035 CTMT CLG EXH TO CTMT VENT | CLOSED |
| | M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL | OPEN |
| | M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL | OPEN |
| D. | M41-F034 CTMT CLG EXH TO CTMT VENT | OPEN |
| | M41 F035 CTMT CLG EXH TO CTMT VENT | OPEN |
| | M41-F036 CTMT CLG VENT EXH AUX BLDG INBD ISOL | CLOSED |
| | M41-F037 CTMT CLG VENT EXH AUX BLDG OTBD ISOL | CLOSED |

**QUESTION 67** **NRC RECORD # WRI 546**
**ANSWER: C.** **SYSTEM # D17/D21** **K/A 272000** **K4.02: 3.7/4.1**
**LP# GG-1-LP-OP-D1721**
**OBJ. 8** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-02-1H13-P601-18A-D5** ***NEW***
**04-1-02-1H13-P601-18A-D6** MODIFIED BANK
**DIFF 1; M** **05-1-02-III-5 Group 7 &**
**Aux Bldg Vent** RO SRO ***BOTH*** **CFR 41.7/41.11/43.4**
**REFERENCE MATERIAL REQUIRED:** NONE

## QUESTION 68

Concerning the Fire Protection CO2 storage tank;

Which of the following conditions would the CO2 storage tank be considered **OPERABLE** per Technical specifications?

A. CO2 storage tank level 55% **and** pressure 275 psig

B. CO2 storage tank level 70% **and** pressure 280 psig

C. CO2 storage tank level 70% **and** pressure 270 psig

D. CO2 storage tank level 65% **and** pressure 265 psig

**QUESTION 68** **NRC RECORD # WRI 547**
**ANSWER: B.** **SYSTEM # P64** **K/A 286000** **A1.06: 2.9/3.0**
**LP# GG-1-LP-OP-N4400**
**OBJ. 10, 15**
**LP# GG-1-LP-OP-P6400**
**OBJ. 10** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **TECH. SPECS. 6.2.4** ***NEW***
**04-1-01-N44-1 sect 3.8** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.8/43.2**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 69**

Concerning the operation of the Reactor Feed Pump (RFP) Turbines governor control in MANUAL and SPEED AUTO,

Which of the following correctly identifies the limitations imposed when in MANUAL **and** in SPEED AUTO if the raise pushbutton is depressed and held from 0 to 100%?

A. In MANUAL, the governor will stroke 0-100% in 15 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 10 rpm/sec for one second and 120 rpm/ second thereafter.

B. In MANUAL, the governor will stroke 0-100% in 10 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 15 rpm/sec for one second and 120 rpm/ second thereafter.

C. In MANUAL, the governor will stroke 0-100% in 15 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 10 rpm/sec for one second and 150 rpm/ second thereafter.

D. In MANUAL, the governor will stroke 0-100% in 10 seconds and
In SPEED AUTO, the speed setpoint will change at a rate of 15 rpm/sec for one second and 150 rpm/ second thereafter.

**QUESTION 69** **NRC RECORD # WRI 548**
**ANSWER: A.** **SYSTEM # N21** **K/A 259001** **K5.03: 2.8/2.8**
**LP# GG-1-LP-OP-N2100**
**OBJ. 19** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE: 04-1-01-N21-1 sect 3.14** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.5/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 70**

Which of the following sets of conditions correctly identifies those required for Control Room HVAC to isolate and Control Room Fresh Air Units to start?

A. Reactor water level –150.3 inches **and** Drywell pressure + 1.39 psig **and** Control Room Vent Rad monitor reading 3.6 mR/hr.

B. Reactor water level –150.3 inches **or** Drywell pressure + 1.39 psig **or** Control Room Vent Rad monitor reading 3.6 mR/hr.

C. Reactor water level –41.6 inches **and** Drywell pressure + 1.23 psig **and** Control Room Vent Rad monitor reading 5 mR/hr.

D. Reactor water level –41.6 inches **or** Drywell pressure + 1.23 psig **or** Control Room Vent Rad monitor reading 5 mR/hr.

**QUESTION 70** **NRC RECORD # WRI 549**
**ANSWER: D.** **SYSTEM # Z51** **K/A 290003** **A3.01: 3.3/3.5**
**LP# GG-1-LP-OP-Z5100**
**OBJ. 11** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **04-S-01-Z51-1 sect 5.4.1** ***NEW***
**05-1-02-III-5 Aux Bldg Vent** MODIFIED BANK
**DIFF 1; M** **TECH. SPECS. 3.3.7.1**
RO SRO ***BOTH*** **CFR 41.7/41.11/43.4**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 71**

The plant is operating at 100% power steady state.

Which of the following heat loads of Component Cooling Water (CCW) would be of most concern, under present conditions, if a Loss of CCW were to occur?

A. Reactor Water Clean-up

B. Fuel Pool Cooling and Clean-up

C. Reactor Recirculation pumps

D. Control Rod Drive pumps

**QUESTION 71** **NRC RECORD # WRI 550**
**ANSWER: C.** **SYSTEM # P42** **K/A 400000** **K3.01: 2.9/3.3**
**LP# GG-1-LP-OP-P4200**
**OBJ. 11A&12A&B** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
**REFERENCE:** **04-1-01-P42-1 sect 3.7** ***NEW***
**05-1-02-V-1 Note &** MODIFIED BANK
**DIFF 1; M** **sect 2.1.2, 3.3**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** **NONE**

**QUESTION 72**

Which one of the following will cause a running Fuel Pool Cooling and Clean-up (FPCCU) pump to trip?

A. FPCCU pump discharge flow of 440 gpm for 32 seconds.

B. Fuel Pool drain tank level at 16%.

C. System differential flow of 92 gpm for 50 seconds.

D. Pump suction pressure at 8 psig for 5 seconds.

**QUESTION 72** **NRC RECORD # WRI A024**
**ANSWER: B.** **SYSTEM # G41** **K/A 233000** **A3.02: 2.6/2.6**
**LP# GG-1-LP-OP-G4146**
**OBJ. 7b** **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
**REFERENCE: 04-1-02-1H13-P680-4A2-C7** NEW
MODIFIED ***BANK***
**DIFF 1; M** **AUDIT 12/00**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 73**

Which of the following methods is correct for verifying proper Fuel Bundle Orientation in a fuel cell?

A. The channel fastener of each assembly must be pointed toward the outside of the control cell.

B. All channel spacer buttons on each fuel assembly must face inwards in the cell.

C. The fuel orientation boss on the lifting bail must point toward the outside of the cell.

D. The serial number of the assemblies must be readable, right to left, from the outside of the cell looking inward.

**QUESTION 73** **NRC RECORD # WRI 551**
**ANSWER: B.** **SYSTEM # J11** **K/A 234000 K5.05: 3.0/3.7**
**LP# GG-1-LP-OP-B1300**
**OBJ. 5i** **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 3**
**REFERENCE: 17-S-02-108sect 6.2.3** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.2/41.10/43.7**
**REFERENCE MATERIAL REQUIRED: NONE**

**QUESTION 74**

The plant is operating at rated conditions steady state.

"RCIC PIPE/EQUIP AMBIENT TEMP HI" annunciator is received.

The Alarm Response Instruction (ARI) directs to check area temperature on recorder E31-R608.

The Control Room Supervisor has ordered the Riley Temperature indicators NOT be used.

Which of the following indicate the location of recorder E31-R608?

A. 1H13-P601 in main control room.

B. 1H13-P632 in upper control room.

C. 1H13-P642 in main control room back panel area.

D. 1H22-P150 in remote shutdown panel area.

**QUESTION 74** **NRC RECORD # WRI 552**
**ANSWER: B.** **SYSTEM # E31** **K/A 288000** **A4.02: 2.8/2.8**
**LP# GG-1-QC-RO-CRO01**
**OBJ. Qual Card Rounds**
**LP# GG-1-LP-RO-E3100**
**OBJ. 6c** **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
**REFERENCE:** **GG-1-LP-OP-E5100.02** ***NEW***
**04-1-02-1H13-P601-21A-H2** MODIFIED BANK
**DIFF 1; M**
RO SRO ***BOTH*** **CFR 41.7**
**REFERENCE MATERIAL REQUIRED:** NONE

**QUESTION 75**

The plant is performing the Reactor Vessel In-Service Leak Test after 15 EFPY of operation at the end of RF11.
The following parameters existed during the test:

| Time | Rx Pressure | Rx Metal Temp |
|---|---|---|
| 1000 | 100 psig | 160 °F |
| 1030 | 200 psig | 158 °F |
| 1100 | 250 psig | 158 °F |
| 1130 | 500 psig | 157 °F |
| 1200 | 600 psig | 150 °F |
| 1230 | 800 psig | 140 °F |
| 1300 | 1025 psig | 140 °F |
| 1330 | 1025 psig | 138 °F |
| 1400 | 1025 psig | 135 °F |

Which one of the following statements is correct concerning the Reactor Coolant System? (Assume depressurization will straight drop within rate limits set in the IOI.)

**Tech Specs are provided.**

A. RPV pressure vs temperature limits are within specifications.

B. RPV pressure vs. temperature limits are satisfied, but the reactor requires heatup to complete the test.

C. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction within 30 minutes.

D. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction immediately.

**QUESTION 75** **NRC RECORD # WRI 532**
**ANSWER: A.** **SYSTEM # B13** **K/A 290002** **K5.05: 3.1/3.3**
**LP# GG-1-LP-OP-B1300** **2.1.25: 2.8/3.1**
**OBJ. 16**
**LP# GG-1-LP-OP-IOI03**
**OBJ. 2c, d** **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
**REFERENCE:** **Figure 3.4.11-1 curve A** NEW
**03-1-01-6 Caution** ***MODIFIED*** BANK
**DIFF 3, CA** **03-1-01-3 sect 2.5, 2.6, 2.7** **NRC 4/00 WRI 261**
RO SRO ***BOTH*** **CFR 41.3/41.14/**
**REFERENCE MATERIAL REQUIRED:** **Tech Spec 3.4.11 & curves** **43.2**

**QUESTION 76**

The Control Room has been evacuated due to a freon leak into the Control Room atmosphere, and plant control has been established at the Remote Shutdown Panels.

The plant was scrammed and level in the reactor is lowering. RCIC tripped on overspeed and the MSIVs have closed. The Control Room Supervisor has directed the use of RHR 'A' in the LPCI mode to maintain reactor water level.

During the lineup of RHR 'A' in LPCI mode, you notice two handswitches for the LPCI 'A' Injection Valve (E12-F042A) on the Remote Shutdown Panel 'A'.

What is the reason for two handswitches?

A. One handswitch is to swap to emergency, removing control from the control room, and the other handswitch operates the valve OPEN or CLOSED.

B. One handswitch is to remove the auto features of the E12-F042A and allow the other handswitch to have total control.

C. One handswitch enables the second handswitch to operate the valve in the open and closed positions.

D. One handswitch is used only when the Division I Lockouts have been transferred to insert the pressure interlocks. The second handswitch operates the valve in the open and closed positions.

**QUESTION 76 SRO** **NRC RECORD # WRI 29**
**ANSWER: C.** **SYSTEM # C61; E12** **K/A 295016 AK2.01: 4.5**
**LP# GG-1-LP-OP-C6100**
**OBJ 7b** **SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: E-1181- 037** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
RO ***SRO*** BOTH **CFR 41.7/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 77**

The plant is operating at rated conditions.

Safety Relief Valve B21-F051B has inadvertently opened and is stuck.

Suppression Pool temperature has risen to 1120F.

Which one of the following describes the actions to be taken and the basis for this action?

A. Place a loop of Residual Heat Removal in Suppression Pool Cooling and monitor Suppression Pool temperature at an elevated frequency of once per 30 minutes. This is done to prevent temperature from exceeding 1200F the maximum Suppression Pool Temperature for accident analysis.

B. Immediately emergency depressurize the reactor to less than 200 psig and place a loop of Residual Heat Removal in Suppression Pool Cooling. This action prevents any challenges to Containment integrity due to the ability of the Suppression Pool to absorb energy.

C. Immediately place the Reactor Mode Switch in Shutdown and place both loops of Residual Heat Removal in Suppression Pool Cooling with elevated monitoring frequency. Shutdown prevents challenge to Containment during a design basis accident.

D. Place both loops of Residual Heat Removal in Suppression Pool Cooling and take actions required to attempt to close the Safety Relief Valve. Operation may continue with Suppression Pool Cooling to a maximum of 1200F. This is to allow time to close the SRV.

**QUESTION 77 SRO** **NRC RECORD # WRI 477**
**ANSWER: C.** **SYSTEM # E30;** **K/A 295013** **AK3.02: 3.8**
**Tech Specs, EOPs** **2.2.12: 3.4**
**LP# GG-1-LP-RO-TS001**
**OBJ. 36**
**LP# GG-1-LP-RO-EP03**
**OBJ. 3, 6** **SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: 05-S-01-EP-3 steps 13 & 14** ***NEW***
**Tech Spec 3.6.2.1 & bases** MODIFIED BANK
**DIFF 2; CA**
RO ***SRO*** BOTH **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-3**

## QUESTION 78

Which one of the following work practices is NOT required to verify the proper grappling of an irradiated fuel assembly with the Fuel Handling Platform, prior to raising the hoist?

A. Attempt to rotate the mast.

B. Attempt to disengage the grapple.

C. Visually observe that the channel fastener is visible, if possible.

D. Obtain independent verification that the fuel assembly is correctly grappled.

**QUESTION 78 SRO** **NRC RECORD # WRI 187**
**ANSWER: B.** **SYSTEM # F11** **K/A 295023** **AA1.03: 3.6**
**LP# GG-1-LP-RF-F1108**
**OBJ. 5c**
**LP# GG-1-LP-RF-F1107**
**OBJ. 1** **SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: 04-1-01-F11-1** NEW
**Sect 4.5.2 Caution** MODIFIED ***BANK***
**DIFF 1; M** **Operations Expectation 9** **EB 11 Fuel Handling Trng**
**GE RICSIL 036** RO ***SRO*** BOTH **CFR 41.2/41.6/43.6**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 79**

The plant is operating at rated conditions with all systems selected for automatic operation.

The variable leg of level instruments on Condensing Pot B21-D004C has ruptured in Containment resulting in a 0 psig signal being felt on level instruments from D004C.

Which one of the following describes the response of the Feedwater System and level instruments supplied from D004C?

| | FEEDWATER FLOW | LEVEL INSTRUMENTS ON D004C FAIL |
|---|---|---|
| **A.** | Remain stable | UPSCALE |
| **B.** | Remain stable | DOWNSCALE |
| **C.** | Lower level | UPSCALE |
| **D.** | Raise level | DOWNSCALE |

**QUESTION 79 SRO** **NRC RECORD # WRI 478**
**ANSWER: B. SYSTEM # B21; C34** **K/A 295009 AK2.01: 4.0**
**LP# GG-1-LP-OP-B2101** **AK2.02: 3.9**
**OBJ. 8a, 22**
**LP# GG-1-LP-RO-C3401**
**OBJ. 1.1, 1.2, 1.3, 1.5 SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: M-1077B** ***NEW***
**04-1-02-1H13-P680 2A-C9** MODIFIED BANK
**DIFF 2; CA**
RO ***SRO*** BOTH **CFR 41.9/41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 80**

A Refueling Outage is in progress. Containment Ventilation is aligned for Extended Outage Containment and Drywell Ventilation.

A spent fuel bundle is accidentally bumped into the cattle chute. The portable Continuous Air Monitor on the 208 Ft. Refuel Floor is alarming.

The following are the indications on the Radiation Monitors:

| Containment Vent Rad Monitor | Fuel Handling Area Exhaust Rad Monitor | Fuel Pool Sweep Rad Monitor |
|---|---|---|
| 5.0 mR/hr | 1.5 mR/hr | 5.0 mR/hr |

Which one of the following describes the response of the plant ventilation systems?

| | CTMT VENT | AUX BLDG VENT | FUEL HANDLING AREA | FUEL POOL SWEEP | STANDBY GAS TREATMENT |
|---|---|---|---|---|---|
| **A.** | Operating | Operating | Operating | Operating | Standby |
| **B.** | Isolated | Isolated | Isolated | Isolated | Operating |
| **C.** | Isolated | Operating | Operating | Operating | Operating |
| **D.** | Isolated | Operating | Operating | Operating | Standby |

**QUESTION 80 SRO** **NRC RECORD # WRI 479**
**ANSWER: D.** **SYSTEM # M41; T48; T42; T41; D17** **K/A 295023** **AK2.06: 3.8**
**AK2.07: 3.9**
**AK2.03: 3.6**
**AK2.05: 3.7**
**LP# GG-1-LP-OP-M4100**
**OBJ. 3g, 11a, b, 12a, b, 16**
**LP# GG-1-LP-OP-T4100**
**OBJ. 7a**
**LP# GG-1-LP-OP-T4200**
**OBJ. 7b, 11a, 22**
**LP# GG-1-LP-OP-T4800**
**OBJ. 8f, 18** **SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: 05-1-02-III-5 sect 2.1 & ck list** ***NEW***
**04-1-01-M4101 sect 5.4** MODIFIED BANK
**DIFF 2; CA** **04-1-02-1H13-P601 18A-D5**
**04-1-02-1H13-P870 2A-A3** RO ***SRO*** BOTH **CFR 41.7/41.11/43.4 43.7**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 81**

The plant is in a LOCA with ECCS systems injecting to the reactor.

Suppression Pool level has lowered to 13.5 feet.

Which one of the following is a condition that exists due to this level?

A. The SRV tailpipe exhausts have been uncovered.

B. The RCIC Turbine Exhaust has been uncovered.

C. Suppression Pool temperature cannot be determined.

D. Containment Pressure cannot be determined

**QUESTION 81 SRO** **NRC RECORD # WRI 8**
**ANSWER: C.** **SYSTEM # E30** **K/A 295030 EA2.02: 3.9**
**LP# GG-1-LP-RO-EP03**
**OBJ. 3, 6** **SRO TIER 1 GROUP 1 / RO TIER GROUP**
**REFERENCE: 05-S-01-EP-3 Caution 2** NEW
MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
RO ***SRO*** BOTH **CFR 41.9/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 82**

A tagout has to be hung on valves in the RWCU Phase Separator Room ‘A’ to support tank clean out.

The general area dose rates where the work is to be performed have been measured to be 2.5 R/hr.

The operator will have to spend 10 minutes in the room positioning valves and hanging tags.

Once work is completed to remove tags an operator will take 5 minutes.

Which one of the following is the projected dose to be received by the operators for hanging and removing of the tags?

A. 167 mR

B. 250 mR

C. 417 mR

D. 625 mR

**QUESTION 82 SRO** **NRC RECORD # WRI 480**
**ANSWER: D.** **SYSTEM # Rad Con** **K/A 268000** **K5.01: 3.0**
**LP# EOI-S-LP-GET-RWT01** **2.3.4: 3.1**
**OBJ. RWT06** **SRO TIER 2 GROUP 3 / RO TIER GROUP**
**REFERENCE: 01-S-08-2 sect 5.60** ***NEW***
MODIFIED BANK
**DIFF 2; CA**
RO ***SRO*** BOTH **CFR 41.12/43.4**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 83**

The crew has had the shift for eight hours and a replacement Reactor Operator is arriving to relieve the Operator at the Controls.

Which one of the following is NOT required for the On-coming Reactor Operator to assume the duties?

A. Complete new Plant Status Checksheet

B. Log the relief in the Control Room Operator's Logbook

C. The plant should be a stable condition before beginning turnover.

D. Complete a walkdown of the Control Room and understand plant conditions

**QUESTION 83 SRO** **NRC RECORD # WRI 481**
**ANSWER: A.** **SYSTEM # Shift Turnover** **K/A Generic 2.1.3: 3.4**
**LP# GG-1-LP-OP-PROC**
**OBJ. 45c & d** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 02-S-01-4 sect 6.1 & 6.4.1** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO ***SRO*** BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 84**

The plant is operating at full power.

The Operations Night Orders for the weekend leave orders to shift the Component Cooling Water Pumps.

Conditions in the plant have changed such that the shift of CCW is unable to be performed.

Which one of the following describes the action to be taken for this situation?

A. Delay the shift until Monday when the Night Orders are no longer in effect.

B. Contact the On-Call Operations Coordinator for concurrence with the deviation and document the change per telecon.

C. The Shift Manager may make the deviation with concurrence of the Shift Supervisor/STA and document the change in the Shift Manager's logbook.

D. Initiate a Condition Report and contact the Duty Manager prior to non-compliance with the Night Orders.

**QUESTION 84 SRO** **NRC RECORD # WRI 482**
**ANSWER: B.** **SYSTEM # Night Orders** **K/A Generic 2.1.15: 3.0**
**LP# GG-1-LP-OP-PROC**
**OBJ. 50e** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 02-S-01-12 sect 6.2.7** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO ***SRO*** BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 85**

The plant is at 10 % power during a reactor startup.

All control rod withdrawals have been completed to place the Reactor Mode Switch in RUN.

Reactor Coolant pH has been sampled at 6.9.

Feedwater iron content has been analyzed at 4.5 ppb.

Which one of the following describes the chemistry allowances for continuing power ascension?
**Attached is the Chemistry Report submitted in preparation for entering power operations.**
**Chemistry procedures and requirements are provided.**

A. Transfer to Run is NOT allowed. Subsequent power ascension is prohibited by Tech Specs (TRM) requirements.

B. Transfer to Run is allowed. Consult with the Duty Manager prior to raising reactor power. Reactor chemistry must be within specifications prior to exceeding 15% power.

C. Transfer to Run is allowed. There are NO restrictions on power ascension provided actions are taken to return Chemistry to within specifications.

D. Transfer to Run is NOT allowed. Power ascension is prohibited by the EPRI Water Chemistry Guidelines and Off Normal Event Procedure requirements.

**QUESTION 85 SRO** **NRC RECORD # WRI 197**
**ANSWER: B.** **SYSTEM # Chemistry** **K/A Generics 2.1.34: 2.9**
**LP#**
**OBJ.** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 01-S-08-29 Att I** NEW
**05-1-02-V-12 Tbl Mode 1** MODIFIED ***BANK***
**DIFF 3, CA** **TRM 6.4.1** **NRC 12/00**
**03-1-01-1**
**sect 6.2.15a(5) & 6.2.15j** RO ***SRO*** BOTH **CFR 41.10/43.2/43.5**
**REFERENCE MATERIAL REQUIRED: 01-S-08-29 & completed Att VI;**
**05-1-02-V-12; TRM 6.4.1; Tech Spec 3.0**
**03-1-01-1 sect 6.2.15**

**QUESTION 86**

The plant is at rated operating conditions.

Standby Liquid Control parameters are as follows:

| | |
|---|---|
| SLC Suction Pipe Temperature | 73 °F |
| SLC Tank Temperature | 74 °F |
| SLC Tank Concentration | 15.5 % |
| SLC Tank Level (Volume) | 4300 gallons |

Which one of the following is the LCO action to be taken for these conditions?
**Tech Specs are provided.**

A. Restore concentration of boron in solution to Normal Operation region within 72 hours AND perform SR 3.1.7.2 every 4 hours.

B. Restore concentration of boron in solution to Normal Operation region within 72 hours AND perform SR 3.1.7.2 every 4 hours OR restore at least one SLC subsystem to Operable within 8 hours OR be in Mode 3 within the following 12 hours.

C. Restore one SLC subsystem to Operable status within 8 hours OR be in Mode 3 within the following 12 hours.

D. Be in Mode 3 within 12 hours AND notify NRC within 1 hour.

**QUESTION 86 SRO** **NRC RECORD # WRI 185**
**ANSWER: C.** **SYSTEM # Conduct of Ops** **K/A Generics 2.1.12: 4.0**
**2.1.10: 3.9**
**LP# GG-1-LP-LO-TS001**
**OBJ. 34**
**LP# GG-1-LP-OP-C4100**
**OBJ. 18** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: Tech Specs 3.1.7** NEW
**Figures 3.1.7-1 & 3.1.7-2** MODIFIED ***BANK***
**DIFF 2, CA** **Conditions C & D** **NRC 12/00**
RO ***SRO*** BOTH **CFR 43.2**
**REFERENCE MATERIAL REQUIRED: Tech Spec 3.1.7**

**QUESTION 87**

A loss of coolant accident has occurred.

During the implementation of the Emergency Procedures, the Control Room Supervisor reaches a step in the Emergency Procedure flowcharts directing the exit of all EP's and enter SAPs.

The Emergency Response Organization is manned and all required facilities are operational.

Who is required to concur with the transition from Emergency Procedures to Severe Accident Procedures?

A. Shift Manager

B. Operations Coordinator

C. Emergency Director

D. Offsite Emergency Coordinator

**QUESTION 87 SRO** **NRC RECORD # WRI 483**
**ANSWER: C.** **SYSTEM # Severe Accident Procedures** **K/A Generics 2.1.6: 4.3**
**LP# GG-1-LP-EP-EPT19**
**OBJ. 1, 2b** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: SAP –1 General Note** ***NEW***
MODIFIED BANK
**DIFF 1;M**
RO ***SRO*** BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 88**

A Refueling outage is in progress.

The plant is in Mode 5.

Which one of the following is a restriction for transferring fuel between the Upper Containment Pool and Spent Fuel Pool?

A. Spent fuel bundles must have had a minimum of 48 hours decay time since removal from the core.

B. Spent fuel bundles must have been inspected for cladding damage prior to placement into the Horizontal Fuel Transfer Mechanism.

C. New and spent fuel bundles must be prevented from being in the Horizontal Fuel Transfer Mechanism at the same time.

D. New and spent fuel bundles must channeled when being transferred using the Horizontal Fuel Transfer Mechanism.

| | |
|---|---|
| **QUESTION 88 SRO** | **NRC RECORD # WRI 494** |
| **ANSWER: D. SYSTEM # Refueling** | **K/A Generic 2.2.27: 3.5** |
| **LP# GG-1-LP-RF-F1102** | |
| **OBJ. 9a SRO TIER 3 GROUP** | **/ RO TIER GROUP** |
| **REFERENCE: 04-1-01-F11-2 sect 3.4** | ***NEW*** |
| | MODIFIED BANK |
| **DIFF 1; M** | |
| | RO ***SRO*** BOTH **CFR 43.6/43.7** |
| **REFERENCE MATERIAL REQUIRED:** None | |

## U.S. NUCLEAR REGULATORY COMMISSION
## WRITTEN EXAMINATION JUNE 2001
## SENIOR REACTOR OPERATOR

**QUESTION 89**

Which one of the following Temporary Alterations would require a licensed operator to independently verify the installation?

A. Fire hoses are connected to the TBCW piping of the Instrument and Service Air Compressors to support installation of new air compressors.

B. I & C is lifting the leads on the Plant Service Water MUX unit at the Radial Well Switchgear house to prevent faulty signals tripping Radial Well Pumps.

C. Leads are lifted on the Fuel Handling Area Vent Radiation Monitors to prevent isolations during fuel handling operations.

D. The contacts for the annunciator relay for BOP Transformer 14 are papered to allow servicing of the transformer in preparation for the Augmented Cooling Unit.

**QUESTION** **89 SRO** **NRC RECORD # WRI 493**
**ANSWER: C.** **SYSTEM # Temp Alts** **K/A Generic 2.2.11: 3.4**
**LP# GG-1-LP-OP-PROC**
**OBJ. 12 c & d** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 01-S-06-3 sect 5.5** ***NEW***
MODIFIED BANK
**DIFF 1; M**
RO ***SRO*** BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED:** None

**U.S. NUCLEAR REGULATORY COMMISSION**
**WRITTEN EXAMINATION JUNE 2001**
**SENIOR REACTOR OPERATOR**

**QUESTION 90**

Under which one of the following conditions does NOT require the issuance of an approved Maintenance Action Item (MAI)?

A. Electrical Maintenance is to troubleshoot a motor operated valve on Plant Service Water by observing the valve stroke open and closed using the local handswitch to determine when the limit switch functions.

B. I & C is to troubleshoot a Control Room trip unit by lifting leads on the trip unit that allows the technician to modify the input signal and observe the functioning of the trip unit.

C. Mechanical Maintenance is required to inspect the pump impeller on a Condensate Transfer pump that when operating fails to develop sufficient discharge pressure to prevent operation of the standby pump.

D. I & C is to modify the instrument air supply to Primary Containment Isolation Valve G36-F106 to raise the stroke time to prevent slamming the valve into the closed seat.

| | | | |
|---|---|---|---|
| **QUESTION 90 SRO** | | **NRC RECORD # WRI 492** | |
| **ANSWER: A.** | **SYSTEM # Control of Work** | **K/A Generic 2.2.20: 3.3** | |
| **LP# GG-1-LP-OP-PROC** | | | |
| **OBJ. 25c** | **SRO TIER 3 GROUP** | **/ RO TIER GROUP** | |
| **REFERENCE: 07-S-01-205 sect 6.5** | | ***NEW*** | |
| | | MODIFIED | BANK |
| **DIFF 1; M** | | | |
| | | RO ***SRO*** BOTH | **CFR 41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED:** | **07-S-01-205 & 01-S-07-1** | | |

**QUESTION 91**

Under which one of the following conditions is new or spent fuel allowed to be stored in the Upper Containment Fuel Storage Pool?

A. The reactor is at 180 0F and the point of adding heat in a reactor startup.

B. The reactor is at 180 0F with the plant subcritical and shutdown cooling operating.

C. The reactor is at 20% power with a plant startup in progress following RF12.

D. The reactor is at 20 % power with a plant shutdown in progress in preparation for RF12.

**QUESTION 91 SRO** **NRC RECORD # WRI 491**
**ANSWER: B.** **SYSTEM # Refueling** **K/A Generic 2.2.32: 3.3**
**LP# GG-1-LP-RF-F1105**
**OBJ. 18 c & e** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 17-S-02-100** ***NEW***
**sect 6.1.1; 6.2.1; 6.3.8** MODIFIED BANK
**DIFF 2; CA**
RO ***SRO*** BOTH **CFR 43.6/43.7**
**REFERENCE MATERIAL REQUIRED: 17-S-02-100**

**QUESTION 92**

The Control Room Operator has a tagout that requires verification.

Under which one of the following conditions can the Shift Manager waive Independent Verification?

A. lineup on the Instrument Air Header Auxiliary Building Automatic Bleed off valve 8 foot off the floor in area 10, 166 ft elevation.

B. a Red Tag to be hung on a Main Steam Drain Valve on the HP Main Steam Stop Valve at 100 % Power.

C. a Temporary Alteration on the Division III Diesel Air Start Header.

D. a procedure step for lineup restoration following the Load Shedding and Sequencing Monthly surveillance.

**QUESTION 92 SRO** **NRC RECORD # WRI 127**
**ANSWER: B.** **SYSTEM # ADMIN** **K/A Generic** **G2.3.2: 2.9**
**Rad Con** **G2.2.13: 3.8**
**LP# GG-1-LP-OP-PROC**
**OBJ. 10s** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 01-S-06-1 sect. 6.1.13** NEW
**01-S-06-29 sect. 6.4.1** MODIFIED ***BANK***
**DIFF 1; M** **NRC 3/98**
RO ***SRO*** BOTH **CFR 41.12/43.4**
**REFERENCE MATERIAL REQUIRED:** None

**U.S. NUCLEAR REGULATORY COMMISSION**
**WRITTEN EXAMINATION JUNE 2001**
**SENIOR REACTOR OPERATOR**

**QUESTION 93**

A LOCA has occurred.

Offsite radioactive releases are projected to remain within the TRM limits.

Which one of the following groups of conditions would require venting and purging of Containment irregardless of offsite radioactive releases?

| | SUPPRESSION POOL LEVEL | CONTAINMENT PRESSURE | CONTAINMENT HYDORGEN CONCENTRATION | DRYWELL HYDROGEN CONCENTRATION |
|---|---|---|---|---|
| A. | 21.5 FT | 5 PSIG | 7.5 % | 8.3 % |
| B. | 21.5 FT | 10 PSIG | 8.3 % | 7.5 % |
| C. | 18.5 FT | 5 PSIG | 8.3 % | 7.5 % |
| D. | 18.5 FT | 10 PSIG | 7.5 % | 8.3 % |

**QUESTION 93 SRO** **NRC RECORD # WRI 490**
**ANSWER: B.** **SYSTEM # CTMT Purge** **K/A Generic 2.3.9: 3.4**
**LP# GG-1-LP-EP-EPT19**
**OBJ. 2c** **SRO TIER 3 GROUP** **RO TIER GROUP**
**REFERENCE: 05-S-01-EP-3 Step 61** ***NEW***
**SAP steps 72 – 75** MODIFIED BANK
**DIFF 2; CA** **Figure 5 HDOL**
RO ***SRO*** BOTH **CFR41.10/43.4/43.5**
**REFERENCE MATERIAL REQUIRED: 05-S-01-EP-3 & SAPs larger graphs**

**QUESTION 94**

Plant conditions as follows:

| | |
|---|---|
| Reactor level: | -30 inches Wide Range |
| Reactor pressure: | 900 psig |
| Suppression Pool level: | 18.5 ft. |
| All control rods are fully inserted. | |

The Reactor Feed Pump Turbines tripped.

NO other problems exist in the plant.

Which one of the following describes the actions to be taken for present plant conditions and the basis?

A. Align RCIC or HPCS to inject to the vessel and maintain level between – 30 to + 30 inches because sufficient systems are available to restore level within a specified band.

B. Lower reactor pressure to allow use of Condensate Transfer or RHR Service Water Cross tie to restore level to between +11.4 to +53.5 inches because level must be raised within the primary level control band.

C. Inhibit ADS and prevent injection from ECCS systems not required for adequate core cooling to allow depressurizing the reactor at a rate not to exceed 100 0F/hr, this will prevent stress on the reactor vessel.

D. Depressurize the reactor using Safety Relief Valves using at least 8 SRVs and inject with all ECCS pumps to assure adequate core cooling since level is below 0 inches.

| | | | |
|---|---|---|---|
| **QUESTION 94 SRO** | | **NRC RECORD # WRI 489** | |
| **ANSWER: A.** | **SYSTEM # EOPs** | **K/A Generic 2.4.17: 3.8** | |
| **LP# GG-1-LP-RO-EP01** | | | |
| **OBJ. 4d & e** | | | |
| **LP# GG-1-LP-OP-PROC** | | | |
| **OBJ. 55c** | **SRO TIER 3 GROUP** | **RO TIER GROUP** | |
| **REFERENCE:** | **01-S-06-37 Att V** | ***NEW*** | |
| | **02-S-01-27 sect 6.2.6** | MODIFIED | BANK |
| **DIFF 2; CA** | **PSTG App B** | | |
| | **05-S-01-EP-2 Steps 20 – 22** | RO ***SRO*** BOTH | **CFR41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED:** | **05-S-01-EP-2** | | |

**QUESTION 95**

The Severe Accident Procedures (SAPs) have been entered.

Plant conditions as follows:

| | |
|---|---|
| Reactor level: | –280 inches |
| Reactor pressure: | 0 psig |
| Suppression Pool level: | 19.6 ft. |
| Injection flow: | 180 gpm |
| Time after Shutdown: | 200 min. |
| Containment pressure: | 3.5 psig |
| Core breach? | No |

Which SAP should you be in?

A. 3

B. 4

C. 5

D. 6

| | | | |
|---|---|---|---|
| **QUESTION 95 SRO** | | **NRC RECORD # WRI 488** | |
| **ANSWER: A.** | **SYSTEM # Severe Accident Procedures** | **K/A Generic** | **2.4.4: 4.3** |
| | | | **2.4.1: 4.6** |
| **LP# GG-1-LP-EP-EPT19** | | | **2.4.5: 3.6** |
| **OBJ. 2c** | **SRO TIER 3 GROUP** | **RO TIER GROUP** | |
| **REFERENCE: SAP step 3 & 7** | | NEW | |
| | | MODIFIED | ***BANK*** |
| **DIFF 2; CA** | | | **EPTS 19 Test 2** |
| | | RO ***SRO*** BOTH | **CFR41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED: SAPs** | | | |

**QUESTION 96**

Which one of the following is the MINIMUM event classification that requires the activation of the Emergency Operations Facility (EOF)?

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

| | | | |
|---|---|---|---|
| **QUESTION 96 SRO** | | **NRC RECORD # WRI 487** | |
| **ANSWER: B.** | **SYSTEM # EAL** | **K/A Generic** | **2.4.29: 4.0** |
| | **Facility Activation** | | **2.4.42: 3.7** |
| **LP# GG-1-LP-EP-EPTS6** | | | |
| **OBJ. 7** | **SRO TIER 3 GROUP** | **RO TIER GROUP** | |
| **REFERENCE: 10-S-01-1 sect 6.1.4.i.2** | | ***NEW*** | |
| **10-S-0133 sect 6.2.1** | | MODIFIED | BANK |
| **DIFF 1; M** | | | |
| | | RO ***SRO*** BOTH | **CFR41.10/43.5** |

**REFERENCE MATERIAL REQUIRED:** None

**QUESTION 97**

An emergency condition has resulted in an Alert being declared.

The Emergency Response Organization is in route for manning.

What additional personnel are to report to the Control Room to support emergency operations at the discretion of the Control Room Supervisor/ Shift Manager?

**01-S-10-6 Emergency Response Organization is provided.**

A. Two Non-Licensed Operators are to perform the duties of communicators and one operator as the safe shutdown operator. One Electrician, one I&C Technician, and the On-Shift Chemist will report to the Control Room to assist the shift.

B. One Non-Licensed Operator is to perform the duties of safe shutdown operator, communications will be handled by the TSC when manned. An On-Shift I&C Technician and the On-Shift Chemist will report to the Control Room to assist the shift.

C. Two Non-Licensed Operators are to perform the duties of communicators. An On-Shift I&C Technician and the On-Shift Chemist will report to the Control Room to assist the shift.

D. Two Non-Licensed Operators are to perform the duties of communicators and two operators to perform equipment operations required outside the Control Room. An On-Shift I&C Technician and the On-Shift Chemist will report to the Control Room to assist the shift.

**QUESTION 97 SRO** **NRC RECORD # WRI 485**
**ANSWER: D.** **SYSTEM # E-Plan** **K/A Generics 2.4.12: 3.9**
**LP# GG-1-LP-OP-PROC** **2.4.35: 3.5**
**OBJ. 11d** **SRO TIER 3 GROUP / RO TIER GROUP**
**REFERENCE: 01-S-10-6 Att II & III** ***NEW***
**01-S-06-2 sect 6.2.1d** MODIFIED BANK
**DIFF 1; M Recent e-plan change 2/2001**
RO ***SRO*** BOTH **CFR 41.10/43.5**
**REFERENCE MATERIAL REQUIRED: 01-S-10-6**

## QUESTION 98

With GGNS operating at 100% power, Security notifies the Control Room that four armed adversaries have breached the security fence and entered the Protected Area.

Security officers have taken a defensive position to prevent entry into any power block buildings.

Which one of the following best describes the actions to be taken in this situation?

A. Manually scram the reactor. Send at least one RO and one SRO to the Remote Shutdown Panels. Send at least one NOB to the Auxiliary Building.

B. No immediate action is required. If notified by security that the adversaries have entered the power block, send at least one RO and one SRO to the Remote Shutdown Panels. Send at least one NOB to the Auxiliary Building.

C. Manually scram the reactor. Send at least one RO and one SRO to the Remote Shutdown Panels. Send at least one NOB to the Auxiliary Building. Isolate control of Division 1 Safe Shutdown equipment from the main Control Room. Stabilize and cooldown the plant using available Division 2 equipment.

D. Send at least one RO and one SRO to the Remote Shutdown Panels. Send at least one NOB to the Auxiliary Building.

| | | | | |
|---|---|---|---|---|
| **QUESTION 98 SRO** | | **NRC RECORD # WRI 416** | | |
| **ANSWER: D.** | **SYSTEM # ADMIN Emergency Procedures/Plan-Security Threat** | **K/A Generic** | **2.4.4 4.3**<br>**2.4.49 4.0**<br>**2.1.2 4.0**<br>**2.1.6 4.3** | |
| **LP# GG-1-LP-OP-ONEP1** | | | | |
| **OBJ. 1** | **SRO TIER 3 GROUP** | **/ RO TIER GROUP** | | |
| **REFERENCE: 05-1-02-VI-4 sect 2.1** | | NEW | | |
| | | MODIFIED | | ***BANK*** |
| **DIFF 1; M** | | | | **NRC 12/00** |
| | | RO ***SRO*** BOTH | | **CFR41.10/43.5** |
| **REFERENCE MATERIAL REQUIRED: none** | | | | |

## QUESTION 99

You have assumed the shift as Control Room Supervisor.

The Crew has the following compliment.

| | |
|---|---|
| 1 Shift Manager (SRO) | 1 Control Room Supervisor (SRO) |
| 1 Shift Supervisor (SRO/STA) | 3 Reactor Operators (RO) |
| 2 Radwaste Operators | 5 Nuclear Operator 'B's (NOB) |

All crew members are qualified fire brigade except the Shift Manager and the Reactor Operators.

An NOB becomes ill and is transported to the hospital by Health Physics personnel.

Which one of the following describes the status of shift manning for the Fire Brigade?

A. Fire Brigade requirements are unable to be met until another qualified fire brigade member arrives within two (2) hours.

B. Fire Brigade requirements are being met using a Health Physicist as a member of the fire brigade until another operator arrives.

C. Fire Brigade requirements are being met using the Shift Supervisor as a member of the fire brigade until another operator arrives.

D. Fire Brigade requirements are being met using the Roving Reactor Operator as Safe Shutdown and a Radwaste Operator as Fire Brigade Leader.

| | | | |
|---|---|---|---|
| **QUESTION 99 SRO** | | **NRC RECORD # WRI 486** | |
| **ANSWER: D.** | **SYSTEM # Fire Brigade** | **K/A Generic** | **2.4.26: 3.3**<br>**2.1.4: 3.4** |
| **LP# GG-1-LP-OP-PROC** | | | |
| **OBJ. 11x, y** | **SRO TIER 3 GROUP** | **RO TIER GROUP** | |
| **REFERENCE: 01-S-06-2 sect 6.5** | | ***NEW*** | |
| **01-S-10-6 Att II** | | MODIFIED | BANK |
| **DIFF 2; CA** | | | |
| | | RO ***SRO*** BOTH | **CFR41.10/43.1/43.2** |
| **REFERENCE MATERIAL REQUIRED:** | None | | **43.5** |

**QUESTION 100**

Following a Reactor scram, which one of the following describes the correct method to determine a control rod is stuck at an odd reed switch position and how is this documented?

Using RC&IS indications and pushbuttons:

A. View the full core display while in “RAW DATA” and the stuck control rod will indicate “- -”. Depress “ALL RODS” and the stuck control rod will indicate the last good reed switch position. Documented on a Condition Report.

B. View the full core display while NOT in “RAW DATA” and the stuck control rod will indicate “- -”. Depress ALL RODS, and the last good even reed switch position will be indicated. Documented on a Component Position Control form.

C. Depress “ALL RODS” while in “RAW DATA” and the stuck control rod will indicate “- -”. Deselect “RAW DATA”, depress “ALL RODS” again and the last good even reed switch position will be indicated. Documented on a Condition Report.

D. Depress “ALL RODS” while NOT in “RAW DATA” and the stuck control rod will indicate “- -”. Deselect “RAW DATA”, depress “ALL RODS” again and the last good even reed switch position will be indicated. Documented on a Component Position Control form.

| | | | |
|---|---|---|---|
| **QUESTION 100 SRO** | | **NRC RECORD # WRI 476** | |
| **ANSWER: C.** | **SYSTEM # C11-1** | **K/A 295015 AA2.02: 4.2** | |
| **LP# GG-1-LP-OP-PROC** | | | |
| **OBJ. 8f** | **SRO TIER 1 GROUP 1** | **RO TIER GROUP** | |
| **LP# GG-1-LP-OP-C1102** | | | |
| **OBJ. 10, 11, 22** | **SRO TIER 1 GROUP 1** | **RO TIER GROUP** | |
| **REFERENCE:** | **04-1-01-C11-2** | NEW | |
| | **sect 4.7.2.p; 4.8.2.i** | ***MODIFIED*** | BANK |
| **DIFF 2; CA** | **LI-102 Att 9.2 item 1.6** | **NRC 12/00 WRI 407** | |
| | | RO ***SRO*** BOTH | **CFR41.2/41.6/41.10** |
| **REFERENCE MATERIAL REQUIRED:** | None | | **43.5** |