Final Submittal
(Blue Paper)

# TURKEY POINT
# EXAM 2002-301

## 50-250, 50-251/2002-301
## OCTOBER 7 - 11 & 15, 2002

1. Reactor Operator/Senior Reactor Operator

   Written Examination, Outlines, and

   Reference Material

# Written
# Final Submittal

Facility: Turkey Point Date of Exam: 10/14/2002 Exam Level: RO

| Tier | Group | K/A Category Points | | | | | | | | | | | Point Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G * | |
| 1. Emergency & Abnormal Plant Evolutions | 1 | 3 | 3 | 2 | | | | 3 | 3 | | | 2 | 16 |
| | 2 | 2 | 2 | 3 | | | | 3 | 3 | | | 4 | 17 |
| | 3 | | | 1 | | | | 1 | 1 | | | | 3 |
| | Tier Totals | 5 | 5 | 6 | | | | 7 | 7 | | | 6 | 36 |
| 2. Plant Systems | 1 | 3 | 1 | 2 | 2 | 1 | 2 | 2 | 3 | 3 | 1 | 3 | 23 |
| | 2 | 1 | 2 | 3 | 2 | 2 | | | 3 | 2 | 5 | | 20 |
| | 3 | | | 2 | | | | 2 | 2 | 1 | 1 | | 8 |
| | Tier Totals | 4 | 3 | 7 | 4 | 3 | 2 | 4 | 8 | 6 | 7 | 3 | 51 |

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

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 100 points.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000005 Inoperable/Stuck Control Rod / 1 | | | | 05 | | | AA1.05 RPI | 3.4/3.4 | |
| 000015/17 RCP Malfunctions / 4 | 01 | | | | | | AK1.01 Natural circulation in a nuclear power plant | 4.4/4.6 | |
| 000015/17 RCP Malfunctions / 4 | | | | 02 | | | AA1.02 RCP oil reservoir level and alarm indicators | 2.8/2.7 | |
| BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4 | | | | | | 4.49 | EG2.4.49 Perform without reference to procedures those actions that require immediate operation of system components and controls | 4.0/4.0 | |
| | | | | | | | | | |
| 000024 Emergency Boration / 1 | | | | | | | | | |
| 000026 Loss of Component Cooling Water / 8 | | | | | 02 | | AA2.02 The cause of possible CCW loss | 2.9/3.6 | S/R |
| 000027 Pressurizer Pressure Control System Malfunction / 3 | | 03 | | | | | AK2.03 Controllers and positioners | 2.6/2.8 | |
| 000027 Pressurizer Pressure Control System Malfunction / 3 | | | | | 17 | | AA2.17 Allowable RCS temperature difference vs. reactor power | 3.1/3.3 | |
| 000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4 | 3 | | | | | | EK1.3 Annunciators and conditions indicating signals, and remedial actions associated with the (Uncontrolled Depressurization of all Steam Generators) | 3.4/3.7 | |
| | | | | | | | | | |
| CE/A11; W/E08 RCS Overcooling - PTS / 4 | | | | | | | | | |
| 000051 Loss of Condenser Vacuum / 4 | | | | | | 1.08 | AG2.1.8 Coordinate personnel activities outside the control room | 3.8/3.6 | |
| 000055 Station Blackout / 6 | | | 02 | | | | EK3.02 Actions contained in EOP for loss of offsite and onsite power | 4.3/4.6 | |
| 000057 Loss of Vital AC Elec. Inst. Bus / 6 | | | 01 | | | | EK3.01 Actions contained in EOP for loss of vital ac electrical instrument bus | 4.1/4.4 | |
| | | | | | | | | | |
| 000062 Loss of Nuclear Service Water / 4 | | | | | | | | | |
| 000067 Plant Fire On-site / 9 | 01 | | | | | | AK1.01 Fire classifications, by type | 2.9/3.9 | |
| 000068 (BW/A06) Control Room Evac. / 8 | | | | 31 | | | AA1.31 ED/G | 3.9/4.0 | |
| 000069 (W/E14) Loss of CTMT Integrity / 5 | | 03 | | | | | AK2.03 Personnel access hatch and emergency access hatch | 2.8/2.9 | |
| 000074 (W/E06&E07) Inad. Core Cooling / 4 | | 06 | | | | | AK2.06 Turbine bypass and atmospheric dump valves | 3.5/3.6 | |
| BW/E03 Inadequate Subcooling Margin / 4 | | | | | | | | | |
| 000076 High Reactor Coolant Activity / 9 | | | | | 04 | | AA2.04 Process effluent radiation chart recorder | 2.6/3.0 | |
| BW/A02&A03 Loss of NNI-X/Y / 7 | | | | | | | | | |
| K/A Category Totals: | 3 | 3 | 2 | 3 | 3 | 2 | Group Point Total: | | 16 |

Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000001 Continuous Rod Withdrawal / 1 | | | | | | 4.12 | AG2.4.12 General operating crew responsibilities during emergency operations | 3.4/3.9 | |
| 000003 Dropped Control Rod / 1 | 02 | | | | | | AK1.02 Effects of turbine-reactor power mismatch on rod control | 3.1/3.4 | |
| 000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1 | | | 01 | | | | EK3.01 Actions contained in EOP for reactor trip | 4.0/4.6 | |
| BW/A01 Plant Runback / 1 | | | | | | | | | |
| BW/A04 Turbine Trip / 4 | | | | | | | | | |
| 000008 Pressurizer Vapor Space Accident / 3 | | 01 | | | | | AK2.01 Valves | 2.7/2.7 | |
| 000009 Small Break LOCA / 3 | | | | 12 | | | EA1.12 RPS | 4.2/4.2 | |
| 000011 Large Break LOCA / 3 | | | 05 | | | | EK3.05 Injection into cold leg | 4.0/4.1 | |
| W/E04 LOCA Outside Containment / 3 | | | | | 2 | | EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | 3.6/4.2 | S/R |
| BW/E08; W/E03 LOCA Cooldown/Depress. / 4 | | | 1 | | | | EK3.1 Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics | 3.3/3.7 | |
| W/E11 Loss of Emergency Coolant Recirc. / 4 | | | | | | 2.11 | EG2.2.11 Process for controlling temperature changes | 2.5/3.4 | |
| W/EO1 & **E02** Rediagnosis & SI Termination / 3 | | | | 1 | | | EA1.1 Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features | 4.0/3.9 | |
| 000022 Loss of Reactor Coolant Makeup / 2 | | | | | 04 | | AA2.04 How long PZR level can be maintained within limits | 2.9/3.8 | |
| 000025 Loss of RHR System / 4 | | 02 | | | | | AK2.02 LPI or decay heat removal/RHR pumps | 3.2/3.2 | |
| 000029 Anticipated Transient w/o Scram / 1 | | | | | | 4.34 | AG2.4.34 Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications | 3.8/3.6 | |
| 000032 Loss of Source Range NI / 7 | | | | 01 | | | AA1.01 Manual restoration of power | 3.1/3.4 | |
| 000033 Loss of Intermediate Range NI / 7 | | | | | | | | | |
| 000037 Steam Generator Tube Leak / 3 | | | | | | | | | |
| 000038 Steam Generator Tube Rupture / 3 | | | | | | 1.19 | EG2.1.19 Use plant computer to obtain and evaluate parametric information on system or component status | 3.0/3.0 | |
| 000054 (CE/E06) Loss of Main Feedwater / 4 | | | | | | | | | |
| BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4 | | | | | | | | | |
| 000058 Loss of DC Power / 6 | | | | | 01 | | AA2.01 That a loss of dc power has occurred; verification that substitute power sources have come on line | 3.7/4.1 | S/R |
| 000059 Accidental Liquid RadWaste Rel. / 9 | | | | | | | | | |
| 000060 Accidental Gaseous Radwaste Rel. / 9 | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|
| 000061 ARM System Alarms / 7 | 01 | | | | | | AK1.01 Detector limitations | 2.5/2.9 | |
| W/E16 High Containment Radiation / 9 | | | | | | | | | |
| CE/E09 Functional Recovery | | | | | | | | | |
| K/A Category Point Totals: | 2 | 2 | 3 | 3 | 3 | 4 | Group Point Total: | | 17 |

Emergency and Abnormal Plant Evolutions - Tier 1/Group 3

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000028 Pressurizer Level Malfunction / 2 | | | | | | | | | |
| 000036 (BW/A08) Fuel Handling Accident / 8 | | | | 02 | | | AA1.02 ARM system | 3.1/3.5 | |
| 000056 Loss of Off-site Power / 6 | | | | | | | | | |
| 000065 Loss of Instrument Air / 8 | | | | | | | | | |
| BW/E13&E14 EOP Rules and Enclosures | | | | | | | | | |
| BW/A05 Emergency Diesel Actuation / 6 | | | | | | | | | |
| BW/A07 Flooding / 8 | | | | | | | | | |
| CE/A16 Excess RCS Leakage / 2 | | | | | | | | | |
| W/E13 Steam Generator Over-pressure / 4 | | | | | 2 | | EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | 3.0/3.4 | |
| W/E15 Containment Flooding / 5 | | | 1 | | | | EK3.1 Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics | 2.7/2.9 | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | | | 1 | 1 | 1 | | Group Point Total: | | 3 |

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 Control Rod Drive | | | | 20 | | | | | | | | K4.20 The permissives and interlocks associated with increase from zero power | 3.2/3.4 | |
| 001 Control Rod Drive | | | | | | | | 09 | | | | A2.09 Station blackout | 3.8/4.0 | S/R |
| 003 Reactor Coolant Pump | | | | | | | | 02 | | | | A2.02 Conditions which exist for abnormal S/D of a RCP in comparison to a normal S/D of a RCP | 3.7/3.9 | |
| 003 Reactor Coolant Pump | | | | | | | | | | | 1.20 | G2.1.20 Execute procedure steps | 4.3/4.2 | S/R |
| 004 Chemical and Volume Control | 10 | | | | | | | | | | | K1.10 Pneumatic valves and RHRS | 2.7/2.9 | |
| 004 Chemical and Volume Control | | | 08 | | | | | | | | | K3.08 RCP seal injection | 3.6/3.8 | |
| 013 Engineered Safety Features Actuation | | | | | 01 | | | | | | | K5.01 Definitions of safety train and ESF channel | 2.8/3.2 | |
| 013 Engineered Safety Features Actuation | | | | | | | | | | | 4.9 | G2.4.9 Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies | 3.3/3.9 | S/R |
| 015 Nuclear Instrumentation | | | | | | 01 | | | | | | K6.01 Sensors, detectors, and indicators | 2.9/3.2 | |
| 015 Nuclear Instrumentation | | | | | | | | | 03 | | | A3.03 Verification of proper functioning/operability | 3.9/3.9 | RO |
| 017 In-core Temperature Monitor | | | | | | | | | 01 | | | A3.01 Indications of normal, natural, and interrupted circulation of RCS | 3.6/3.8 | |
| 022 Containment Cooling | 01 | | | | | | | | | | | K1.01 SWS/cooling system | 3.5/3.7 | |
| 022 Containment Cooling | | | | | | | 03 | | | | | A1.03 Containment humidity | 3.1/3.4 | |
| 025 Ice Condenser | | | | | | | | | | | | | | |
| 056 Condensate | 03 | | | | | | | | | | | K1.03 MFW | 2.6/2.6 | RO |
| 059 Main Feedwater | | | | | | | 07 | | | | | A1.07 Feed pump speed, including normal control speed for ICS | 2.5/2.6 | RO |
| 059 Main Feedwater | | | | | | | | | | 08 | | A4.08 Feed regulating valve controller | 3.0/2.9 | RO |
| 061 Auxiliary/Emergency Feedwater | | | | | | 01 | | | | | | K6.01 Controllers and positioners | 2.5/2.8 | |
| 061 Auxiliary/Emergency Feedwater | | 03 | | | | | | | | | | K2.03 AFW diesel driven pump | 4.0/3.8 | RO |
| 068 Liquid Radwaste | | | | | | | | | 02 | | | A3.02 Automatic isolation | 3.6/3.6 | |
| 068 Liquid Radwaste | | | | | | | | 02 | | | | A2.02 Lack of tank recirculation prior to release | 2.7/2.8 | RO |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 071 Waste Gas Disposal | | | | 05 | | | | | | | | K4.05 Point of release | 2.7/3.0 | RO |
| 071 Waste Gas Disposal | | | | | | | | | | | 4.10 | G2.4.10 Annunciator response procedures | 3.0/3.1 | S/R |
| 072 Area Radiation Monitoring | | | 01 | | | | | | | | | K3.01 Containment ventilation isolation | 3.2/3.4 | |
| K/A Category Point Totals: | 3 | 1 | 2 | 2 | 1 | 2 | 2 | 3 | 3 | 1 | 3 | Group Point Total: | | 23 |

ES-401

PWR RO Examination Outline
Plant Systems - Tier 2/Group 2

Form ES-401-4 (R8, S1)

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 002 Reactor Coolant | | | | | | | | 04 | | | | A2.04 Loss of heat sinks | 4.3/4.6 | S/R |
| 006 Emergency Core Cooling | | | | 14 | | | | | | | | K4.14 Cross-connection of HPI/LPI/SIP | 3.9/4.2 | |
| 010 Pressurizer Pressure Control | | | 03 | | | | | | | | | K3.03 ESFAS | 4.0/4.2 | |
| 011 Pressurizer Level Control | | | | | | | | | 01 | | | A3.01 Boration/dilution | 2.8/2.8 | |
| 012 Reactor Protection | | | | | 01 | | | | | | | K5.01 DNB | 3.3/3.8 | |
| 014 Rod Position Indication | | | | 03 | | | | | | | | K4.03 Rod bottom lights | 3.2/3.4 | |
| 016 Non-nuclear Instrumentation | | | | | | | | | | 02 | | A4.02 Recorders | 2.7/2.6 | |
| 026 Containment Spray | | | | | | | | | | 05 | | A4.05 Containment spray reset switches | 3.5/3.5 | |
| 029 Containment Purge | | | 02 | | | | | | | | | K3.02 Containment entry | 2.9/3.5 | |
| 033 Spent Fuel Pool Cooling | | | | | | | | | 02 | | | A3.02 Spent fuel leak or rupture | 2.9/3.1 | RO |
| 035 Steam Generator | | | | | | | | | | 01 | | A4.01 Shift of S/G controls between manual and automatic control, by bumpless transfer | 3.7/3.6 | |
| 039 Main and Reheat Steam | | | | | 05 | | | | | | | K5.05 Bases for RCS cooldown limits | 2.7/3.1 | |
| 055 Condenser Air Removal | | | 01 | | | | | | | | | K3.01 Main condenser | 2.5/2.7 | |
| 062 AC Electrical Distribution | | 01 | | | | | | | | | | K2.01 Major system loads | 3.3/3.4 | |
| 063 DC Electrical Distribution | | | | | | | | | | 03 | | A4.03 Battery discharge rate | 3.0/3.1 | |
| 064 Emergency Diesel Generator | | 02 | | | | | | | | | | K2.02 Fuel oil pumps | 2.8/3.1 | |
| 073 Process Radiation Monitoring | 01 | | | | | | | | | | | K1.01 Those systems served by PRMs | 3.6/3.9 | |
| 075 Circulating Water | | | | | | | | 01 | | | | A2.01 Loss of intake structure | 3.0/3.2 | |
| 079 Station Air | | | | | | | | 01 | | | | A2.01 Cross-connection with IAS | 2.9/3.2 | S/R |
| 086 Fire Protection | | | | | | | | | | 06 | | A4.06 Halon system | 3.2/3.2 | RO |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 1 | 2 | 3 | 2 | 2 | | | 3 | 2 | 5 | | Group Point Total: | | 20 |

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 005 Residual Heat Removal | | | | | | | | 02 | | | | A2.02; Pressure transient protection during cold shutdown | 3.5/3.7 | RO |
| 005 Residual Heat Removal | | | | | | | | 04 | | | | A2.04 RHR valve malfunction | 2.9/2.9 | S/R |
| 007 Pressurizer Relief/Quench Tank | | | | | | | | | | | | | | |
| 008 Component Cooling Water | | | | | | | | | | | | | | |
| 027 Containment Iodine Removal | | | | | | | | | | | | | | |
| 028 Hydrogen Recombiner and Purge Control | | | | | | | 01 | | | | | A1.01 Hydrogen concentration | 3.4/3.8 | |
| 034 Fuel Handling Equipment | | | | | | | | | | | | | | |
| 041 Steam Dump/Turbine Bypass Control | | | | | | | | | | | | | | |
| 045 Main Turbine Generator | | | | | | | 05 | | | | | A1.05 Expected response of primary plant parameters (temperature and pressure) following T/G trip | 3.8/4.1 | |
| 076 Service Water | | | 01 | | | | | | | | | K3.01 Closed cooling water | 3.4/3.6 | RO |
| 076 Service Water | | | 07 | | | | | | | | | K3.07 ESF loads | 3.7/3.9 | |
| 078 Instrument Air | | | | | | | | | | 01 | | A4.01 Pressure gauges | 3.1/3.1 | |
| 103 Containment | | | | | | | | | 01 | | | A3.01 Containment isolation | 3.9/4.2 | |
| K/A Category Point Totals: | | | 2 | | | | 2 | 2 | 1 | 1 | | Group Point Total: | | 8 |

Plant-Specific Priorities

| System / Topic | Recommended Replacement for... | Reason | Points |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Plant-Specific Priority Total: (limit 10) | | | |

| Facility: Turkey Point | Date of Exam:10/14/2002 | Exam Level: RO | | |
|---|---|---|---|---|
| Category | K/A # | Topic | Imp. | Points |
| Conduct of Operations | 2.1.12 | Apply technical specifications for a system | 2.9/4.0 | S/R |
| | 2.1.29 | How to conduct and verify valve lineups | 3.4/3.4 | |
| | 2.1.32 | Explain and apply all sys limits and precautions | 3.4/3.8 | |
| | 2.1.22 | Determine mode of operation | 2.8/3.3 | |
| | Total | | | 4 |
| Equipment Control | 2.2.12 | Surveillance procedures | 3.0/3.4 | S/R |
| | 2.2.04 | Explain the variations in CB layouts, systems, instr, and procedural actions between units | 2.8/3.0 | |
| | 2.2.01 | Perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity | 3.7/3.6 | |
| | Total | | | 3 |
| Radiation Control | 2.3.01 | 10 CFR: 20 and related facility radiation control requirements | 2.6/3.0 | |
| | 2.3.10 | Perform procedures to reduce excessive levels of radiation and guard against personnel exposure | 2.9/3.3 | S/R |
| | 2.3.11 | Control radiation releases | 2.7/3.2 | |
| | Total | | | 3 |
| Emergency Procedures/ Plan | 2.4.15 | Communication procedures associated with EOP implementation | 3.0/3.5 | |
| | 2.4.20 | Operational implications of EOP warnings, cautions and notes | 3.3/4.0 | |
| | 2.4.16 | EOP implementation hierarchy and coordination with other support procedures | 3.0/4.0 | S/R |
| | Total | | | 3 |
| Tier 3 Point Total (RO) | | | | 13 |

Facility: Turkey Point Date of Exam: 10/14/2002 Exam Level: SRO

| Tier | Group | K/A Category Points | | | | | | | | | | | Point Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A2 | A 3 | A 4 | G * | |
| 1. Emergency & Abnormal Plant Evolutions | 1 | 4 | 2 | 3 | | | | 4 | 7 | | | 4 | 24 |
| | 2 | 1 | 3 | 2 | | | | 2 | 6 | | | 2 | 16 |
| | 3 | | | 1 | | | | 1 | 1 | | | | 3 |
| | Tier Totals | 5 | 5 | 6 | | | | 7 | 14 | | | 6 | 43 |
| 2. Plant Systems | 1 | 2 | | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 3 | 19 |
| | 2 | 1 | 2 | 3 | 1 | 2 | | 1 | 3 | 2 | 2 | | 17 |
| | 3 | | | 1 | | | | 1 | 1 | | 1 | | 4 |
| | Tier Totals | 3 | 2 | 6 | 3 | 3 | 2 | 3 | 6 | 4 | 5 | 3 | 40 |

| 3. Generic Knowledge and Abilities | Cat 1 | Cat 2 | Cat 3 | Cat 4 | 17 |
|---|---|---|---|---|---|
| | 6 | 3 | 3 | 5 | |

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 100 points.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000001 Continuous Rod Withdrawal / 1 | | | | | | 4.12 | AG2.4.12 General operating crew responsibilities during emergency operations | 3.4/3.9 | |
| 000003 Dropped Control Rod / 1 | 02 | | | | | | AK1.02 Effects of turbine-reactor power mismatch on rod control | 3.1/3.4 | |
| 000005 Inoperable/Stuck Control Rod / 1 | | | | 05 | | | AA1.05 RPI | 3.4/3.4 | |
| 000011 Large Break LOCA / 3 | | | 05 | | | | EK3.05 Injection into cold leg | 4.0/4.1 | |
| W/E04 LOCA Outside Containment / 3 | | | | | 2 | | EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | 3.6/4.2 | S/R |
| W/EO1 & **E02** Rediagnosis & SI Termination / 3 | | | | 1 | | | EA1.1 Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features | 4.0/3.9 | |
| 000015/17 RCP Malfunctions / 4 | 01 | | | | | | AK1.01 Natural circulation in a nuclear power plant | 4.4/4.6 | |
| 000015/17 RCP Malfunctions / 4 | | | | 02 | | | AA1.02 RCP oil reservoir level and alarm indicators | 2.8/2.7 | |
| BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4 | | | | | | 4.49 | EG2.4.49 Perform without reference to procedures those actions that require immediate operation of system components and controls | 4.0/4.0 | |
| 000024 Emergency Boration / 1 | | | | | 02 | | AA2.02 When use of manual boration valve is needed | 3.9/4.4 | SRO |
| 000026 Loss of Component Cooling Water / 8 | | | | | 02 | | AA2.02 The cause of possible CCW loss | 2.9/3.6 | S/R |
| 000029 Anticipated Transient w/o Scram / 1 | | | | | | 4.34 | AG2.4.34 Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications | 3.8/3.6 | |
| 000040 (BW/E05; CE/E05; **W/E12**) Steam Line Rupture - Excessive Heat Transfer / 4 | 3 | | | | | | EK1.3 Annunciators and conditions indicating signals, and remedial actions associated with the (Uncontrolled Depressurization of all Steam Generators) | 3.4/3.7 | |
| CE/A11; W/E08 RCS Overcooling - PTS / 4 | | | | | 1 | | EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations | 3.4/4.2 | SRO |
| 000051 Loss of Condenser Vacuum / 4 | | | | | | 1.08 | AG2.1.8 Coordinate personnel activities outside the control room | 3.8/3.6 | |
| 000055 Station Blackout / 6 | | | 02 | | | | EK3.02 Actions contained in EOP for loss of offsite and onsite power | 4.3/4.6 | |
| 000057 Loss of Vital AC Elec. Inst. Bus / 6 | | | 01 | | | | EK3.01 Actions contained in EOP for loss of vital ac electrical instrument bus | 4.1/4.4 | |
| 000059 Accidental Liquid RadWaste Rel. / 9 | | | | | 03 | | AA2.03 Failure modes, their symptoms, and the causes of misleading indications on a radioactive-liquid indication | 3.1/3.6 | SRO |
| 000062 Loss of Nuclear Service Water / 4 | | | | | 04 | | AA2.04 The normal values and upper limits for the temperatures of the components cooled by SWS | 2.5/2.9 | SRO |
| 000067 Plant Fire On-site / 9 | 01 | | | | | | AK1.01 Fire classifications, by type | 2.9/3.9 | |
| 000068 (BW/A06) Control Room Evac. / 8 | | | | 31 | | | AA1.31 ED/G | 3.9/4.0 | |
| 000069 (W/E14) Loss of CTMT Integrity / 5 | | 03 | | | | | AK2.03 Personnel access hatch and emergency access hatch | 2.8/2.9 | |

Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000074 (W/E06&E07) Inad. Core Cooling / 4 | | 06 | | | | | AK2.06 Turbine bypass and atmospheric dump valves | 3.5/3.6 | |
| BW/E03 Inadequate Subcooling Margin / 4 | | | | | | | | | |
| 000076 High Reactor Coolant Activity / 9 | | | | | 04 | | AA2.04 Process effluent radiation chart recorder | 2.6/3.0 | |
| BW/A02&A03 Loss of NNI-X/Y / 7 | | | | | | | | | |
| K/A Category Totals: | 4 | 2 | 3 | 4 | 7 | 4 | Group Point Total: | | 24 |

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1 | | | 01 | | | | EK3.01 Actions contained in EOP for reactor trip | 4.0/4.6 | |
| BW/A01 Plant Runback / 1 | | | | | | | | | |
| BW/A04 Turbine Trip / 4 | | | | | | | | | |
| 000008 Pressurizer Vapor Space Accident / 3 | | 01 | | | | | AK2.01 Valves | 2.7/2.7 | |
| 000009 Small Break LOCA / 3 | | | | 12 | | | EA1.12 RPS | 4.2/4.2 | |
| BW/E08; W/E03 LOCA Cooldown - Depress. / 4 | | | 1 | | | | EK3.1 Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics | 3.3/3.7 | |
| W/E11 Loss of Emergency Coolant Recirc. / 4 | | | | | | 2.11 | EG2.2.11 Process for controlling temperature changes | 2.5/3.4 | |
| 000022 Loss of Reactor Coolant Makeup / 2 | | | | | 04 | | AA2.04 How long PZR level can be maintained within limits | 2.9/3.8 | |
| 000025 Loss of RHR System / 4 | | 02 | | | | | AK2.02 LPI or decay heat removal/RHR pumps | 3.2/3.2 | |
| 000027 Pressurizer Pressure Control System Malfunction / 3 | | 03 | | | | | AK2.03 Controllers and positioners | 2.6/2.8 | |
| 000027 Pressurizer Pressure Control System Malfunction / 3 | | | | | 17 | | AA2.17 Allowable RCS temperature difference vs. reactor power | 3.1/3.3 | |
| 000032 Loss of Source Range NI / 7 | | | | 01 | | | AA1.01 Manual restoration of power | 3.1/3.4 | |
| 000033 Loss of Intermediate Range NI / 7 | | | | | | | | | |
| 000037 Steam Generator Tube Leak / 3 | | | | | 16 | | AA2.16 Pressure at which to maintain RCS during S/G cooldown | 4.1/4.3 | SRO |
| 000038 Steam Generator Tube Rupture / 3 | | | | | | 1.19 | EG2.1.19 Use plant computer to obtain and evaluate parametric information on system or component status | 3.0/3.0 | |
| 000054 (CE/E06) Loss of Main Feedwater / 4 | | | | | 01 | | AA2.01 Occurrence of reactor and/or turbine trip | 4.3/4.4 | SRO |
| BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4 | | | | | 1 | | EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations | 3.4/4.4 | SRO |
| 000058 Loss of DC Power / 6 | | | | | 01 | | AA2.01 That a loss of dc power has occurred; verification that substitute power sources have come on line | 3.7/4.1 | S/R |
| 000060 Accidental Gaseous Radwaste Rel. / 9 | | | | | | | | | |
| 000061 ARM System Alarms / 7 | 01 | | | | | | AK1.01 Detector limitations | 2.5/2.9 | |
| W/E16 High Containment Radiation / 9 | | | | | | | | | |
| 000065 Loss of Instrument Air / 8 | | | | | | | | | |
| K/A Category Point Totals: | 1 | 3 | 2 | 2 | 6 | 2 | Group Point Total: | | 16 |

| E/APE # / Name / Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|
| 000028 Pressurizer Level Malfunction / 2 | | | | | | | | | |
| 000036 (BW/A08) Fuel Handling Accident / 8 | | | | 02 | | | AA1.02 ARM system | 3.1/3.5 | |
| 000056 Loss of Off-site Power / 6 | | | | | | | | | |
| BW/E13&E14 EOP Rules and Enclosures | | | | | | | | | |
| BW/A05 Emergency Diesel Actuation / 6 | | | | | | | | | |
| BW/A07 Flooding / 8 | | | | | | | | | |
| CE/A16 Excess RCS Leakage / 2 | | | | | | | | | |
| W/E13 Steam Generator Over-pressure / 4 | | | | | 2 | | EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | 3.0/3.4 | |
| W/E15 Containment Flooding / 5 | | | 1 | | | | EK3.1 Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics | 2.7/2.9 | |
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| K/A Category Point Totals: | | | 1 | 1 | 1 | | Group Point Total: | | 3 |

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 Control Rod Drive | | | | 20 | | | | | | | | K4.20 The permissives and interlocks associated with increase from zero power | 3.2/3.4 | |
| 001 Control Rod Drive | | | | | | | | 09 | | | | A2.09 Station blackout | 3.8/4.0 | S/R |
| 003 Reactor Coolant Pump | | | | | | | | 02 | | | | A2.02 Conditions which exist for abnormal S/D of a RCP in comparison to a normal S/D of a RCP | 3.7/3.9 | |
| 003 Reactor Coolant Pump | | | | | | | | | | | 1.20 | G2.1.20 Execute procedure steps | 4.3/4.2 | S/R |
| 004 Chemical and Volume Control | 10 | | | | | | | | | | | K1.10 Pneumatic valves and RHRS | 2.7/2.9 | |
| 004 Chemical and Volume Control | | | 08 | | | | | | | | | K3.08 RCP seal injection | 3.6/3.8 | |
| 013 Engineered Safety Features Actuation | | | | | 01 | | | | | | | K5.01 Definitions of safety train and ESF channel | 2.8/3.2 | |
| 013 Engineered Safety Features Actuation | | | | | | | | | | | 4.9 | G2.4.9 Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies | 3.3/3.9 | S/R |
| 014 Rod Position Indication | | | | 03 | | | | | | | | K4.03 Rod bottom lights | 3.2/3.4 | |
| 015 Nuclear Instrumentation | | | | | | 01 | | | | | | K6.01 Sensors, detectors, and indicators | 2.9/3.2 | |
| 017 In-core Temperature Monitor | | | | | | | | | 01 | | | A3.01 Indications of normal, natural, and interrupted circulation of RCS | 3.6/3.8 | |
| 022 Containment Cooling | 01 | | | | | | | | | | | K1.01 SWS/cooling system | 3.5/3.7 | |
| 022 Containment Cooling | | | | | | | 03 | | | | | A1.03 Containment humidity | 3.1/3.4 | |
| 025 Ice Condenser | | | | | | | | | | | | | | |
| 026 Containment Spray | | | | | | | | | | 05 | | A4.05 Containment spray reset switches | 3.5/3.5 | |
| 056 Condensate | | | | | | | | | | | | | | |
| 059 Main Feedwater | | | | | | | | | | | | | | |
| 061 Auxiliary/Emergency Feedwater | | | | | | 01 | | | | | | K6.01 Controllers and positioners | 2.5/2.8 | |
| 063 DC Electrical Distribution | | | | | | | | | | 03 | | A4.03 Battery discharge rate | 3.0/3.1 | |
| 068 Liquid Radwaste | | | | | | | | | 02 | | | A3.02 Automatic isolation | 3.6/3.6 | |
| 071 Waste Gas Disposal | | | | | | | | | | | 4.10 | G2.4.10 Annunciator response procedures | 3.0/3.1 | S/R |
| 072 Area Radiation Monitoring | | | 01 | | | | | | | | | K3.01 Containment ventilation isolation | 3.2/3.4 | |
| K/A Category Point Totals: | 2 | | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 3 | Group Point Total: | | 19 |

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 002 Reactor Coolant | | | | | | | | 04 | | | | A2.04 Loss of heat sinks | 4.3/4.6 | S/R |
| 006 Emergency Core Cooling | | | | 14 | | | | | | | | K4.14 Cross-connection of HPI/LPI/SIP | 3.9/4.2 | |
| 010 Pressurizer Pressure Control | | | 03 | | | | | | | | | K3.03 ESFAS | 4.0/4.2 | |
| 011 Pressurizer Level Control | | | | | | | | | 01 | | | A3.01 Boration/dilution | 2.8/2.8 | |
| 012 Reactor Protection | | | | | 01 | | | | | | | K5.01 DNB | 3.3/3.8 | |
| 016 Non-nuclear Instrumentation | | | | | | | | | | 02 | | A4.02 Recorders | 2.7/2.6 | |
| 027 Containment Iodine Removal | | | | | | | | | | | | | | |
| 028 Hydrogen Recombiner and Purge Control | | | | | | | 01 | | | | | A1.01 Hydrogen concentration | 3.4/3.8 | |
| 029 Containment Purge | | | 02 | | | | | | | | | K3.02 Containment entry | 2.9/3.5 | |
| 033 Spent Fuel Pool Cooling | | | | | | | | | | | | | | |
| 034 Fuel Handling Equipment | | | | | | | | | | | | | | |
| 035 Steam Generator | | | | | | | | | | 01 | | A4.01 Shift of S/G controls between manual and automatic control, by bumpless transfer | 3.7/3.6 | |
| 039 Main and Reheat Steam | | | | | 05 | | | | | | | K5.05 Bases for RCS cooldown limits | 2.7/3.1 | |
| 055 Condenser Air Removal | | | 01 | | | | | | | | | K3.01 Main condenser | 2.5/2.7 | |
| 062 AC Electrical Distribution | | 01 | | | | | | | | | | K2.01 Major system loads | 3.3/3.4 | |
| 064 Emergency Diesel Generator | | 02 | | | | | | | | | | K2.02 Fuel oil pumps | 2.8/3.1 | |
| 073 Process Radiation Monitoring | 01 | | | | | | | | | | | K1.01 Those systems served by PRMs | 3.6/3.9 | |
| 075 Circulating Water | | | | | | | | 01 | | | | A2.01 Loss of intake structure | 3.0/3.2 | |
| 079 Station Air | | | | | | | | 01 | | | | A2.01 Cross-connection with IAS | 2.9/3.2 | S/R |
| 086 Fire Protection | | | | | | | | | | | | | | |
| 103 Containment | | | | | | | | | 01 | | | A3.01 Containment isolation | 3.9/4.2 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 1 | 2 | 3 | 1 | 2 | | 1 | 3 | 2 | 2 | | Group Point Total: | | 17 |

ES-401

PWR SRO Examination Outline
Plant Systems - Tier 2/Group 3

Form ES-401-3 (R8, S1)

| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Points |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 005 Residual Heat Removal | | | | | | | | 04 | | | | A2.04 RHR valve malfunction | 2.9/2.9 | S/R |
| 007 Pressurizer Relief/Quench Tank | | | | | | | | | | | | | | |
| 008 Component Cooling Water | | | | | | | | | | | | | | |
| 041 Steam Dump/Turbine Bypass Control | | | | | | | | | | | | | | |
| 045 Main Turbine Generator | | | | | | | 05 | | | | | A1.05 Expected response of primary plant parameters (temperature and pressure) following T/G trip | 3.8/4.1 | |
| 076 Service Water | | | 07 | | | | | | | | | K3.07 ESF loads | 3.7/3.9 | |
| 078 Instrument Air | | | | | | | | | | 01 | | A4.01 Pressure gauges | 3.1/3.1 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| K/A Category Point Totals: | | | 1 | | | | 1 | 1 | | 1 | | Group Point Total: | | 4 |

Plant-Specific Priorities

| System / Topic | Recommended Replacement for... | Reason | Points |
|---|---|---|---|
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| Plant-Specific Priority Total: (limit 10) | | | |

Facility: Turkey Point Date of Exam: 10/14/2002 Exam Level: SRO

| Category | K/A # | Topic | Imp. | Points |
|---|---|---|---|---|
| Conduct of Operations | 2.1.12 | Apply technical specifications for a system | 2.9/4.0 | S/R |
| | 2.1.29 | How to conduct and verify valve lineups | 3.4/3.4 | |
| | 2.1.32 | Explain and apply all sys limits and precautions | 3.4/3.8 | |
| | 2.1.22 | Determine mode of operation | 2.8/3.3 | |
| | 2.1.06 | Supervise and assume a management role during plant transients | 2.1/4.3 | SRO |
| | 2.1.09 | Direct personnel activities inside the control room | 2.5/4.0 | SRO |
| | Total | | | 6 |
| Equipment Control | 2.2.12 | Surveillance procedures | 3.0/3.4 | S/R |
| | 2.2.04 | Explain the variations in CB layouts, systems, instr, and procedural actions between units | 2.8/3.0 | |
| | 2.2.01 | Perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity | 3.7/3.6 | |
| | Total | | | 3 |
| Radiation Control | 2.3.01 | 10 CFR: 20 and related facility radiation control requirements | 2.6/3.0 | |
| | 2.3.10 | Perform procedures to reduce excessive levels of radiation and guard against personnel exposure | 2.9/3.3 | S/R |
| | 2.3.11 | Control radiation releases | 2.7/3.2 | |
| | Total | | | 3 |
| Emergency Procedures/ Plan | 2.4.41 | Emer action level thresholds and classifications | 2.3/4.1 | SRO |
| | 2.4.15 | Communication procedures associated with EOP implementation | 3.0/3.5 | |
| | 2.4.20 | Operational implications of EOP warnings, cautions and notes | 3.3/4.0 | |
| | 2.4.16 | EOP implementation hierarchy and coordination with other support procedures | 3.0/4.0 | S/R |
| | 2.4.08 | How the event based emergency/abnormal operating procedures are used in conjunction with symptom based EOPs | 3.0/3.7 | SRO |
| | Total | | | 5 |
| Tier 3 Point Total (SRO) | | | | 17 |

# October, 2002 Turkey Point NRC Exam
# Written Exam References
## Table of Contents

| TSPS No. 95-002 | 0-ADM-536<br>TECHNICAL SPECIFICATION POSITION STATEMENT | Page No: 1 of 2 |
|---|---|---|

Subject and Question:

What are the appropriate Technical Specification Actions when a containment air lock interlock mechanism is inoperable?

Applicable Technical Specifications: 3.6.1.3, 4.6.1.3

References: IFI 94-17-01

Technical Specification Quote:

3.6.1.3 Each containment air lock shall be OPERABLE with:

a. Both doors closed except when . . .
b. An overall air lock leakage rate of . . .

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With one containment air lock door inoperable:

1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed;

2. Operation may then continue . . .

3. Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. Within 72 hours following each closing, . . . by verifying that seals have not been damaged . . .

b. By conducting overall air lock leakage tests . . .

c. At least once per 6 months by verifying that only one door in each air lock can be opened at one time.

POSITION STATEMENT:
With a containment air lock interlock mechanism inoperable, consider one containment air lock door out of service, and maintain the other door closed and locked.

DISCUSSION:
With the interlock inoperable, Action Statement (AS) (a.) applies. The purpose of the interlock is to assure that both doors cannot be opened simultaneously, with the consequent loss of containment integrity. With an interlock inoperable such that the closure of only one door can be assured, containment integrity can be maintained by complying with AS (a.1) without reliance on the status of the second door. As there is no functional difference between an unsecured door and a leaking door (as far as maintenance of containment integrity is concerned), the unsecured door must be considered inoperable.

Surveillance 4.6.1.3 assures the operability of an air lock by verifying the operability of door seals in Surveillance Requirement (SR) (a.), other potential leak paths in SR (b.), and the interlock in SR (c.). If SR (a.) or (c.) are not met, then a door is to be considered inoperable. (If both doors are incapable of being closed, the air lock is inoperable). If SR (b.) is not met, and the source of the leak is not identified or is confirmed to not be through a door, then the air lock is to be considered inoperable.

Prepared by: _____ G. Salamon 3/20/95
(Signature) (Print) (Date)

Ops. Manager: _____ H. H. Johnson 3/21/95
(Signature) (Print) (Date)

Lic. Manager: _____ E J Weinkam 3/22/95
(Signature) (Print) (Date)

PNSC Review: _____ Meeting No.: 95-046 Date: 3/23/95

Plant Manager: _____ Date: 3/23/95

2

# UNIT 3 CYCLE 19 - 150 MWD/MTU

## INTEGRAL ROD WORTH vs STEPS WITHDRAWN

C and D IN OVERLAP HZP - No Xe HFP - Eq Xe

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 0 | 102 | 1425 | 1535 |
| 0 | 106 | 1383 | 1497 |
| 0 | 110 | 1349 | 1464 |
| 0 | 114 | 1313 | 1430 |
| 0 | 118 | 1279 | 1396 |
| 0 | 122 | 1248 | 1367 |
| 0 | 126 | 1216 | 1330 |
| 0 | 128 | 1203 | 1315 |
| 2 | 130 | 1188 | 1299 |
| 6 | 134 | 1157 | 1268 |
| 10 | 138 | 1126 | 1231 |
| 14 | 142 | 1096 | 1198 |
| 18 | 146 | 1064 | 1156 |
| 22 | 150 | 1032 | 1119 |
| 26 | 154 | 1000 | 1076 |
| 30 | 158 | 967 | 1034 |
| 34 | 162 | 935 | 994 |
| 38 | 166 | 901 | 950 |
| 42 | 170 | 870 | 912 |
| 46 | 174 | 834 | 869 |
| 50 | 178 | 804 | 829 |
| 54 | 182 | 772 | 791 |
| 58 | 186 | 738 | 750 |
| 62 | 190 | 710 | 715 |
| 66 | 194 | 676 | 676 |
| 70 | 198 | 646 | 642 |
| 74 | 202 | 617 | 606 |
| 78 | 206 | 587 | 572 |
| 82 | 210 | 561 | 546 |
| 86 | 214 | 536 | 518 |
| 90 | 218 | 518 | 491 |
| 94 | 222 | 499 | 470 |
| 98 | 226 | 481 | 455 |

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 102 | 230 | 460 | 436 |
| 106 | 230 | 440 | 419 |
| 110 | 230 | 423 | 404 |
| 114 | 230 | 403 | 387 |
| 118 | 230 | 385 | 370 |
| 122 | 230 | 369 | 353 |
| 126 | 230 | 348 | 336 |
| 130 | 230 | 331 | 321 |
| 134 | 230 | 312 | 303 |
| 138 | 230 | 294 | 286 |
| 142 | 230 | 277 | 271 |
| 146 | 230 | 258 | 253 |
| 150 | 230 | 242 | 235 |
| 154 | 230 | 224 | 218 |
| 158 | 230 | 207 | 202 |
| 162 | 230 | 190 | 186 |
| 166 | 230 | 173 | 171 |
| 170 | 230 | 158 | 158 |
| 174 | 230 | 141 | 141 |
| 178 | 230 | 125 | 126 |
| 182 | 230 | 109 | 111 |
| 186 | 230 | 94 | 96 |
| 190 | 230 | 80 | 83 |
| 194 | 230 | 63 | 68 |
| 198 | 230 | 49 | 52 |
| 202 | 230 | 35 | 38 |
| 206 | 230 | 24 | 27 |
| 210 | 230 | 14 | 18 |
| 214 | 230 | 9 | 10 |
| 218 | 230 | 2 | 4 |
| 222 | 230 | 0 | 2 |
| 226 | 230 | 0 | 1 |
| 230 | 230 | 0 | 0 |

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# UNIT 3 CYCLE 19 - 4,000 MWD/MTU

## INTEGRAL ROD WORTH vs STEPS WITHDRAWN

C and D IN OVERLAP HZP - No Xe HFP - Eq Xe

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 0 | 102 | 1415 | 1549 |
| 0 | 106 | 1379 | 1513 |
| 0 | 110 | 1349 | 1481 |
| 0 | 114 | 1317 | 1448 |
| 0 | 118 | 1290 | 1417 |
| 0 | 122 | 1263 | 1391 |
| 0 | 126 | 1236 | 1355 |
| 0 | 128 | 1225 | 1344 |
| 2 | 130 | 1209 | 1330 |
| 6 | 134 | 1187 | 1297 |
| 10 | 138 | 1157 | 1261 |
| 14 | 142 | 1131 | 1229 |
| 18 | 146 | 1098 | 1189 |
| 22 | 150 | 1068 | 1150 |
| 26 | 154 | 1034 | 1107 |
| 30 | 158 | 1000 | 1064 |
| 34 | 162 | 969 | 1023 |
| 38 | 166 | 932 | 978 |
| 42 | 170 | 900 | 938 |
| 46 | 174 | 863 | 895 |
| 50 | 178 | 829 | 851 |
| 54 | 182 | 796 | 812 |
| 58 | 186 | 760 | 769 |
| 62 | 190 | 728 | 734 |
| 66 | 194 | 694 | 690 |
| 70 | 198 | 663 | 656 |
| 74 | 202 | 629 | 621 |
| 78 | 206 | 599 | 584 |
| 82 | 210 | 571 | 558 |
| 86 | 214 | 547 | 529 |
| 90 | 218 | 526 | 504 |
| 94 | 222 | 509 | 485 |
| 98 | 226 | 488 | 465 |

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 102 | 230 | 472 | 450 |
| 106 | 230 | 453 | 432 |
| 110 | 230 | 441 | 416 |
| 114 | 230 | 424 | 400 |
| 118 | 230 | 404 | 383 |
| 122 | 230 | 392 | 366 |
| 126 | 230 | 373 | 350 |
| 130 | 230 | 357 | 335 |
| 134 | 230 | 340 | 318 |
| 138 | 230 | 320 | 301 |
| 142 | 230 | 308 | 287 |
| 146 | 230 | 289 | 269 |
| 150 | 230 | 272 | 253 |
| 154 | 230 | 252 | 233 |
| 158 | 230 | 236 | 217 |
| 162 | 230 | 218 | 201 |
| 166 | 230 | 199 | 184 |
| 170 | 230 | 186 | 172 |
| 174 | 230 | 165 | 154 |
| 178 | 230 | 148 | 139 |
| 182 | 230 | 130 | 120 |
| 186 | 230 | 112 | 104 |
| 190 | 230 | 96 | 93 |
| 194 | 230 | 77 | 73 |
| 198 | 230 | 63 | 59 |
| 202 | 230 | 46 | 43 |
| 206 | 230 | 34 | 35 |
| 210 | 230 | 22 | 22 |
| 214 | 230 | 13 | 12 |
| 218 | 230 | 6 | 6 |
| 222 | 230 | 3 | 3 |
| 226 | 230 | 2 | 1 |
| 230 | 230 | 0 | 0 |

4

# UNIT 3 CYCLE 19 - 10,000 MWD/MTU

## INTEGRAL ROD WORTH vs STEPS WITHDRAWN

C and D IN OVERLAP HZP - No Xe HFP - Eq Xe

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 0 | 102 | 1719 | 1682 |
| 0 | 106 | 1690 | 1648 |
| 0 | 110 | 1665 | 1618 |
| 0 | 114 | 1638 | 1588 |
| 0 | 118 | 1614 | 1558 |
| 0 | 122 | 1593 | 1536 |
| 0 | 126 | 1563 | 1502 |
| 0 | 128 | 1552 | 1490 |
| 2 | 130 | 1542 | 1475 |
| 6 | 134 | 1515 | 1444 |
| 10 | 138 | 1484 | 1405 |
| 14 | 142 | 1454 | 1371 |
| 18 | 146 | 1418 | 1326 |
| 22 | 150 | 1383 | 1286 |
| 26 | 154 | 1341 | 1240 |
| 30 | 158 | 1303 | 1193 |
| 34 | 162 | 1265 | 1148 |
| 38 | 166 | 1220 | 1098 |
| 42 | 170 | 1182 | 1056 |
| 46 | 174 | 1138 | 1007 |
| 50 | 178 | 1098 | 962 |
| 54 | 182 | 1054 | 920 |
| 58 | 186 | 1012 | 873 |
| 62 | 190 | 972 | 833 |
| 66 | 194 | 923 | 786 |
| 70 | 198 | 880 | 746 |
| 74 | 202 | 834 | 707 |
| 78 | 206 | 788 | 666 |
| 82 | 210 | 748 | 631 |
| 86 | 214 | 712 | 598 |
| 90 | 218 | 683 | 572 |
| 94 | 222 | 665 | 550 |
| 98 | 226 | 651 | 529 |

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 102 | 230 | 637 | 514 |
| 106 | 230 | 628 | 497 |
| 110 | 230 | 617 | 482 |
| 114 | 230 | 603 | 467 |
| 118 | 230 | 591 | 450 |
| 122 | 230 | 578 | 438 |
| 126 | 230 | 560 | 418 |
| 130 | 230 | 548 | 403 |
| 134 | 230 | 532 | 385 |
| 138 | 230 | 515 | 369 |
| 142 | 230 | 497 | 353 |
| 146 | 230 | 477 | 335 |
| 150 | 230 | 459 | 317 |
| 154 | 230 | 436 | 301 |
| 158 | 230 | 415 | 281 |
| 162 | 230 | 393 | 263 |
| 166 | 230 | 368 | 246 |
| 170 | 230 | 345 | 230 |
| 174 | 230 | 317 | 209 |
| 178 | 230 | 286 | 191 |
| 182 | 230 | 256 | 170 |
| 186 | 230 | 226 | 150 |
| 190 | 230 | 198 | 134 |
| 194 | 230 | 164 | 110 |
| 198 | 230 | 135 | 92 |
| 202 | 230 | 107 | 71 |
| 206 | 230 | 76 | 53 |
| 210 | 230 | 52 | 37 |
| 214 | 230 | 31 | 23 |
| 218 | 230 | 16 | 11 |
| 222 | 230 | 6 | 7 |
| 226 | 230 | 5 | 2 |
| 230 | 230 | 0 | 0 |

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# UNIT 3 CYCLE 19 - 15,475 MWD/MTU

## INTEGRAL ROD WORTH vs STEPS WITHDRAWN

C and D IN OVERLAP HZP - No Xe HFP - Eq Xe

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 0 | 102 | 2075 | 1835 |
| 0 | 106 | 2045 | 1804 |
| 0 | 110 | 2019 | 1771 |
| 0 | 114 | 1988 | 1741 |
| 0 | 118 | 1960 | 1710 |
| 0 | 122 | 1936 | 1687 |
| 0 | 126 | 1904 | 1650 |
| 0 | 128 | 1890 | 1637 |
| 2 | 130 | 1876 | 1623 |
| 6 | 134 | 1843 | 1590 |
| 10 | 138 | 1807 | 1550 |
| 14 | 142 | 1772 | 1510 |
| 18 | 146 | 1729 | 1464 |
| 22 | 150 | 1690 | 1422 |
| 26 | 154 | 1644 | 1372 |
| 30 | 158 | 1600 | 1323 |
| 34 | 162 | 1556 | 1276 |
| 38 | 166 | 1507 | 1225 |
| 42 | 170 | 1466 | 1181 |
| 46 | 174 | 1409 | 1132 |
| 50 | 178 | 1364 | 1086 |
| 54 | 182 | 1309 | 1041 |
| 58 | 186 | 1254 | 992 |
| 62 | 190 | 1200 | 950 |
| 66 | 194 | 1134 | 899 |
| 70 | 198 | 1073 | 855 |
| 74 | 202 | 1001 | 808 |
| 78 | 206 | 936 | 761 |
| 82 | 210 | 875 | 722 |
| 86 | 214 | 821 | 682 |
| 90 | 218 | 777 | 649 |
| 94 | 222 | 750 | 626 |
| 98 | 226 | 735 | 601 |

| BANKS | | ROD WORTH (pcm) | |
|---|---|---|---|
| D | C | HZP | HFP |
| 102 | 230 | 725 | 586 |
| 106 | 230 | 718 | 568 |
| 110 | 230 | 712 | 554 |
| 114 | 230 | 705 | 537 |
| 118 | 230 | 695 | 521 |
| 122 | 230 | 687 | 507 |
| 126 | 230 | 675 | 488 |
| 130 | 230 | 664 | 471 |
| 134 | 230 | 648 | 454 |
| 138 | 230 | 634 | 435 |
| 142 | 230 | 618 | 418 |
| 146 | 230 | 600 | 397 |
| 150 | 230 | 582 | 381 |
| 154 | 230 | 558 | 360 |
| 158 | 230 | 535 | 342 |
| 162 | 230 | 512 | 323 |
| 166 | 230 | 483 | 301 |
| 170 | 230 | 457 | 284 |
| 174 | 230 | 424 | 259 |
| 178 | 230 | 392 | 237 |
| 182 | 230 | 356 | 216 |
| 186 | 230 | 322 | 193 |
| 190 | 230 | 287 | 170 |
| 194 | 230 | 241 | 145 |
| 198 | 230 | 202 | 121 |
| 202 | 230 | 157 | 95 |
| 206 | 230 | 119 | 72 |
| 210 | 230 | 83 | 49 |
| 214 | 230 | 50 | 31 |
| 218 | 230 | 28 | 16 |
| 222 | 230 | 10 | 10 |
| 226 | 230 | 7 | 4 |
| 230 | 230 | 0 | 0 |

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# ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 1. Primary Leakage/LOCA | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Plant in Mode 1-2-3-4<br>**AND**<br>Either A or B:<br>A. RCS Leakage GREATER THAN 10 GPM as indicated by:<br>1) Control Room observation<br>**OR**<br>2) Inventory balance calculation<br>**OR**<br>3) Field observation<br>**OR**<br>4) Emergency Coordinator judgment<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>B. Failure of any primary system safety or relief valve to close resulting in an uncontrolled RCS depressurization. | Plant in Mode 1-2-3-4<br>**AND**<br>RCS leakage greater than 50 gpm<br>**AND**<br>RCS leakage within available charging pump capacity<br>**CAUTION:** This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ruptured steam generator. | Plant in Mode 1-2-3-4<br>**AND**<br>RCS leakage greater than 50 gpm<br>**AND**<br>RCS leakage greater than available charging pump capacity<br>**CAUTION:** This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ruptured steam generator. | Either A or B:<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>A. RCS leakage greater than 50 gpm<br>**AND**<br>RCS leakage greater than available charging pump capacity<br>**AND**<br>Containment pressure greater than 20 psig<br>**CAUTION:** This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ ruptured steam generator.<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>B .Plant in Mode 1, 2, 3, 4,<br>**AND**<br>RCS leakage greater than 50 gpm<br>**AND**<br>RCS leakage greater than available charging pump capacity<br>**AND**<br>Loss of containment integrity which provides a flowpath to the environment.<br>**CAUTION:** This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ruptured steam generator<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| TI-465, 467, 469<br>TEC Flow Indicators | Charging/Letdown Flow Mismatch | RCS pressure<br>Containment Pressure<br>ARMS<br>Charging/Letdown Flow Mismatch | RCS pressure<br>Containment Pressure<br>PRMS R-14 |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

## ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

### 2. Steam Generator Tube Leak/Rupture

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| Either A or B:<br>A. Greater than 500 gpd steam generator tube leakage to any one steam generator per Technical Specification 3.4.6.2, Reactor Coolant System<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>B. Greater than 1 gpm total steam generator tube leakage per Technical Specification 3.4.6.2, Reactor Coolant System | Either A or B:<br>A. Confirmed steam generator tube leakage greater than 50 gpm<br>**AND**<br>Steam generator tube leakage within available charging pump capacity<br>**AND**<br>Loss of off-site power<br>- - - - - - - - - - - - - - - - - - - - - - - - - -<br>B .Steam generator tube leakage greater than available charging pump capacity. | Steam generator tube leakage greater than available charging pump capacity<br>**AND**<br>Loss of offsite power<br>**CAUTION:** Consult Attachment 3 for possible Protective Action Recommendations | |
| **Possible Control Room Indicators** | | | |
| PRMS R-15<br>PRMS R-19 | PRMS R-15<br>PRMS R-19<br>Charging/Letdown Flow Mismatch | PRMS R-15<br>PRMS R-19<br>Charging/Letdown Flow Mismatch | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

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## ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 3. Loss of Secondary Coolant | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Either A or B:<br>A. Steamline or feedline break which results in Safety Injection actuation.<br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br>B. Failure of a steam generator safety or steam dump to atmosphere valve to close resulting in uncontrolled secondary depressurization. | Steamline or feedline break which results in Safety Injection actuation<br>**AND**<br>Evidence of significant (greater than 10 gpm) steam generator tube leakage in the affected steam generator. | Steamline or feedline break which results in Safety Injection actuation<br>**AND**<br>Confirmed RCS DEQ I-131 activity greater than or equal to 300 µCi/gm<br>**AND**<br>Confirmed steam generator tube leakage greater than 50 gpm in the affected steam generator<br>**CAUTION:** Consult Attachment 3 for possible Protective Action Recommendations | |
| **Possible Control Room Indicators** | | | |
| | PRMS R-15<br>PRMS R-19<br>Charging/Letdown Flow Mismatch | PRMS R-15<br>PRMS R-19<br>Charging/Letdown Flow Mismatch | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

| 4. Fuel Handling Accident | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| | A spent fuel element has been dropped or damaged<br>**AND**<br>Release of radioactivity from the damaged spent fuel element has been detected. | Either A, B or C:<br>A. Major damage to one or more spent fuel elements has occurred<br>**AND**<br>Affected area radiation monitors are greater than $10^3$ mR/hr.<br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br>B. Major damage to one or more spent fuel elements has occurred<br>**AND**<br>Containment radiation levels greater than 1.3 E4 Rem/hr<br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br>C. Major damage to one or more spent fuel elements due to water level being below top of spent fuel. | |
| **Possible Control Room Indicators** | | | |
| | ARMS R-2, 5, 7, 8, 19, 21, 22<br>PRMS R-12, 14 | PRMS R-2, 5, 7, 8, 19, 21, 22<br>PRMS R-12, 14<br>SFP Level Indication<br>RI-6311A<br>RI-6311B | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

# ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

### 5. Loss of Safe Shutdown Functions/ATWS

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| | Either A, B, C or D:<br><br>A. Reactor critical<br>**AND**<br>Failure of the Reactor Protection System to initiate a trip signal when a trip setpoint has been exceeded.<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>B. Reactor critical<br>**AND**<br>Reactor fails to trip on automatic signal<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>C. Reactor critical<br>**AND**<br>Reactor fails to trip on manual signal<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>D. RCS temperature increasing due to loss of decay heat removal capability from all of the following:<br><br>1) RHR System<br>**AND**<br>2) Forced RCS circulation<br>**AND**<br>3) Natural RCS circulation | Either A, B, C or D:<br><br>A. Inability to bring the reactor subcritical with control rods<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>B. Plant in Mode 1-2-3<br>**AND**<br>Loss of steam release capability from all of the following:<br><br>1) Condenser steam dumps<br>**AND**<br>2) Atmospheric steam dumps<br>**AND**<br>3) All steam generator safeties<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>C. Plant in Mode 1-2-3<br>**AND**<br>Loss of secondary heat sink has occurred<br>**AND**<br>RCS bleed and feed is required.<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>D. Plant in Mode 1-2-3<br>**AND**<br>RCS injection capability has been lost from:<br><br>1) Charging pumps<br>**AND**<br>2) High-head SI pumps<br><br>except due to loss of all AC power. Refer to Section 10, Loss of Power Conditions | Either A or B:<br><br>A. Inability to bring the reactor subcritical<br>**AND**<br>RCS pressure greater than 2485 psig.<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>B. Inability to bring the reactor subcritical<br>**AND**<br>Containment pressure greater than or equal to 4 psig.<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

### 6. Fuel Element Failure

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| RCS activity requiring plant shutdown or cooldown per Technical Specification 3.4.8. | Either A, B or C:<br>A. R-20 Reading of 2.5 R/hr, or confirmed RCS DEQ I-131 activity greater than or equal to 300 µCi/gm.<br>---<br>B. An increase of greater than 1% fuel failure in 30 minutes.<br>---<br>C. Total fuel failure of 5%. | Fuel element failure as indicated by A, B, or C:<br>A. R-20 Reading of 2.5 R/hr, or confirmed RCS DEQ I-131 activity greater than or equal to 300 µCi/gm.<br>**AND**<br>RCS $T_{hot}$ greater than 620°F.<br>---<br>B. Confirmed RCS DEQ I-131 activity greater than or equal to 300 µCi/gm.<br>**AND**<br>Core exit thermocouples greater than 700°F.<br>---<br>C. Containment high range radiation monitor reading greater than 1.3 E4 Rem/hr. | Fuel element failure as defined in Site Area Emergency of this section<br>**AND**<br>Any of the following is imminent or in progress:<br>a) LOCA with loss of containment cooling<br>**OR**<br>b) LOCA with loss of containment integrity which provides a flowpath to the environment<br>**OR**<br>c) Steam generator tube rupture with unisolable flowpath from the ruptured steam generator to the environment.<br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| | PRMS R-20<br>ARMS R-1 through R-6 | Core Exit Thermocouples<br>RI-6311A<br>RI-6311B | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

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ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

### 7. Uncontrolled Effluent Release

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| A release to the Unrestricted Area has occurred or is in progress which exceeds either A or B:<br><br>A. ODCM limits for gaseous release (Control 3.2) per off-site dose estimates performed in accordance with 0-EPIP-20126, Off-site Dose Calculations.<br><br>B. ODCM limits for liquid release (Control 2.3).<br><br>**NOTE:** Alarm Actuation does not in itself constitute exceeding ODCM limits. | A release to the Unrestricted Area has occurred or is in progress which exceeds either A or B:<br><br>A. Ten times ODCM limits for gaseous release (Control 3.2) per off-site dose estimates performed in accordance with 0-EPIP-20126, Off-site Dose Calculations.<br><br>B. Ten times ODCM limits for liquid release (Control 2.3).<br><br>**NOTE:** Alarm Actuation does not in itself constitute exceeding ODCM limits. | Performance of 0-EPIP-20126, Off-site Dose Calculation or off-site surveys indicate site boundary exposure levels have been exceeded as indicated by either A, B, C, or D:<br><br>A. greater than or equal to 50 mrem/hr total dose rate for 1/2 hour<br><br>B. greater than or equal to 250 mrem/hr to the thyroid for 1/2 hour<br><br>C. greater than or equal to 500 mrem/hr total dose rate for 2 minutes<br><br>D. greater than or equal to 2500 mrem/hr to the thyroid for 2 minutes<br><br>**NOTE:** Site boundary equals 1 mile radius from affected unit.<br><br>**CAUTION:** Consult Attachment 3 for possible Protective Action Recommendations. | Performance of 0-EPIP-20126, Off-site Dose Calculation or off-site surveys indicate site boundary exposure levels have been exceeded as indicated by either A, B, C, or D:<br><br>A. greater than or equal to 1000 mrem/hr total dose rate<br><br>B. greater than or equal to 1000 mrem total dose (TEDE)<br><br>C. greater than or equal to 5000 mrem/hr to the thyroid<br><br>D. greater than or equal to 5000 mrem thyroid dose (CDE)<br><br>**NOTE:** Site boundary equals 1 mile radius from affected unit.<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

## ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 8. High Radiation Levels In Plant | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| | Severe loss of control of radioactive materials as indicated by either A, B or C:<br><br>A. Unexpected valid area monitor alarm from an undeterminable source with meter greater than $10^3$ mR/hr.<br><br>- - - - - - - - - - - - - - - - - - - - - - - -<br><br>B. Unexpected plant iodine or particulate airborne concentration greater than 1000 DAC as per 10 CFR 20 Appendix B, Table 1.<br><br>- - - - - - - - - - - - - - - - - - - - - - - -<br><br>C. Unexpected direct radiation dose rate reading or unexpected airborne radioactivity concentration from an undetermined source in excess of 1000 times normal levels. | Containment High Range Radiation Monitor reading greater than 1.3 E4 Rem/hr.<br><br>**NOTE:** Direct Chemistry to perform offsite dose estimates per 0-EPIP-20126, Off-site Dose Calculations.<br>(See Section 7, Uncontrolled Effluent Release)<br><br>**CAUTION:** Consult Attachment 3 for possible Protective Action Recommendations. | Containment High Range Radiation Monitor reading greater than 1.3 E5 Rem/hr.<br><br>**NOTE** :Direct Chemistry to perform offsite dose estimates per 0-EPIP- 20126, Off-site Dose Calculations.<br>(See Section 7, Uncontrolled Effluent Release)<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| | Area Radiation Monitors | RI-6311A<br>RI-6311B | RI-6311A<br>RI-6311B |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

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ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

**9. Other Plant Conditions That Could Lead To Substantial Core Damage**

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| | | | Either A or B:<br><br>A. Potential core damage indicated by all of the following:<br>1) Known LOCA greater than available charging pump capacity<br>**AND**<br>2) Failure of ECCS to deliver flow to the core<br>**AND**<br>3) Containment High Range Radiation Monitor reading greater than 1.3 E4 Rem/hr.<br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br>B. Potential core damage indicated by all of the following:<br>1) Loss of secondary heat sink<br>**AND**<br>2) RCS bleed and feed required<br>**AND**<br>3) No high-head SI flow available<br>**AND**<br>4) No RHR flow for greater than 30 minutes<br>**AND**<br>5) No AFW flow for greater than 30 minutes<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

| 10. Loss Of Power Conditions | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Either A or B:<br><br>A. Loss of offsite power to the:<br><br>1) A 4KV bus<br>**AND**<br>2) B 4KV bus<br><br>- - - - - - - - - - - - - - - - - - - - - -<br><br>B. Loss of on-site power capability as indicated by:<br><br>1) Loss of capability to power at least one vital 4KV bus from <u>any</u> of the four available emergency diesel generators. | Either A or B:<br><br>A. Loss of all vital on-site DC power.<br><br>- - - - - - - - - - - - - - - - - - - - -<br><br>B. Loss of offsite power<br>**AND**<br><br>Both associated emergency diesel generators fail to energize their associated 4KV buses.<br><br>**NOTE:** Refer to Section 5, Loss of Safe Shutdown Function | Either A, B or C with fuel in the Reactor Vessel<br><br>A. Loss of all A/C power for greater than 15 minutes.<br><br>- - - - - - - - - - - - - - - - - - - - -<br><br>B. Loss of all vital on-site DC power for greater than 15 minutes.<br><br>- - - - - - - - - - - - - - - - - - - - -<br><br>C. Emergency Coordinator leaves Control Room within the first 15 minutes of a loss of all A/C **<u>OR</u>** DC power. | The following situation exists for greater than 1 hr with fuel in the Reactor Vessel.<br><br>a) Loss of all A/C power<br>**<u>AND</u>**<br>b) Loss of all feedwater capability.<br><br>CAUTION: Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| 4KV Bus Voltage<br>4KV Bus Amps | | | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 11. Loss Of Assessment Functions | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Either A, B, or C:<br><br>A. Unplanned loss of most or all Safety System Annunciators for greater than 15 minutes<br><br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br><br>B. Loss of primary communications with off-site locations<br>**AND**<br>Loss of all backup communications with offsite locations<br><br>- - - - - - - - - - - - - - - - - - - - - - - - - - -<br><br>C. Loss of effluent or radiological monitoring capability requiring plant shutdown. | Unplanned loss of **ALL** Safety System Annunciators<br><br>**AND**<br>Plant Transient in progress | Inability to monitor a significant transient in progress | |
| **Possible Control Room Indicators** | | | |
| | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

# ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

### 12. Natural Phenomena

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| Plant in Mode 1-2-3-4<br>**AND**<br>either A, B, C or D:<br><br>A. Confirmed hurricane warning<br>**OR**<br>B. Confirmed tornado in owner controlled area<br>**OR**<br>C. Any earthquake detected on site<br>**OR**<br>D Hurricane/flood surge that prevents land access to the site | Plant in any mode including defueled.<br>**AND**<br>either A, B, C or D:<br><br>**NOTE:** If accurate projections of on-site wind speeds are not available within 12 hours of entering the hurricane warning, classify the event using current hurricane track and wind speeds to project on-site conditions.<br><br>A. Confirmed hurricane warning with maximum projected on-site wind speeds in excess of 200 mph<br>**OR**<br>B. Tornado striking any power block structure<br>**OR**<br>C. Earthquake that could cause or has caused trip of the turbine generator or reactor<br>**OR**<br>D. Hurricane/flood surge that raises water level greater than 18 feet above MLW | Plant in Mode 1-2-3-4<br>**AND**<br>either A, B or C:<br><br>**NOTE:** If accurate projections of on-site wind speeds are not available within 12 hours of entering the hurricane warning, classify the event using current hurricane track and wind speeds to project on-site conditions.<br><br>A. Confirmed hurricane warning with maximum projected on-site wind speeds in excess of 225 mph **AND** the unit not expected to be in cold shutdown prior to the projected onset of hurricane force winds<br>**OR**<br>B. Earthquake has caused loss of any safety system function<br>**OR**<br>C. Hurricane/flood surge that raises water level greater than 18 feet above MLW and results in shutdown of turbine generator or reactor. | A major natural event (e.g., high winds, earthquake, flooding) has occurred, which has caused massive damage to plant systems resulting in any of the other General Emergency initiating conditions.<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |

### Possible Control Room Indicators

| | | | |
|---|---|---|---|
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

### 13. Hazards To Station Personnel And Equipment

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| Safety of nuclear plant or personnel threatened by either A, B, C, D, or E:<br><br>A. Aircraft crash on site<br>----------<br>B. Unusual aircraft activity over facility<br>----------<br>C. Toxic or flammable gas release<br>----------<br>D. Turbine generator rotating component failure requiring rapid turbine shutdown<br>----------<br>E. On-Site Explosion<br><br>**NOTE:** Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas. | Either A, B, or C:<br><br>A. A reduction in the level of safety of plant structures or components within the protected area due to damage caused by either 1), 2), or 3):<br><br>1) Aircraft crash<br>**OR**<br>2) Missile impact<br>**OR**<br>3) Explosion<br><br>**NOTE:** Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas.<br><br>B. Toxic or flammable gas release which threatens plant operation.<br><br>C. Turbine generator failure resulting in casing penetration. | Either A or B:<br><br>A. Plant in Mode 1-2-3-4<br>**AND**<br>Safety systems have failed or damage to vital structure has been caused by either 1), 2), or 3):<br><br>1) Aircraft crash<br>**OR**<br>2) Missile impact<br>**OR**<br>3) Explosion<br><br>**NOTE:** Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas.<br><br>B. Toxic or flammable gas release into control or vital areas which renders one train of Safety Related Systems inoperable. | |
| **Possible Control Room Indicators** | | | |
| Complete Actions listed in Subsection 5.3<br>Page 20 | Complete Actions listed in Subsection 5.4<br>Page 25 | Complete Actions listed in Subsection 5.5<br>Page 32 | Complete Actions listed in Subsection 5.6<br>Page 41 |

# ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 14. Security Threat | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Declaration of a **Security Alert** due to either A, B, C, D, E, F, G, H<br><br>A. Bomb Threat<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>B. Attack threat<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>C. Civil disturbance<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>D. Protected area intrusion<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>E. Sabotage attempt<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>F. Internal disturbance<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>G. Vital area intrusion<br>- - - - - - - - - - - - - - - - - - - - - - - -<br>H. Security Force strike | Declaration of a **Security Emergency** | Declaration of a **Security Emergency** involving imminent occupancy of the Control Room or other vital areas by intruders. | Physical attack on the plant resulting in occupation of the Control Room or other vital areas by intruders.<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

### 15. Control Room Evacuation

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| | Control Room evacuation anticipated or required. | Control Room has been evacuated<br>**AND**<br>Local control of shutdown systems has **NOT** been established from local stations within 15 minutes. | |
| **Possible Control Room Indicators** | | | |
| | | | |

### 16. Fire

| UNUSUAL EVENT | ALERT | SITE AREA EMERGENCY | GENERAL EMERGENCY |
|---|---|---|---|
| Uncontrolled fire within the power block lasting longer than 10 minutes. | Uncontrolled fire potentially affecting safety systems<br>**AND**<br>Offsite support required. | Fire which prevents a safety system from performing its design function. | A major fire has occurred which has caused massive damage to plant systems resulting in any of the other General Emergency initiating conditions.<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## ENCLOSURE 1
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## EMERGENCY CLASSIFICATION TABLE

| 17. Plant Shutdown | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Any plant shutdown required by Technical Specifications in which the required shutdown mode is not reached within the Action Statement time limits. | | | |
| **Possible Control Room Indicators** | | | |
| | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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## EMERGENCY CLASSIFICATION TABLE

| 18. Other Plant Conditions Requiring Increased Awareness (Emergency Coordinator's Judgment) | | | |
|---|---|---|---|
| **UNUSUAL EVENT** | **ALERT** | **SITE AREA EMERGENCY** | **GENERAL EMERGENCY** |
| Emergency Coordinator's judgment that other plant conditions exist which warrant increased awareness on the part of the operating staff and/or local off-site authorities.<br><br>**NOTE:** Activation of the Emergency Response Facilities does not require declaration of an emergency or entry into a specific emergency classification. | Emergency Coordinator's judgment that other plant conditions exist which warrant the increased awareness and activation of emergency response personnel. | Emergency Coordinator's judgment that other plant conditions exist which warrant the precautionary notification to the public near the site and the activation of FPL and off-site agency emergency response personnel.<br><br>(Reflects conditions where some significant releases are likely or are occurring but where a core melt situation is not indicated based on current information) | Emergency Coordinator's judgment that other plant conditions exist which make release of large amounts of radioactivity, in a short period of time, possible<br><br>(Loss of two fission product barriers with potential for loss of the third, such as, actual or imminent substantial core degradation or melting with the potential for loss of containment.)<br><br>**CAUTION:** Consult Attachment 3 for required Protective Action Recommendations. |
| **Possible Control Room Indicators** | | | |
| | | | |
| Complete Actions listed in Subsection 5.3 Page 20 | Complete Actions listed in Subsection 5.4 Page 25 | Complete Actions listed in Subsection 5.5 Page 32 | Complete Actions listed in Subsection 5.6 Page 41 |

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1. 001A2.10 001/T2G1/T2G1/CONTROL ROD MG SET/C/A (3.4/3.9)/N/TP02301/R/SDR

Unit 3 is operating at 100% steady state power when the following annunciator is received:

- B-8/6, ROD CONTROL SYSTEM GROUND.

Which ONE of the following describes the effect on the control rod system and the operator actions required?

A. Loss of power to the CRDMs is imminent; trip the reactor and enter 3-EOP-E-0, "Reactor Trip or Safety Injection."

B. Control rods will be unaffected although one MG set has tripped; verify MG output voltage is set at 260 volts.

C.✓ Control rods will be unaffected; shutdown one of the MG sets using 3-OP-028, "Control Rod Drive M-G Set Operation.

D. Loss of power to the CRDMs is imminent; shutdown using 3-GOP-103, "Power Operation to Hot Standby."

Enabling Objective: EO#2 and EO#6 of Lesson Plan LP6902105

Distractor Analysis:
A: Incorrect, Loss of power to the CRDMs is not assured and a reactor trip is not warranted.

B: Incorrect, Annunciator B-8/5, ROD CONTROL MG SET TRIP would indicate the loss of one MG set.

C: Correct, One MG set is capable of carrying the entire rod control system load. Actions of annunciator B-8/6 requires one MG set to be secured at a time to isolate the ground.

D: Incorrect, Loss of power to the CRDMs is not assured, a reactor shutdown is not necessary.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A A B C C D B D D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CONTROL ROD MG SET | Cog lvl & (Imp): | C/A (3.4/3.9) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

2. 001A2.12 (S) 001/T2G1/T2G1/ECP/C/A (3.6/4.2)/B/TP02301/S/SDR

You are the NPS and Unit 3 is performing a reactor startup. The operators have completed the third rod withdrawal of the control banks.

The 1/M plot reveals criticality will occur at D-150.
The ECC calculation predicted criticality at D-76.
Core age is 10,000 MWD/MTU.

Which ONE of the following describes the appropriate actions you should take in accordance with GOP-103, Hot Standby to Power Operation?

(Reference provided)

A.✓ You may direct the operators to continue with the reactor startup and pull to criticality.

B. Direct the operators to reinsert control rods and borate the RCS as necessary.

C. You must direct the operators to reinsert control rods and dilute as necessary.

D. Obtain permission from the Reactor Engineering Supervisor to continue with the reactor startup and pull to criticality.

Question source: Turkey Point requal question bank 69024070126-ORQ; ORQ#089

Distractor analysis:

A: Correct, HZP for D-76 is 811pcm; HZP for D-150 is 459pcm; difference of 352pcm (between 300 -400pcm) which is GOP-301 step 4.27.3 criteria for continuing with NPS permission.

B: Incorrect, action if projected critical rod position is below the insertion limit GOP-301 step 4.27.1 criteria.

C: Incorrect, action if projected that the reactor can not be made critical at the current boron concentration GOP-301 step 4.27.2 criteria.

D: Incorrect, action if difference of between >400 ≤ 500pcm which is GOP-301 step 4.27.4 criteria for continuing with Reactor Engineering Supervisor permission.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | A C C B C D C A C B | Scramble Range: A - D |

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | ECP | Cog lvl & (Imp): | C/A (3.6/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

3. 001AG2.4.11 002/T1G2/T1G1/ROD WITHDRAWL/C/A (3.4/3.6)/M/TP02301/C/GWL

Given the following conditions:

-Reactor Power is at 70% power and increasing slowly.
-Pressurizer Pressure is slowly increasing.
-Pressurizer Level is slowly increasing.
-RCS Tavg is increasing.
-Containment parameters are normal.

Which ONE of the following lists the event that is ocurring and the procedure required to mitigate that event?

A. A steam leak is in progress; 3-ONOP-100 "Fast Load Reduction."

B. A Control bank D continious rod withdrawl; 3-ONOP-28.1 "RCC Misalignment."

C. A Turbine runback is in progress; 3-ONOP-089 "Turbine Runback."

D.✓ A Control bank D continious rod withdrawl; 3-ONOP-28.0 "Reactor Control System Malfunction."

LP-6902207 3/4-ONOP-28, 28.1,28.2,28.3 Rod Control system malfunctions, enabling objective # 2, and 4.
Modified from a Kewaunee bank question.

A. Incorrect, a steam leak would cause power to increase, Tavg to lower, pressureizer level and pressure to lower.

B. Incorrect, this is the correct event, but the correct procedure is 3-ONOP-28.0 "Reactor Control System Malfunction" is the correct procedure.

C. Incorrect, a turbine runback would cause power to decrease, Tavg to rise pressureizer level and pressure to rise, 3-ONOP-089 "Turbine Runback" is the correct procedure to enter for a turbine runback

D. Correct a control bank D continious rod withdrawl would cause these symptoms and 3-ONOP-28.0 "Reactor Control System Malfunction" is the correct procedure.

Distractor A changed from a 'turbine runback' to a 'steam leak' to make in more plausible (Chief Examiner comment).

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B D B B D D D D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | ROD WITHDRAWL | Cog lvl & (Imp): | C/A (3.4/3.6) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

4. 001K4.20 002/T2G1/T2G1/ROD CONTROL PERMISSI/C/A (3.2/3.4)/N/TP02301/C/GWL

-A Plant startup has just been completed on Unit 3.
-The Turbine has been connected to the grid.
-Reactor Power is being increased to 25%.
-At approximately 20% power on the NI's Annunciator B 5/1 INTERM RANGE HI FLUX ROD STOP illuminates.

Which ONE of the following is the probable reason for the B 5/1 annunciator alarming?

A. A failure of P-10 to automatically block the power range and intermediate range at-power trips and blocks.

B. A failure of P-7 to automatically block the at-power trips and blocks.

C.✓ Failure of the operating crew to manually block P-10, the power range and intermediate range at-power trips and blocks.

D. Failure of the operating crew to manually block P-7, the at-power trips and blocks.

LP6902163 Reactor Protection and Safeguards Actuation System enabling objective # 3.

A. Incorrect, P-10 must be manually blocked.

B. Incorrect, P-7 is the low power permissive and has no effect on rod stops but does operate automatically.

C. Correct, P-10 must be manually blocked.

D. Incorrect P-7 does not block this, and is automatically actuated.

Added P-10 to distractor C and P-7 to distractor D.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D B B D B C C B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | ROD CONTROL PERMISSI | Cog lvl & (Imp): | C/A (3.2/3.4) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

5. 002A2.04 (R) 001/T2G2/T2G2/LOSS OF HEAT SINK/C/A (4.3/4.6)/B/TP02301/R/SDR

Unit 3 is at 100% power with all systems and plant parameters in their normal configuration.

The following events occur:
- '3C' Steam Generator main steam line breaks causing a reactor trip and SI actuation.
- '3C' Steam Generator completely depressurizes.
- Containment pressure peaks at 26 psig.
- '3A' and '3B' Steam Generator levels drop below the narrow range.

Which ONE of the following describes the correct operator response?

Isolate AFW flow to the '3C' Steam Generator:

A.✓ while performing E-0, Reactor Trip or Safety Injection. Increase AFW flow to the '3A' and '3B' Steam Generators.

B. while performing E-0, Reactor Trip or Safety Injection. No additional AFW flow adjustments will be necessary.

C. when transition is made to FR-Z.1, Response to High Containment Pressure. No additional AFW flow adjustments will be necessary.

D. when transition is made to FR-H.1, Responses to Loss of Secondary Heat Sink. Increase AFW flow to the '3A' and '3B' Steam Generators.

Question source: Turkey Point requal question bank 69023210501-ORQ; ORQ#624
Enabling Objectives: EO#3 & EO#5 of LP6902321

Distractor Analysis:

A: Correct, E-0 fold out page item #2 state to isolate AFW flow to the faulted S/G and maintain feedwater flow > 345 gpm until narrow range levels in at least one S/G is >6%.

B: Incorrect, AFW flow will need to be adjusted to turn and increase levels in the '3A' and '3B' Steam Generators.

C: Incorrect, FR-Z.1 will be transition to if steps 1-29 of E-0 are complete and a RED path condition exists (ORANGE path exists per F-0 at this time). E-0 fold out page criteria for isolating the faulted S/G and increasing AFW flow will occur first.

D: Incorrect, FR-H.1 will be transition to if steps 1-29 of E-0 are complete and a RED path condition exists (YELLOW path exist per F-0 at this time). E-0 fold out page criteria for isolating the faulted S/G and increasing AFW flow will occur first.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A D D B B D D B A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | LOSS OF HEAT SINK | Cog lvl & (Imp): | C/A (4.3/4.6) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

6. 002A2.04 (S) 002/T2G2/T2G2/RCS/HEAT SINK/C/A (4.3/4.6)/M/TP02301/S/GWL

-Unit 3 is in mode 5, with RHR in service.
-The running RHR pump has just tripped.
-Efforts to restore either RHR pump to service has failed.
-RCS Temperature is 180 degrees and slowly rising.
-RCS pressure is 320 psig.

Which ONE of the following describes the correct actions in accordance with 3-ONOP-050 "Loss of RHR," for restoring a heat sink for the RCS?

A. Plot RCS heat-up rate every minute for 15 minutes, isolate containment, check for 2 S/Gs available, continue attempts to restore RHR to service unless RCS exceeds 190 $^{o}$F.

B. Align a HHSI pump to take a suction through the RHR pumps and heat exchangers, transferring the RCS heat to the CCW system via the RHR heat exhchangers.

C.✓ Plot RCS heat-up rate every minute for 5 minutes, close any open containment penetrations, check for secondary heat sink availabity, dump steam as needed to maintain RCS temperatrue.

D. Align a HHSI pump to take a suction on the RWST, using normal charging feed the RCS with RWST and open one PORV to establish a bleed path, evacuate containment.

3/4 ONOP-050 Loss of RHR, enabling objective # 3 and 4.
Modified from two bank questions.

A. Incorrect, heat up rate should be plotted every minute for 5 minutes. Operators will continue attempts restore RHR even if RCS temps exceed 190$^{o}$F.

B. Incorrect, This is not a method describeed in the procedure.

C. Correct, These are the actions described in ONOP-050 for these symptoms.

D. Incorrect, These actions would not be taken in accordance with ONOP-050.
08/20/2002, added in accordance with 3-ONOP-050 "Loss of RHR" to stem.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D D C C B A D A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | RCS/HEAT SINK | Cog lvl & (Imp): | C/A (4.3/4.6) |
| Source: | M | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

7. 003A2.02 001/T2G1/T2G1/RCP VIBRATION/C/A (3.7/3.9)/M/TP02301/C/SDR

The following events occurred while operating at 100% power:

- Annunciator F 1/1, RCP MOTOR/SHAFT HI VIB, alarmed.
- Recorder 369 indicated shaft vibration had increased to 15 mils on the B RCP.
- Recorder 369 indicated motor vibration was stable at 2 mils on the B RCP.
- An operator was dispatched to check the vibration indication in the cable spreading room and continue to monitor.

The decision was made to perform a rapid shutdown of the reactor and secure the B RCP. Reactor power is currectly 10% and decreasing.

The operator in the cable spreading room reports that the DANGER alarm for RCP vibration has just alarmed.

Which ONE of the following describes the actions to be taken in accordance with ONOP-041.1, REACTOR COOLANT PUMP OFF-NORMAL?

A.✓ Immediately trip the reactor, verify reactor trip using the EOP network and then stop the B RCP and select MANUAL and close pressurizer spray valve FCV-3-455A.

B. Immediately trip the B RCP, select MANUAL and close pressurizer spray valve FCV-3-455A, and continue with the rapid shutdown.

C. Cross check the B RCP parameters. If other RCP parameters are within limits, continue B RCP operation. Continue with the rapid shutdown.

D. Immediately trip the B RCP and then trip reactor. Verify the reactor is tripped using the EOP network and select MANUAL on pressurizer spray valve FCV-3-455A.

Enabling Objective #3 and Performance Objective #10 from 3/4-ONOP-041.1 Lesson Plan. Modified from TP questions 1.1.25.5.3.6,M; 1.1.26.20.5.9,M; 1.1.25.5.3.2,M; and 1.1.25.5.3.2,M

Reactor coolant pump trip criteria is met for the ONOP-041.1 fold out page as evidenced by the DANGER alarm in the cable spreading room, requiring the reactor to be tripped and the RCP secured.

DISTRACTOR ANALYSIS:
A: Correct
B: Incorrect, Reactor power is below the P-10 setpoint therefore the RCP could be secured without tripping the reactor, this is not IAW ONOP-041.1
C: Incorrect, This is correct if the RCP vibration is not at the RCP trip limits of ONOP-041.1 fold out page as indicated by the DANGER alarm.
D: Incorrect, incorrect sequence IAW the ONOP-041.1.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C C A D A D C A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | RCP VIBRATION | Cog lvl & (Imp): | C/A (3.7/3.9) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

8. 003AK1.02 001/T1G2/T1G1/DROPPED CONTROL ROD/M (3.1/3.4)/B/TP02301/C/SDR

Unit 4 has experienced a dropped rod event and $T_{avg}$ has stabilized 4 $^{o}F$ below $T_{ref}$.

Which ONE of the following methods is used to restore $T_{avg}$ to within 3 $^{o}F$ of $T_{ref}$ in accordance with ONOP-028.3, Dropped RCC?

A. Withdraw control rods in manual.

B. Dilute the RCS.

C.✓ Reduce turbine load.

D. Increase turbine load.

Question Source: Turkey Point question bank Q# 1.1.25.7.4.17,M
Enabling Objective: EO#4

Distractor Analysis:
A: Incorrect, Caution prior to step 3 in ONOP-028.3 states not to use control rods for reactor power increase and temperature adjustment.

B: Incorrect, Caution prior to step 3 in ONOP-028.3 states not to dilute until shutdown margin calculation performed.

C: Correct, Step 3 RNO in ONOP-028.3 states reduce turbine load in order for power mismatch to decrease the Tavg/Tref temperature difference.

D: Incorrect, Turbine load increase would increase the power mismatch causing a larger temperature difference.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C C B A A A D A B C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | DROPPED CONTROL ROD | Cog lvl & (Imp): | M (3.1/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

9. 003G2.1.20 (R) 001/T2G1/T2G1/RCP TRIP CRITERIA/M (4.3/4.2)/N/TP02301/R/SDR

Unit 3 has had a seal package replacement for the 3A RCP and operators are ready to run the 3A RCP.

In accordance with 3-OP-041.1, REACTOR COOLANT PUMP, which ONE of the following requires immediate tripping of the RCP?

A. RCP pump bearing temperature indicates 230 $^{o}$F and increasing slowly.

B. RCP No 1 seal leak-off temperature has increased to and stabilized at 235 $^{o}$F.

C.✓ RCP starting current decreased to and stabalized at 1043 amps.

D. RCP No 1 seal Delta P has decreased to 230 psid and decreasing slowly.

When an RCP is started and starting amps do not decrease to below 943 amps the RCP is to be stopped. If other RCP parameters are not in specification then a cross check of RCP parameters shall be considered prior to stopping the RCP.

DISTRACTOR ANALYSIS:

A: Incorrect, Precaution step 4.12.5 of OP-041.1 required the cross check of parameters and does NOT mandate the immediate tripping of the RCP.

B: Incorrect, Precaution step 4.12.6 of OP-041.1 required the cross check of parameters and does NOT mandate the immediate tripping of the RCP.

C: Correct per 0-OP-041.1, Step 5.1.2.8.c

D: Incorrect, Caution prior to 5.1.2.8 requires stopping the RCP at 225 psig

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | C | C | C | A | C | B | B | C D D |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | RCP TRIP CRITERIA | Cog lvl & (Imp): | M (4.3/4.2) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

10. 003G2.1.20 (S) 001/T2G1/T2G1/RCP & SGTR/M (4.3/4.2)/B/TP02301/S/SDR

The crew has just transitioned to 3-EOP-ECA-3.3, SGTR WITHOUT PRESSURIZER PRESSURE CONTROL. The crew has just been informed that the 3B RCP has become available. It has also been determined that a pressurizer PORV is available.

Which ONE of the following describes the actions that should be taken in accordance with 3-EOP-ECA-3.3?

A. Verify PORV available and open PORV to depressurize RCS to stop primary to secondary leakage while in 3-EOP-ECA-3.3.

B.✓ Start 3B RCP per 3-EOP-ECA-3.3. Transition to 3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE, and open pressurizer spray valve to depressurize RCS to stop primary to secondary leakage.

C. Verify auxiliary spray available and open aux spray valve to depressurize RCS to stop primary to secondary leakage while in 3-EOP-ECA-3.3.

D. Transition to 3-EOP-E-3, STEAM GENERATOR TUBE RUPTURE. Start 3B RCP per 3-EOP-E-3, and open pressurizer spray valve to depressurize RCS to stop primary to secondary leakage.

Enabling Objective #3 from 3-EOP-ECA-3.3 Lesson Plan
TP bank question 1.1.26.45.3.4,M

3-EOP-ECA-3.3 step 4 checks for the conditions for RCP B or C starting and starts the RCP (steps 4-7), verifies normal spray available and then transitions to E-3 per step 8.

DISTRACTOR ANALYSIS:
A: Incorrect, because operators will not depressurize the RCS while in 3-EOP-ECA-3.3.
B: Correct, these are the correct procedural actions per ECA-3.3 and E-3.

C: Incorrect, because operators will not depressurize the RCS while in 3-EOP-ECA-3.3.
D: Incorrect, the 3B RCP gets started in ECA-3.3.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B A D B D B B D B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | RCP & SGTR | Cog lvl & (Imp): | M (4.3/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

11. 004K1.10 001/T2G1/T2G1/CVCS/RHR/AIR/C/A (2.7/2.9)/N/TP02301/C/GWL

-RCS is in solid plant condition.
-RHR is in service.
-Maintenance workers have broken the air line on HCV-142 "RHR HX OUTLET TO CVCS."

Which ONE of the following describes the correct initial response on the CVCS and RCS to this event?

A. Charging Flow rises, RCS pressure rises.

B. Letdown Flow rises, RCS pressure falls.

C. Charging Flow falls, RCS pressure falls.

D.✓ Letdown Flow falls, RCS pressure rises.

LP-6902113 Chemical and Volume Control System, enabling objective # 6.

A. Incorrect, Initially charging flow will not change.

B. Incorrect, letdown flow will fall and RCS pressure will rise.

C. Incorrect charging flow will not fall initialy and RCS pressure will rise.

D. Correct, letdown flow will fall, and RCS pressure will rise.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A A A B B A A B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CVCS/RHR/AIR | Cog lvl & (Imp): | C/A (2.7/2.9) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

12. 004K3.08 001/T2G1/T2G1/SEAL INJECTION/CVCS/C/A (3.6/3.8)/N/TP02301/C/GWL

-Unit 3 is at 100% power operating normally.
-Pressurizer level, charging flow control, and letdown are in automatic.

Which ONE of the following describes the system response if the controlling pressurizer level channel failed low? (Assume no operator response)

| | Charging Flow | Letdown Flow | Seal Injection Flow |
|---|---|---|---|
| A.✓ | Increases | Decreases | Increases |
| B. | Increases | No Change | Increases |
| C. | Decreases | Decreases | Decreases |
| D. | Decreases | No Change | Decreases |

LP-6902113 Chemical and Volume Control System, enabling objective # 6.

A. Correct, if the controlling pressurizer level transmitter fail low, a signal will be sent to increase charging flow, this will cause an increase in seal injection flow, letdown will isolate.

B. Incorrect, Charging flow will increase, but letdown will isolate and seal injection will increase.

C. Incorrect, total seal injection will increase, charging flow will increase, and letdown will isolate.

D. Incorrect, charging flow will increase, letdown will isolate and seal injection will increase.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B D D D D D A A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | SEAL INJECTION/CVCS | Cog lvl & (Imp): | C/A (3.6/3.8) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

13. 005A2.02 001/T2G3/T2G3/RHR/C/A (3.5/3.7)/M/TP02301/R/SDR

-The RCS is water solid while in Mode 5.
- MOV-750, RHR Pump Suction Stop Valve, is stroking closed due to a loss of 120V vital instrument bus 3P06.
- RCS pressure is 550 psig and increasing.

Which ONE of the following describes required Immediate Operator Actions?

A. Inventory is still being charged into the RCS. Stop the operating Charging pump and isolate letdown.

B.✓ Inventory is still being charged into the RCS. Stop the operating RHR pump and Charging pump.

C. Inventory is NOT being charged into the RCS, however, RHR pumps must be stopped due to loss of suction source. Stop the running RCP and verify both pressurizer PORVs are automatically opening to reduce pressure.

D. Inventory is NOT being charged into the RCS, however, RHR pumps must be stopped due to loss of suction source. Stop the running RCP and isolate letdown.

Enabling Objective EO-4 and Performance Objective PO-6 from 3/4-ONOP-050, Loss of RHR. ECCS LP6902210

Loss of 3P06 will cause MOV-750 to close. This will cause a rapid increase in RCS pressure. The operators will perform the immediate actions of ONOP-050 which require tripping of the running RHR pump and charging pump.

DISTRACTOR ANALYSIS:

A: Incorrect, The ONOP does not direct the operators to isolate letdown.

B: Correct, see above.

C: Incorrect, One Pressurizer PORV will not automatically open due to the loss of 3P06.

D: Incorrect, The ONOP does not direct the opertors to isolate letdown.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | B C A D A D C A A D | Scramble Range: A - D |

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | RHR | Cog lvl & (Imp): | C/A (3.5/3.7) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

14. 005A2.04 (R) 001/T2G3/T2G3/RHR/C/A (2.9/2.9)/M/TP02301/R/SDR

Unit 4 is on RHR cooldown in MODE 4 on the way to MODE 5.

- RCS pressure is 395 psig.
- RCS temperature is 300 °F.

During the construction of scafolding, the instrument air line to the RHR bypass flow control valve, FCV-605, is broken, resulting in loss of air to the valve.

Given this condition which ONE of the following describes the method for continuing RCS cooldown?

A. Fill the Steam Generators to greater than 10% and then open the steam dumps to atmosphere. The RHR pumps will continue to circulate the RCS via HCV-758, RHR heat exchanger outlet.

B. Start the SI pumps for RCS feed and cycle the PORVs open for a bleed path to the PRT. PRT level and pressure are monitored to prevent rupture of the PRT and the RHR pumps continue to circulate the RCS.

C.✓ Open HCV-758, RHR heat exchanger outlet, until flow is between 3500-3700 gpm. Then throttle the RHR heat exchanger CCW outlet valve(s) MOV-749A and/or MOV-749B as required to control the cooldown rate.

D. Direct the SNPO to go to the 10 foot elevation in the RHR Heat Exchanger room and manually control RHR heat exchanger bypass flow control valve, FCV-605, to establish the desired flow rate.

Enabling Objective EO-4 from 3/4-ONOP-050, Loss of RHR.
ECCS LP6902210

Loss of air to FCV-605 will cause the valve to close, thereby forcing all flow through the RHR heat exchangers. CCW flow must then be trottled to control cooldown rate.

DISTRACTOR ANALYSIS:

A: Incorrect, Action if RHR system is lost and plant is heating up.

B: Incorrect, Action if RHR system is lost and S/G's not available.

C: Correct, ONOP-050 steps 7-9

D: Incorrect, ONOP-050 step 8 action assumes that air pressure is still at FCV-605.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B C C C A C A D B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | RHR | Cog lvl & (Imp): | C/A (2.9/2.9) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

15. 005A2.04 (S) 002/T2G3/T2G3/RHR/C/A (2.9/2.9)/B/TP02301/S/SDR

The following conditions exist on Unit 3:

- RCS temperature is 140 °F.
- RCS drain down level is 24%.
- The 3B RHR pump is running.
- The Steam Generator manways are removed.

An operator inadvertantly restores the power to 3-MOV-750. While this problem is being resolved an instrument failure causes 3-MOV-750 to close. Valve 3-MOV-750 mechanically binds and will not reopen. Subsequently, RCS temperatures begin to slowly increase.

Which ONE of the following describes the procedure(s) and actions needed to mitigate the consequences of this occurrance?

A. Perform the actions of ONOP-041.7, Shutdown LOCA [Mode 3 (<1000 psig) or Mode 4], to remove decay heat by feed and bleed using the cold leg injection and both PORVs.

B. Perform the actions of ONOP-041.8, Shutdown LOCA [Mode 5 or 6], to remove decay heat by feed and bleed using one train of Safety Injection and one PORV.

C. Perform the actions of ONOP-050, Loss of RHR. Do NOT perform the actions of other ONOPs until RCS temperature approaches saturation from the heatup rate plot.

D.✓ Perform the actions of ONOP-050, Loss of RHR, and then transition to ONOP-041.8, Shutdown LOCA [Mode 5 or 6], to remove decay heat by feed and bleed using one train of Safety Injection and both PORVs.

Enabling Objective EO-4 and Performance Objective PO-8 from 3/4-ONOP-050. Reference provided from ONOP-050 and ONOP-041.8.

With S/G unavailable and RHR valve MOV-750 stuck shut, an alternate means of DHR must be established, RCS feed and bleed.

DISTRACTOR ANALYSIS:
A: Incorrect, ONOP-041.7 covers the incorrect Mode for the existing plant conditions.

B: Incorrect, Operators must first complete the steps of ONOP-0505 for the loss of RHR prior to transitioning to ONOP-041.8.

C: Incorrect, Operator must not wait until the core has reached saturation prior to taking action.

D: Correct.
Question Cog Level changed from M to C/A. (Chief Examiner comment)
MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C B B D C B C A C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | RHR | Cog lvl & (Imp): | C/A (2.9/2.9) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

16. 005AA1.05 001/T1G1/T1G1/STUCK ROD/C/A (3.4/3.4)/N/TP02301/C/GWL

-Unit 3 was at 98% Power.
-Bank D rods were in auto at 219 steps on the step counters.
-A transient occurs on Unit 3 that required automatic rod insertion.
-The Unit is now at 91% Power.
-Bank D rods indicate 180 steps on the step counters.
-Control rod H8 indicates 210 steps on RPIs.

Which ONE of the following describes the actions to be taken IAW 3-ONOP-028 "Rod Control System Malfunction" for these conditions ?

A. Place Rods in manual; align remaining Bank Delta Rods to within 18 steps; maintain $T_{avg}$ equal to $T_{ref}$ using boration or dilution only.

B.✓ Place Rods in manual; do not withdraw any control banks until the RCC has been realigned; maintain $T_{avg}$ equal to $T_{ref}$ by adjusting turbine load, or by boration/dilution.

C. Place rods in individual bank select "D" and adjust Bank D rods to within 12 steps of rod H8, maintain $T_{avg}$ equal to $T_{ref}$ by boration/dilution, or adjusting turbine load.

D. Place rods in individual bank select "D" and adjust Bank D rods to within 18 steps of rod H8, maintain $T_{avg}$ equal to $T_{ref}$ by adjusting turbine load only.

New question developed from Lesson Plan 6902207, enabling objective # 4.

A. Incorrect, according to the procedure ONOP-028, rods should be place in manual, but the remaining bank D rods should not be withdrawn unitl the RCC has been realined, and Tave should be controlled using Boration/dilution or Turbine load control.

B. Correct, Rods should be placed in manual, control banks are not to be withdrawn, and tave should be maintainrd equal to Tref by using Boration/dilution or Turbine load control.

C. Incorrect, rods should be placed in manual, not individual bank select, bank D rods should not be withdrawn until the RCC can be realigned.

D. Incorrect, rods should be placed in manual, not individual bank select, bank D rods should not be withdrawn until the RCC can be realigned, and Tave can be controlled by boration/dilution or adjusting turbine load.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A D B C C A D D D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | STUCK ROD | Cog lvl & (Imp): | C/A (3.4/3.4) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

17. 006K4.14 002/T2G2/T2G2/COLD LEG RECIRC/M (3.9/4.2)/B/TP02301/C/SDR

During the recirculation phase of ECCS operation following a Large Break LOCA on Unit 3, adequate RHR flow can not be verified.

Which ONE of the following actions should be taken?

One HHSI pump is used with suction taken from the:

A. same suction source as the RHR pumps, from the normal loop C hot leg suction.

B. discharge of the RHR pump. The RHR pump will take suction from the normal loop C hot leg suction.

C. same suction source as the RHR pump, from the containment recirculation sumps.

D.✓ discharge of the RHR pump. The RHR pumps will take its suction from the containment recirculation sumps.

Question Source: Turkey Point 2000 NRC Exam
Enabling Objective EO#5 of Lesson Plan LP6902121

Distractor Analysis:

A: Incorrect, The suction of the RHR pumps are not used as the suction source for the HHSI pumps and the suction of the RHR pumps will be the sump.

B: Incorrect, Suction of the RHR pumps will be the sump.

C: Incorrect, The suction of the RHR pumps are not used as the suction source for the HHSI pumps.

D: Correct, SD-021, Emergency Core Cooling Systems, and ES-1.3 steps 17-23.

Distractors A and C wording changed to clarify plausibility of the distractors (Chief Examiner comment).

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A B C D A B C D A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | COLD LEG RECIRC | Cog lvl & (Imp): | M (3.9/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

18. 007EK3.01 001/T1G2/T1G2/FEEDWATER/M (4.0/4.6)/B/TP02301/C/SDR

Unit 3 is at 100% power. Annunciator C 4/1, SG A FEED>STEAM, has just alarmed. The Operator determines that the 3A feedwater control valve, FCV-3-478, has failed full open.

The reactor operator's efforts to control the valve in manual are unsuccessful as evidenced by the following annuciators alarming in rapid succession:

- C 6/1, SG A LEVEL DEVIATION
- C 2/1, SG NARROW RANGE HI LEVEL

Which ONE of the following describes the correct operator response to this situation?

A. After the reactor automatically trips, isolate AFW to the 3A steam generator and transition to E-0, REACTOR TRIP OR SAFETY INJECTION.

B. Close the 3A feedwater isolation valve, MOV-3-1407, and throttle open the 3A blowdown flow control valve, FCV-3-6278A, to minimize the rate of steam generator level increase.

C.✓ Trip the reactor manually prior to the steam generator level reaching 80% narrow range. Perform the IMMEDIATE operator actions of E-0, REACTOR TRIP OR SAFETY INJECTION.

D. Close the 3A MSIV, POV-3-2604, and MSIV bypass valve, MOV-3-1400, to prevent carryover to the main turbine. Trip the reactor and perform the IMMEDIATE actions of E-0, REACTOR TRIP OR SAFETY INJECTION.

Enabling Objective EO#6 from Conduct of Operations Admin procedure lesson plan.
Question used on Turkey Point 1997 NRC Exam.

Conduct of Operations procedure 0-ADM-200 steps 3.7.4, 5.1.9 and 5.6.11.5 state that "If plant conditions are beyond the control of the operators and a trip setpoint is being appraoched, the operator should initiate a manual reactor trip prior to the automatic trip setpoint being reached.

DISTRACTOR ANALYSIS:

A. Incorrect, Operators should not wait until the automatic trip has occurred.

B. Incorrect, Closing the feedwater isolation valve at 100% reactor power would cause loss of level in the S/G resulting in an automatic trip of the reactor.

C. Correct, Turbine trips at 80% S/G level which will result in a reactor trip.

D. Incorrect, Closing the MSIV at 100% reactor power will result in a reactor trip.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A D D B C B B C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | FEEDWATER | Cog lvl & (Imp): | M (4.0/4.6) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

19. 008AK2.01 001/T1G2/T1G2/PRESSURIZER VAPOR/C/A (2.7/2.7)/N/TP02301/C/GWL

-Unit 3 is at 100% power.
-Pressurizer pressure is decreasing.
-The RCO observes the following indications:
-The bottom two rows of LEDs on the Acoustic Monitor are lit.
-The PORV tailpipe temperature is higher than the safety valve tailpipe temperatures.

Which ONE of the following can the RCO determine by observing these indications?

The RCO can determine:

A. the specific PORV that is leaking.

B. the specific safety valve that is leaking.

C.✓ one of the PORVs is leaking but the RCO cannot distinguish which one.

D. one of the safety valves is leaking but the RCO cannot distinguish which one.

LP 6902204 enabling obbjective # 1 and 4.
LP 6902109 enabling objective # 5.

A. Incorrect, The PORVs share a common tailpipe with only one temperature sensor.

B. Incorrect, The Acoustic monitors for all three safeties are indicating flow.

C. Correct, The combination of indications imply a PORV is open but does not suggest which one.

D. Inorrect, The Acoustic monitors imply something is leaking but the indication is equal for all three safeties.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C C C B C C C A C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | PRESSURIZER VAPOR | Cog lvl & (Imp): | C/A (2.7/2.7) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

20. 009EA1.12 001/T1G2/T1G2/SBLOCA/RPS/C/A (4.2/4.2)/B/TP02301/C/GWL

-Unit 3 is experiencing RCS Leakage.
-Reactor Power is at 8% just after a start-up.
-RCS Tavg is 543 °F, and slowly lowering.
-Pressurizer Pressure is 1825 psig, and slowly lowering.
-All steam generator pressures are at 985 psig and stable.
-Containment Pressure is at 5 psig and slowly rising.

Which ONE of the following AUTOMATIC actions should have occured?

A. Reactor trip based on OP delta T.

B.✓ Reactor Trip and Safety Injection based on containment pressure.

C. Reactor Trip based on RCS Pressure.

D. Reactor Trip and Safety Injection based on High Steam flow with low Tave.

Modified from 1994 Farley NRC exam.
SD-063/(SYS.049,063), Reactor Protection and Safeguards System components, enabling objective # 6.

A. Incorrect, power is two low for OP delta T to reach its setpoint at this pressure.

B. Correct, The setpoint for containment pressure is 4 psig the unit should have had a reactor trip and SI.

C. Incorrect, when less that P-7 (10%) pressurizer low pressure will not trip the reactor.

D. Incorrect, Although Tave is at 543 degrees F, at this power level and the steam pressure that is listed, steam flow would not be enough to cause a Reactor Trip and SI.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A A D C D B A D A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | SBLOCA/RPS | Cog lvl & (Imp): | C/A (4.2/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

21. 010K3.03 001/T2G2/T2G2/PRESSURIZER PRESSURE/C/A (4.0/4.2)/B/TP02301/C/SDR

Unit 4 is at 20% power when the following events occur:

- PT-4-444 (Pressurizer Pressure Control Channel) fails high.
- The RCO places PORV, PCV-4-455C, control switch in CLOSE but the PORV does not close.
- The RCO places the PORV block valve, MOV-4-536, control switch to CLOSE.
- MOV-4-536 closes when pressure is 2050 psig.
- The RCO attempts manual control of PC-4-444J (master pressurizer pressure controller) but PC-4-444J does not respond to manual control.

No other operator actions are taken.

Which ONE of the following describes the consequences of the actions taken by the Unit 4 RCO?

A. A Loss of coolant accident will result due to the events above.

B.✓ Reactor trip and safety injection will result from the events above.

C. Closing the block valve MOV-4-536 stopped the pressure decrease and allowed the plant to maintain on line.

D. The reactor should have been tripped at the time MOV-4-536 closed. However, pressure will recover quickly.

Enabling Objective EO #3 from ONOP-041.5, Pressurizer Pressure Control Malfunction Lesson Plan
Question source is Turkey Point 1998 NRC Exam

DISTRACTOR ANALYSIS:

A: Incorrect, If MOV-4-536 failed to close a LOCA would result, but not correct because MOV-4-536 isolated the open PORV.

B: Correct

C: Incorrect, MOV-4-536 isolated the open PORV, but not correct because open spray valves will cause a reactor trip.

D: Incorrect, The reactor trip ODI setpoint is 2000 psig, but not correct because open spray valves will cause a reactor trip.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B A A B C D D A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | PRESSURIZER PRESSURE | Cog lvl & (Imp): | C/A (4.0/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

22. 011A3.03 002/T2G2/T2G2/PZR LEVEL/C/A (3.2/3.3)/M/TP02301/C/GWL

-Unit 4 is at Hot Standby with charging and letdown in normal operation.
-Unit 4 experiences a complete loss of Instrument Air.

Which ONE of the following describes the response of the CVCS if no operator actions are taken?

| | Charging Pump Speed | Letdown Flow Rate |
|---|---|---|
| A. | Decreases | Decreases |
| B.✓ | Increases | Decreases |
| C. | Decreases | Remains the same |
| D. | Increases | Remains the same |

LP-6900254 enabling objective # 2.

A. Incorrect, charging flow goes to maximum on a loss of Instrument Air.

B. Correct, charging flow goes to maximum on a loss of Instrument Air and letdown valves fail closed on a loss of Instrument Air.

C. Incorrect, charging flow goes to maximum on a loss of Instrument Air and letdown valves fail closed on a loss of Instrument Air .

D. Incorrect, letdown valves fail closed on a loss of Instrument Air .

NOTE: The instrument air system failure has affected the LCS by its impact on charging and letdown. Charging and letdown are integral parts of the LCS.
Distractors A and C changed from 'Charging flow goes to maximum' to 'Backup heaters energized' to make distractors more plausible (Chief Examiner comment).

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B D B B D C B D A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | PZR LEVEL | Cog lvl & (Imp): | C/A (3.2/3.3) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

23. 011EK3.05 001/T1G2/T1G1/LOCA/BORATION/M (4.0/4.1)/M/TP02301/C/GWL

-A Large Break LOCA has occurred on Unit 3.
-Safety injection is in progress.

Which ONE of the following describes the location and basis for the initial injection of borated water into the RCS?

A. Water is injected into the Hot and Cold legs simultaneously to prevent boron percipitation.

B.✓ Water is injected into the Cold legs to quickly recover the exposed fuel rods and limit possible core damage.

C. Water is injected into the Hot and Cold legs simultaneously to increase total flow rate.

D. Water is injected into the Hot legs to prepare for transfer to reciculation flow prior to RWSTdepletion.

Modified Question from 1992 North Anna Exam.
Turkey Point LP-6902121 ECCS, enabling objective # 3.

A. Incorrect, Water is injected to the Hot and Cold legs only during Hot leg recirculation.

B. Correct, Water is injected into the cold legs during the injection phase of a LBLOCA to quickly recover the exposed fuel rods and limit possible core damage.

C. Incorrect, Water is not injected to hot and cold legs during the injection phase of a LBLOCA.

D. Incorrect, Water is not injected to the hot legs during the injection phase of a LBLOCA.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D A D A D C A A C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | LOCA/BORATION | Cog lvl & (Imp): | M (4.0/4.1) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

24. 012K5.01 001/T2G2/T2G2/RPS/M (3.3/3.8)/B/TP02301/C/SDR

Which ONE of the following Reactor Protection System trips provides protection against DNB accidents?

A. Power Range high flux (high setpoint).

B. Steam generator low level with Steam flow/Feed flow mismatch.

C.✓ Over temperature delta T.

D. Overpower delta T.

Question source: Braidwood 2000 NRC Exam

DISTRACTOR ANALYSIS:

A: Incorrect, Protects against power excursions.

B: Incorrect, Protects against sudden loss of heat sink.

C: Correct

D: Incorrect, Protection from power density.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A C D D D B D B D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | RPS | Cog lvl & (Imp): | M (3.3/3.8) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

25. 013G2.4.9 (R) 002/T2G1/T2G1/SD LOCA ESF ACTUATIO/M (3.3/3.9)/N/TP02301/R/GWL

-Unit 3 is shutdown on RHR.
-RCS pressure is 325 psig.
-RCS Temperature is 250 $^{o}$F.
-A 300 gpm leak has developed in the RCS.
-Pressurizer level is off-scale low.
-3-ONOP-041.7 "Shutdown LOCA [Mode 3(Less than 1000 PSIG) or Mode 4]" has been entered.

Which ONE of the following actions should be taken to mitigate the event in progress?

A. Manually initiate SI and Phase A Containment Isolation.

B. Manually initiate SI and verify Phase A Containment Isolation automatically initiated.

C. Manually initiate Phase A Containment Isolation and verify SI automatically initiated.

D.✓ Manually initiate Phase A Containment Isolation and manually start one HHSI pump.

RFERENCE: 3-ONOP-0417, Steps 6 and 10.

A. Incorrect, Manual SI initiation is not desired or directed by procedure.

B. Incorrect, Manual SI initiation is not desired or directed by procedure and Phase A does not automatically initiate when SI is manually initiated.

C. Incorrect, SI will not automatically initiate under these conditions.

D. Correct, these are the actions required by ONOP-041.7.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C C C C C C A A C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | SD LOCA ESF ACTUATIO | Cog lvl & (Imp): | M (3.3/3.9) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | GWL |

26. 013G2.4.9 (S) 001/T2G1/T2G1/SD LOCA/M (3.3/3.9)/N/TP02301/S/GWL

-Unit 3 is shutdown on RHR.
-RCS pressure is 325 psig.
-RCS Temperature is 250°F.
-A 300 gpm leak has developed in the RCS.
-3-ONOP-041.7 "Shutdown LOCA [Mode 3(Less than 1000 PSIG) or Mode 4]" has been entered.

Which ONE of the following describes an action that should be performed to mitigate the effects of a loss of coolant IAW 3-ONOP-041.7, and the reason for that action?

A. Manually Initiate a Safety Injection to maintain proper RCS level.

B. Immediately stop all RHR pumps to conserve inventory.

C.✓ Manually Initiate a Phase A containment isolation to prevent a potential release.

D. Immediately commence an RCS depressurization to limit break flow.

LP 6902265 ONOP-041.7 Shutdown LOCA [Mode 3 (Less than 1000 psig) or Mode 4], enabling objectives # 3 and 4.

A. Incorrect, The procedure does not direct a manual initiation of Safety Injection.

B. Incorrct, the procedure does not direct the operator to immediately secure the RHR pumps, several conditions must be met first, and then it is to prevent damage to the RHR pumps.

C. Correct, Step 6 directs the operator to initiate a Phase A Containment Isolation to prevent a release.

D. Incorrect, An RCS depressurization is called for to refill the pressurizer but it is not immediate.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A A B A A C C C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | SD LOCA | Cog lvl & (Imp): | M (3.3/3.9) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

27. 013K5.01 001/T2G1/T2G1/ESF SAFEY TRAIN/C/A (2.8/3.2)/B/TP02301/C/SDR

Unit 3 is in Mode 1 and Unit 4 is in Mode 4. The '4A' EDG has been declared inoperable.

Which ONE of the following identifies the minimum HHSI pumps that are required to be operable to ensure Safety Train availability in accordance with Technical Specifications without relying on an action statement?

(Reference Provided)

A. Both the '3A' and '3B' HHSI pumps, and either the '4A' or '4B' HHSI pump.

B. Both the '3A' and '3B' HHSI pumps.

C. All 4 HHSI pumps.

D.✓ Both the '3A' and '3B' HHSI pumps, and the '4B' HHSI pump.

Question source: Turkey Point requal test bank 69025250101-ORQ; ORQ#101
Provide Applicant with Tech Specs Section 3.5.2

Distractor analysis:

A: Incorrect, 4A HHSI pump is not an option since it's EDG is not operable, although inoperability of the EDG does not make the associated HHSI pump inoperable.

B: Incorrect, Must have the two HHSI pumps from the Unit in Mode 1, 2, or 3 and one from the other Unit capable of being powered from an operable EDG.

C: Incorrect, All 4 HHSI pumps are available by TS definition although 4A EDG is inoperable however, only three HHSI pumps are required to be available.

D: Correct, TS 3.5.2 requires three HHSI pumps to be available for the configuration of a Unit in Mode 1, 2, or 3 and the other Unit in Mode 4, 5, or 6. The HHSI pumps required are two from the Mode 1, 2, or 3 Unit and one from the Mode 4, 5, or 6 Unit. Each HHSI pump capable of being powered from its associated OPERABLE EDG.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C B C C C A C C A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | ESF SAFEY TRAIN | Cog lvl & (Imp): | C/A (2.8/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

28. 014K4.03 001/T2G2/T2G1/ROD POSITION INDICAT/M (3.2/3.4)/M/TP02301/C/SDR

Unit 3 is performing a reactor shutdown and control bank 'D' is being inserted.

Which ONE of the following describes the location of a rod within control bank 'D' when it is inserted far enough to cause the rod bottom light to come on?

The rod is less than:

A. 35 **steps** from the bottom of the core.

B.✓ 12.5 **inches** from the bottom of the core.

C. 12.5 **steps** from the bottom of the core.

D. 20 **inches** from the bottom of the core.

Question Source: Turkey Point question bank Q#1.1.24.6.6.6,M
Enabling Objective EO#2 of Lesson Plan LP6902106

Distractor Analysis:

A: Incorrect, 35 steps on control bank 'D' is the rod bottom bypass bistable setpoint.

B: Correct, 12.5 inches corresponds to 20 steps which is the rod bottom relay de-energization setpoint energizing the local and remote rod bottom lamps.

C: Incorrect, not 12.5 steps it is 12.5 inches.

D: Incorrect, not 20 inches it is 20 steps.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | B | D | D | C | A | C | A | C B A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G1 |
| Keyword: | ROD POSITION INDICAT | Cog lvl & (Imp): | M (3.2/3.4) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

29. 015/017AA1.02 001/T1G1/T1G1/RCP OIL LEVEL/C/A (2.8/2.7)/N/TP02301/C/GWL

-Unit 3 is at 100% power.
-Annunciator B-2/5 "RCP OIL RESERSIOR HI/LO LEVEL" is in alarm.
-Annunciator H-9/2 "RCP B MOTOR BEARING HI TEMP" is in alarm.
-"B" RCP motor bearing temperatures are presently 200$^{o}$F.
-CCW Head Tank level has lowered over the last 4 hours.
-3-ONOP-41.1 "REACTOR COOLANT PUMP OFF-NORMAL" has been entered.

Which ONE of the following describes the correct response to mitigate this event?

A. Continue operation. Monitor motor bearing temperatures and record every 15 minutes IAW 3-ONOP-041.1 Attachment 2.

B.✓ Trip the Reactor, Enter the EOP's and verify the reactor tripped, Trip the "B" RCP, and close the associated spray valve.

C. Shut down the Reactor using 3-ONOP-100, FAST LAOD REDUCTION. Secure the "B" RCP, isolate CCW to the oil coolers 30 minutes after securing the RCP.

D. Continue operation. Adjust seal injection on the "B" RCP to be between 6-13 gpm, verify seal leakoff greater than 1 gpm.

SD-008/(SYS.041B) Reactor Coolant Pumps. Enabling Objectives # 5.

A. Incorrect, this would be the correct action if the oil level was low.

B. Correct per ONOP-041.1 FO page items 1 and 3. Spray valve must be closed after B RCP trip per Item 3 of the FO page.

C. Incorrect, because ONOP-041.1 directs reactor trip.

D. Incorrect, this would be the correct action if the seal leakoff temperatures were rising.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D A D C A D A A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | RCP OIL LEVEL | Cog lvl & (Imp): | C/A (2.8/2.7) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

30. 015/017AK1.01 001/T1G1/T1G1/NATURAL CIRC/C/A (4.4/4.6)/M/TP02301/C/GWL

-Unit 4 was operating at 100% power.
-A Natural Circulation cooldown is in progress in accordance with 4-EOP-ES-0.2, NATURAL CICULATION COOLDOWN, using all 3 S/G Steam Dump to Atmosphere valves operating in Automatic.
-The "A" S/G Steam Dump to Atmosphere valve fails open.

Which ONE of the following describes the effect this transient will have on the Natural Circulation flow in the RCS Loops?

A. "A" loop flow will decrease. "B" and "C" loop flows will increase.

B. "A" loop flow will reamain the same. "B" and "C" loop flows will increase.

C. "A" loop flow will increase. "B" and "C" loop flows will reamain the same.

D.✓ "A" loop flow will increase. "B" and "C" loop flows will decrease.

LP 6902324 Enabling Objective # 2.

A. Incorrect, A loop flow will increase, B and C loop flow will decrease.

B. Incorrect, B and C loop flow will decrease, and A loop flow will increase.

C. Incorrect, A loop flow will increase, B and C loop flow will decrease.

D. Correct, A loop flow will increase, B and C loop flow will decrease.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A B D A D B A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | NATURAL CIRC | Cog lvl & (Imp): | C/A (4.4/4.6) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

31. 015A3.03 002/T2G1/T2G1/NUCLEAR INSTRUMENTS/M (3.9/3.9)/B/TP02301/R/SDR

Which ONE of the following correctly describes the behavior of reactor power following a trip from 100% power?

A. Prompt drop to approximately $10^{-7}$ amps in the Intermediate Range, SUR decreases to a constant -1/3 DPM, levels off in the Source Range.

B.✓ Prompt drop to approximately 1% in the Power Range, SUR decreases to a constant -1/3 DPM, levels off in the Source Range.

C. Prompt drop to approximately 1% in the Power Range, SUR decreases to a constant -1/2 DPM, levels off below the Source Range.

D. Prompt drop to approximately $10^{-7}$amps in the Intermediate Range, SUR decreases to a constant -1/2 DPM, levels off in the Source Range.

Question Source: Turkey point bank question Q#1.1.24.4.6.38,M
Enabling Objective EO#2 of Lesson Plan LP6902104

Distractor Analysis:

A: Incorrect, Initial power drop does not drop as low as $10^{-7}$ amps in the IR.

B: Correct, SD004, figure 5 & 23

C: Incorrect, SUR is too large.

D: Incorrect, Initial power drop does not drop as low as $10^{-7}$ amps in the IR and SUR is too large.

Distractors C and D modified to eliminate the ambiuous SUR. (Cheif Examiner comment)

Distractors C and D modified to eliminate the ambiguous SUR. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A B D B D D B B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | NUCLEAR INSTRUMENTS | Cog lvl & (Imp): | M (3.9/3.9) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

32. 015K6.01 001/T2G1/T2G1/NUCLEAR INSTRUMENTS/C/A (2.9/3.2)/M/TP02301/C/SDR

The following indications are noted on ERDADS:

| | |
|---|---|
| - N-41 power | 99.85% |
| - N-42 power | 99.95% |
| - N-43 power | 99.75% |
| - N-44 power | 99.65% |
| - Average power | 99.80% |

A loss of power occurs on 120V vital panel 3P07.

Which ONE of the following describes the expected ERDADS Average power indication?

A.✓ 99.75%

B. 74.81%

C. 99.85%

D. 74.89%

Question Source: Turkey Point 1998 NRC exam.

Loss of the Vital 120V AC instrument bus 3P07 results in lossing power range N-42 indication this takes the signal away from ERDADS leaving it with just 3 power range signals to average to get average reactor power.

Distractor Analysis:

A: Correct, (99.85+99.75+99.65)/3 = 99.75

B: Incorrect, If input to ERDADS was 0% for the failed channel and averaged between 4 inputs (99.85+0.0+99.75+99.65)/4 = 74.81

C: Incorrect, If 3P07 loss cause N-44 to fail (99.85+99.95+99.75)/3 = 99.85

D: Incorrect, If 3P07 loss cause N-44 to fail and input to ERDADS was 0% for the failed channel and averaged between 4 inputs (99.85+99.95+99.75+0.0)/4 = 74.89

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A D B C B C A A B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | NUCLEAR INSTRUMENTS | Cog lvl & (Imp): | C/A (2.9/3.2) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

33. 016A4.02 001/T2G2/T2G2/NNIS RECORDER/M (2.7/2.6)/N/TP02301/C/SDR

Which ONE of the following descibes how Operators monitor Main Turbine shaft deflection?

A. Shaft eccentricity is displayed locally to a speed of 600 RPM and automatically shifts to display shaft vibration on a recorder on Vertical Panel A above 600 RPM.

B.✓ Recorder on Vertical Panel A displays shaft eccentricity to a speed of 600 RPM and automatically shifts to display shaft vibration above 600 RPM.

C. Recorder on Vertical Panel B displays shaft eccentricity to a speed of 600 RPM and automatically shifts to display shaft vibration above 600 RPM.

D. Recorder on Vertical Panel A displays shaft eccentricity to a speed of 600 RPM and is manually shifted to display shaft vibration above 600 RPM.

Enabling Objective: EO#2 of Lesson Plan LP 6902132

Distractor Analysis:
A: Incorrect, Shaft eccentricity is not displayed locally.

B: Correct, Turbine supervisory circuit automatically swaps from shaft eccentricity to vibration at 600 RPM, the result is displayed or R-341 recorder on VPA.

C: Incorrect, Recorder is located on VPA vice VPB.

D: Incorrect, Turbine supervisory circuit automatically swaps from shaft eccentricity to vibration at 600 RPM, not manually.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | B | D | B | A | C | A | D | C | B | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | NNIS RECORDER | Cog lvl & (Imp): | M (2.7/2.6) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

34. 017K6.01 001/T2G1/T2G1/CET MALFUNCTION/C/A (2.7/3.0)/B/TP02301/C/SDR

Unit 4 has experienced a reactor trip and SI due to a LOCA. The operators have transitioned to E-1, "Loss of Reactor or Secondary Coolant."

The following plant conditions exist:

- Core Exit Thermocouples (CET) are all reading between 750 and 950 °F, except for three that are greater than 1200 °F.
- No RCPs are running.
- RVLMS is reading 55% level in the plenum.

The STA declares a RED PATH on the CORE COOLING and states that FR-C.1, "Response to Inadequate Core Cooling," must be implemented.

Which ONE of the following describes your response to the STA's declaration and why?

A. Agree with the STA; three CETs indicating above 1200 °F warrants the RED PATH.

B.✓ Disagree with the STA; at least five CETs must indicate greater than 1200 °F to warrant a RED PATH.

C. Agree with the STA; with no RCPs running and CETs indicating greater than 700 °F warrants the RED PATH.

D. Disagree with the STA; sufficient subcooling exists for the stated conditions.

Question source: Turkey Point requal exam bank 69023530302-ORQ; ORQ#446

Distractor analysis:

A: Incorrect, STA is not correct at least 5 CETs must indicate >1200 °F.

B: Correct, The 3 CETs indicating >1200 °F may be malfunctioning, 5 CETs are required to provide a representative sample to evaluate core cooling.

C: Incorrect, CETs above 700 °F is a YELLOW PATH per F-0, CSF STATUS TREES.

D: Incorrect, Core coverage does is not indicative of adequate core cooling and is not used to determine PATH conditions for Core Cooling.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | B | C | C | D | B | A | B | D | A | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CET MALFUNCTION | Cog lvl & (Imp): | C/A (2.7/3.0) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

35. 022A1.03 001/T2G1/T2G1/CONTAINMENT COOLERS/M (3.1/3.4)/B/TP02301/C/SDR

Unit 3 is at 100% steady state power when a large break Loss of Coolant Accident (LOCA) occurs.

At 24 hours after event initiation, which ONE of the following describes the number of Emergency Containment Coolers (ECCs) which must be in operation to support containment environmental qualification assumptions?

A. 0 ECCs required.

B. 1 ECCs required.

C.✓ 2 ECCs required.

D. 3 ECCs required.

Question Source: Turkey Point 1998 NRC Exam
Enabling Objectives EO2 and EO4 of EOP-E-1 Lesson Plan LP6902327

Step 33 of E-1 requires 2 ECCs to be operating to ensure containment environment qualifications.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B A A A D A B B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CONTAINMENT COOLERS | Cog lvl & (Imp): | M (3.1/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

36. 022AA2.04 001/T1G2/T1G2/LOSS OF RX M/U/C/A (2.9/3.8)/B/TP02301/C/GWL

The following conditions exist on Unit 3:

- Pressurizer Level is 35%.
- Combined RCP seal return flow is 9 gpm.
- 3-ONOP-41.3, "Excessive Reactor Coolant Leakage," is in progress due to identified leakage of 6 gpm.
- Letdown Flow is isolated.

Assume:

-$T_{avg}$ is constant
-42 gallons/% PZR level

A loss of all charging pumps is preventing makeup to the RCS.

With no operator action which ONE of the following is the longest time the crew will have until they are procedurally required to initiate a reactor trip?

A. 58 minutes.

B.✓ 64 minutes.

C. 107 minutes.

D. 161 minutes.

Modified from Braidwood Bank Question.
LP 6902234 enabling objective # 3.

A. Incorrect, this answer is based on tripping the reactor at 14% pressurizer level.

B. Correct, this answer is based on tripping the reactor at 12% pressurizer level IAW 3-ONOP-047.1 (35-12=23; 23 x 42 = 966; 966/15= 64.4 minutes.

C. Incorrect, this answer is based on a leak rate of 9 gpm. (966/9 =107)

D. Incorrect, this answer is based on a leak rate of 6 gpm. (966/6= 161)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D B B C A A B C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | LOSS OF RX M/U | Cog lvl & (Imp): | C/A (2.9/3.8) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

37. 022K1.01 001/T2G1/T2G1/CONTAINMENT COOLING/M (3.5/3.7)/N/TP02301/C/SDR

A manual Phase 'A' Containment Isolation has been initiated on Unit 3.

Which ONE of the following describes the automatic actions that occur in the Containment Cooling system?

A.✓ CCW inlet and outlet valves to the Normal Containment Coolers and CRDM Coolers shut. Normal Containment Cooling fans stop.

B. Service Water inlet and outlet valves to the Normal Containment Coolers and CRDM Coolers shut. Normal Containment Cooling fans stop.

C. CCW inlet and outlet valves to the Normal Containment Coolers and CRDM Coolers shut. Normal Containment Cooling fans stop. Two ECCs start and their associated outlet CCW isolation valves open.

D. Service Water inlet and outlet valves to the Normal Containment Coolers and CRDM Coolers shut, Normal Containment Cooling fans stop. Two ECCs start and their associated outlet CCW isolation valves open.

Enabling Objective: EO#5 and EO#6 of Lesson Plan LP6902129

Distractor Analysis:

A: Correct, Phase 'A' signal secures the normal containment cooler fans and the CRDM cooler fan and isolates the CCW supply and return line to the containment.

B: Incorrect, Service water is not used to cool the containment cooling units.

C: Incorrect, EECs are not started as a result of Phase A only with an SI signal.

D: Incorrect, Service water is not used to cool the containment cooling units ans EECs are not started as a result of Phase A only with an SI signal.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A B D D D B C C A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CONTAINMENT COOLING | Cog lvl & (Imp): | M (3.5/3.7) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

38. 024AA2.02 001/T1G1/T1G1/EMER BORATION/M (3.9/4.4)/B/TP02301/S/SDR

While Emergency Boration is in progress, MOV-350, Emergency Boration Valve, closes and can NOT be reopened.

Which ONE of the following operator actions is/are required to resume Emergency Boration from the BASTs?

A. Opening LCV-115B, RWST to Charging Pumps valve, and closing LCV-115C, VCT Outlet Isolation valve, and removing power from LCV-115C.

B.✓ Opening FCV-113A, Boric Acid to Blender valve, and FCV-113B, Blender flow to Charging Pump valve, locally opening valve 356, Manual Emergency Boration valve, and when 356 is open then closing FCV-113B.

C. Locally opening valve 358, LCV-115B Bypass valve.

D. Locally opening valve 356, Manual Emergency Boration valve.

Question Source: Turkey Point requal test bank Q# 69022320408-ORQ;ORQ#241
Enabling Objective: EO#3 of Lesson Plan LP6902232

Distractor Analysis:

A: Incorrect, LCV-115B is path from RWST, LCV-115C is path from the VCT.

B: Correct, ONOP-046.1 step 1.d RNO

C: Incorrect, Flow path from RWST

D: Incorrect, This alone will not setup a flow path from the BAST

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | B | B | A | A | A | D | B | D C A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | EMER BORATION | Cog lvl & (Imp): | M (3.9/4.4) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

39. 025AK2.02 001/T1G2/T1G2/RHR/C/A (3.2/3.2)/B/TP02301/C/SDR

Unit 3 is in Mode 5, drained down to just below mid nozzle.

The following indications are observed:

- RHR flow as indicated on FI-605 is fluctuating.
- The running RHR pump amps are fluctuating.

The SNPO reports that the noise level of the running RHR pump has increased significantly from the last observation.

Which ONE of the following describes the actions to be taken in accordance with ONOP-050, Loss of RHR?

A. Start the standby RHR pump and when running, stop the affected RHR pump.

B. Stop the affected RHR pump and initiate makeup to the RCS. Start the standby RHR pump.

C. Adjust HCV-758, RHR Heat Exchanger Outlet Flow Valve, to reduce RHR flow to between 1000 and 1500 gpm.

D. ✓ Adjust FCV-605, RHR Heat Exchanger Bypass Flow Valve, to reduce RHR flow to between 1000 and 1500 gpm.

Enabling Objective EO-2 from 3/4-ONOP-050, ONOP-050 steps 6 and 12.
TP bank question 1.1.25.10.4.18,M

RHR pump cavitation requires that the RHR flow be reduced to stop the cavitation.

DISTRACTOR ANALYSIS:

A: Incorrect, This does not reduce the flow as required by ONOP-050 to reduce flow, it swaps pumps in an effort to remove the cavitating pump.

B: Incorrect, This does not reduce the flow as required by ONOP-050 to reduce flow, it provides makeup to correct a possible cause of the cavitation.

C: Incorrect, Adjustment of 758 will not reduce flow since 605 auto adjusts to maintain the set flow.

D: Correct, 605 reduces the total flow of the RHR system.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C D B A A A B C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | RHR | Cog lvl & (Imp): | C/A (3.2/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

40. 026A4.05 001/T2G2/T2G1/CONTAINMENT SPRAY/M (3.5/3.5)/N/TP02301/C/SDR

Unit 3 has experienced a LOCA. The crew has entered 3-EOP-E-1, Loss of Reactor or Secondary Coolant.

Which ONE of the following describes the reseting of the containment spray signal in accordance with 3-EOP-E-1?

A. Containment spray signal can be reset and secured anytime SI termination criteria have been met, regardless of Containment pressure and temperature.

B. Containment pressure must be less than 14 psig **and** Containment temperature may be any value to reset and secure containment spray.

C.✓ Containment pressure must be less than 14 psig **and** Containment temperature must be less than 122 °F to reset and secure containment spray.

D. Containment temperature must be less than 122 °F **and** Containment pressure may be any value to reset and secure containment spray.

Enabling Objective: EO#2 of Containment spray system lesson plan LP6902125 and EO#2 of EOP-E-1 lesson plan LP6902327

Distractor Analysis:

A: Incorrect, Containment temperature must be less than 122 °F and pressure must be less than 14 psig to reset and secure containment spray.

B: Incorrect, 14 psig is correct but, temperature must also be less than 122°F.

C: Correct, Containment temperature must be less than 122 °F and pressure must be less than 14 psig to reset and secure containment spray.

D: Incorrect, 122°F is correct but, pressure must also be less than 14 psig.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | C | B | D | A | C | A | C | B B C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G1 |
| Keyword: | CONTAINMENT SPRAY | Cog lvl & (Imp): | M (3.5/3.5) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

41. 026AA2.02 (R) 001/T1G1/T1G1/CCW LEAKAGE/C/A (2.9/3.6)/B/TP02301/R/GWL

-Unit 3 is in mode 5.
-Operators have begun to collapse the bubble in the pressurizer.
-CCW Head Tank Level begins to decrease unexpectedly.

Which ONE of the following describes the component that could be the cause of the leak?

A. An RCP Thermal Barrier Heat Exchanger.

B.✓ The Seal Water return Heat Exchanger.

C. The Non -Regenerative Heat Exchanger.

D. The RHR Heat Exchanger.

Bank Question #1.1.25.29.2.12,M.
LP 6902229 enabling objective # 3.
LP 6902140 enabling objective # 3.

A. Incorrect, a thermal barrier heat leak would cause head tank level to rise.

B. Correct, the seal water return heat exchanger will be at a lower pressure than CCW causing level to lower.

C. Incorrect, the non regenitive heat exchanger will be at a higher pressure.

D. Incorrect, the RHR heat exchanger with a bubble in the pressurizer will be at a higher pressure.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B C C A C D D C B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | CCW LEAKAGE | Cog lvl & (Imp): | C/A (2.9/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | GWL |

42. 026AA2.02 (S) 001/T1G1/T1G1/CCW LOSS & HI RAD/C/A (2.9/3.6)/B/TP02301/S/SDR

- Unit 3 is at 100% reactor power when the following events occur:
- Annunciator A-1/1, RCP THERMAL BARR COOLING WATER HI FLOW, alarms.
- PRMS channels R-17A/B have High and Warning alarms.

Which ONE of the following describes the correct operator response to the above events?

A.✓ Maintain RCP Thermal Barrier CCW Outlet valve, MOV-626, closed. If the affected RCP's thermal barrier delta P is less than "0", then trip the reactor and stop the RCP.

B. Open RCP Thermal Barrier CCW Outlet valve, MOV-626. If the affected RCP's thermal barrier outlet flow exceeds 28 gpm, then trip the reactor and stop the RCP.

C. Open RCP Thermal Barrier CCW Outlet valve, MOV-626. If the affected RCP's thermal barrier delta P is less than "0", then trip the reactor and stop the RCP.

D. Maintain RCP Thermal Barrier CCW Outlet valve, MOV-626, closed. If the affected RCP's thermal barrier outlet flow exceeds 28 gpm, then trip the reactor and stop the RCP.

Question Source: Turkey Point requal test bank Q#69022420403-ORQ;ORQ#094
Enabling Objective: EO#3 of Lesson Plan LP6902205; EO#4 of Lesson Plan LP6902242; EO#3 & EO#4 of Lesson Plan LP6902229

Distractor Analysis:

A: Correct, MOV-626 auto closes from annunciator A-1/1, then goto ONOP-041.1 and ONOP-067. ONOP-067 step 30 RNO transitions to ONOP-041. ONOP-041.1 step 34 has MOV-626 closed and maintain RCP's thermal barrier delta P greater than "0" otherwise RNO trips the reactor and secures the RCP.

B: Incorrect, MOV-626 is reopened if A-1/1 was caused by CCW pump start.

C: Incorrect, MOV-626 is reopened if A-1/1 was caused by CCW pump start.

D: Incorrect, ONOP-067 step 30 checks RCP's thermal barrier outlet flow ≤ 28 gpm if A-1/1 was clear.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A A D C B C C B A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | CCW LOSS & HI RAD | Cog lvl & (Imp): | C/A (2.9/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

43. 027AA2.17 001/T1G1/T1G2/PRESSURIZER PRESSURE/C/A (3.1/3.3)/M/TP02301/C/GWL

-Unit 4 is stable at 100% Power.
-Control Rods are in Manual.
-All other controls are operating properly in automatic.
-PT-444 fails to 2500 psig.

Which ONE of the following correctly describes the initial plant response?

A. Back up heaters energize; RCS pressure increases; OT delta T setpoint increases.

B. Back up heaters deenergize; RCS pressure increases; OT delta T setpoint decreases.

C.✓ PCV-455C opens; RCS pressure decreases; OT delta T setpoint decreases.

D. PCV-456 opens; RCS pressure decreases; OT delta T setpoint decreases.

Modified from Bank questions (combination of several).
SD-009 (SYS.041C) Pressurizer and Relief System Enabling Objective# 6.
SD-063 (SYS. 049,063) Reactor Protection and Safeguards Actuation System enabling objective # 6.

A. Incorrect, backup heater would denergize, RCS pressure will decrease and the OT delta T setpoint would decrese.

B. Incorrect, Backup heaters would denergize, but RCS pressure will decrease.

C. Correct, PCV-455 will open, this will cause pressure to decrease, and the OT delta T setpoint will decrease.

D. Incorrect, PCV-456 will not open from this failure.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D B C C C D B B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G2 |
| Keyword: | PRESSURIZER PRESSURE | Cog lvl & (Imp): | C/A (3.1/3.3) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

44. 027AK2.03 001/T1G1/T1G2/PZR PRESS CONT./C/A (2.6/2.8)/N/TP02301/C/GWL

-Unit 4 is operating at 90% power with all controls in Automatic.
-PT-444 begins to drift down.

Which one of the following describes the effect this will have on PC-444J, Pressurizer Pressure Master Controller, output, and the system response as a result of this failure?

PC-444J output will:

A.✓ decrease, pressurizer heaters output will increase, and actual RCS pressure will increase.

B. increase, pressurizer heater output will lower, spray valves will open, and actual RCS pressure will decrease.

C. increase, pressuizer heater output will increase,and actual RCS pressure will increase.

D. decrease, pressurizer heater output will lower, spray valves will open, and actual RCS pressure will decrease.

LP 6902109 enabling objective # 6.

A. Correct, as PT-444 drifts down the master controller will attempt to raise pressure to return it to setpoint, output will decrease, heaters will energize and actual RCS pressure will rise.

B. Incorrect, PC-444J output will decrease, heater output will rise in an attempt to raise RCS pressure.

C. Incorrect, controller output will decrease.

D. Incorrect, Pressurizer heater output will increase and actual RCS pressure will increase.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B D C B D C C B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G2 |
| Keyword: | PZR PRESS CONT. | Cog lvl & (Imp): | C/A (2.6/2.8) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

45. 028A1.01 001/T2G3/T2G2/HYDROGEN RECOMBINER/M (3.4/3.8)/B/TP02301/C/SDR

Unit 3 has experienced a design basis LOCA.

The Tech Support Center has determined that the Post Accident Containment Ventilation (PACV) System should be placed in service for alternate air pressurization.

Which ONE of the following conditions would prevent the PACV system from being placed in service for alternate air pressurization?

A.✓ Containment pressure is 13 psig.

B. Containment temperature is 110 °F.

C. Containment Isolation Phase A is reset.

D. Containment Hydrogen concentration is 6%.

Question source: Turkey point requal test bank 69023380401-ORQ; ORQ#583

Distractor Analysis:

A: Correct, The design pressure of the PACV system is 10 psig per Step 7.2.1.3 of 3-OP-094.

B: Incorrect, No upper limit on temperature for PACV use.

C: Incorrect, Would be true if Phase A is not reset.

D: Incorrect, No upper limit on Hydrogen Concentration for PACV use.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | A | C | A | D | C | D | D | A | B | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G2 |
| Keyword: | HYDROGEN RECOMBINER | Cog lvl & (Imp): | M (3.4/3.8) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

46. 029AG2.4.34 001/T1G2/T1G1/ATWS/LOCAL/C/A (3.8/3.6)/N/TP02301/C/GWL

-An ATWS has occured on Unit 3.
-3-EOP-FR-S.1 has been entered.
-A manual trip of the reactor did not occur and control rods are being inserted manually.
-The turbine was tripped in the Main Control Room, all turbine stop valves are closed.
-Turbine speed still indicates 1800 rpm.
-Main Generator Output Breaker positon is not available.

Which ONE of the following describes the correct action to be taken in response to turbine speed?

A. Close the Main Steam Isolation and bypass valves.

B.✓ Locally trip the Mid and East GCB's from the switchyard.

C. Locally close the MSR main steam supply valves on the turbine deck.

D. Locally Trip the turbine at the front standard.

LP-6902346 Response to Nuclear Generation/ ATWS -Loss of Core Shutdown, Enabling Objective # 4.

A. Incorrect, The main turbine is tripped, it is still rotating at 1800 rpm due to the output breakers still being closed.

B. Correct, this will open the Generator Output Breakers and stop the generator from being motorized.

C. Incorrect, this would not stop the turbine from rotating, the generator is motorized.

D. Incorrect, this would not stop the turbine from rotating, the generator is motorized

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A A D B B B C B D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | ATWS/LOCAL | Cog lvl & (Imp): | C/A (3.8/3.6) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

47. 029K3.02 001/T2G2/T2G2/CONTAINMENT PURGE/C/A (2.9/3.5)/N/TP02301/C/SDR

A containment entry is planned for Unit 4. The work leader states that the work inside containment will take approximately 90 minutes to complete. The No. 3 containment purge exhaust fan is out of service for maintenance. The No. 4 containment purge exhaust fan is started and immediately trips.

- Unit 4 is at 100% power.

Which ONE of the following is correct concerning the containment entry?

A. Containment entry is not allowed under any circumstances.

B. Containment entry may proceed only if the normal containment ventilation is in service.

C.✓ Containment entry postponement should be considered when the containment purge system is unavailable.

D. Containment entry may proceed only if the containment purge supply and exhaust isolation valves are sealed closed to the maximum extent practicable.

Distractor analysis:
A: Incorrect, ADM-009 states that if work inside containmnet is expected to exceed 60 minutes, a containment purge should be performed. However a containment entry is not prohibited.

B: Incorrect, ADM-009 states that if work inside containmnet is expected to exceed 60 minutes, a containment purge should be performed. Normal containment ventilation is not addressed as an alternative to the purge system on containment entries.

C: Correct, Without the purge exhaust fans available, consideration of postponement of containment entry should be addressed.

D: Incorrect, This is the normal status of the containment purge isolation valves when not a purge is not in affect. The decision for allowing containment entry is not limited by the purge supply and exhaust valve positions.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| | | | | | Answer: | C | B | C | B | A | B | D | B | B | C | Scramble Range: A - D | |

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | CONTAINMENT PURGE | Cog lvl & (Imp): | C/A (2.9/3.5) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

48. 032AA1.01 001/T1G2/T1G2/SOURCE RANGE NI LOSS/M (3.1/3.4)/B/TP02301/C/SDR

- Operators are performing 3-OSP-049.1, Reactor Protection System Logic Test, Section 7.1, while in Mode 3.

- Nuclear Instrument system detector N-32 suddenly fails due to a power source problem.

Which ONE of the following describes the required operator response?

(Reference Provided)

A.✓ Restore N-32 to an operable status within 48 hours.

B. Restore N-32 to an operable status within 1 hour.

C. Open the reactor trip breaker (s) within 1 hour.

D. Open the reactor trip breaker (s) within 48 hours.

Question source: Turkey Point requal question bank 69025230301-ORQ; ORQ#465

Distractor Analysis:
A: Correct, Technical specification 3.3.1, ACTION 9

B: Incorrect, If the N-32 channel can not be returned to service within 48 hours then reactor trip breakers are required to be open within the next hour.

C: Incorrect, If the N-32 channel can not be returned to service within 48 hours then reactor trip breakers are required to be open within the next hour.

D: Incorrect, If the N-32 channel can not be returned to service within 48 hours then reactor trip breakers are required to be open within the next hour.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | A | B | B | B | C | D | D | B | B | D |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | SOURCE RANGE NI LOSS | Cog lvl & (Imp): | M (3.1/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

49. 033A2.03 (R) 002/T2G2/T2G2/LOSS OF SFP LEVEL/C/A (3.1/3.5)/N/TP02301/R/RLM

Unit 3 is at 100%

Annunciator H-1/1, SFP Lo Level, alarms

Which one of the following decribes the initial actions to be taken in accordance with ONOP-033.1, Spent Fuel Pit (SFP) Cooling System Malfunction?

A. Verify SFP level, trip the running SFP pump.

B. Verify SFP temperature, commence makeup to the SFP.

C.✓ Verify SFP level, determine the rate of level decrease.

D. Verfiy SFP temperature, secure SFP purification alignment.

Ref: TP ARP H-1/1, SFP Lo Level
TP ONOP-033.1 SFPCS Malfunction
TP lesson plan 6910141, pp. 1 Terminal Objective 1

Distractor analysis:

Answer A is incorrect because the SFP pump is only tripped if it is a rapid level decrease which is not determined.

Answer B is incorrect because checking the temperature will not mitigate the loss of inventory and is not IAW procedural guidance.

Answer C is correct because the immediate action of both the ARP and ONOP is to verify the alarm. Subsequently, the rate of level decrease is determined in order to select the appropriate follow-up action.

Answer D is incorrect for the same reason as B.
Question stem modified to bring the question more in line with the K/A, 'to be taken in accordance with ONOP-033.1 Spent Fuel Pit (SFP) Cooling System Malfunction' added to the stem. (Cheif Examiner comment)
Question stem modified to bring the question more in line with the K/A, 'to be taken in accordance with ONOP-033.1, Spent Fuel Pit (SFP) Cooling System Malfunction' added to the stem. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A A A A D A D C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | LOSS OF SFP LEVEL | Cog lvl & (Imp): | C/A (3.1/3.5) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | RLM |

50. 033A2.03 (S) 001/T2G2/T2G2/REFUELING/C/A (3.1/3.5)/N/TP02301/S/RLM

Unit 4 is in a refueling outage with fuel movement in the Spent Fuel Pool in progress.

Annunciator H-1/1, SFP Lo Level, has alarmed.

Which ONE of the following discribes the impact and initial required action?

A. Loss of SFP pump NPSH; verify alarm.

B.✓ Loss of shielding; verify alarm.

C. Loss of SFP pump NPSH; stop fuel movement.

D. Loss of shielding; stop fuel movement.

Ref: TP ARP H-1/1, SFP Lo Level
TP ONOP-033.1 SFPCS Malfunction
TP lesson plan 6910529, pp. 1 Terminal Objective 1

Distractor analysis:

Answer A is incorrect, because the design basis loss of required shielding occurs at a higher pool level than NPSH requirements.

Answer B is correct because the low level alarm coincides with the Tech Spec minimum level for refueling analysis shielding and the ARP and AOP require verification of the alarm as an immediate action.

Answer C is incorrect for the same reason as answer A and stopping fuel movement is not required until after the alarm is verified.

Answer D is incorrect because alarm verification is required prior to stopping fuel movement.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | B | A | C | A | B | D | B | B A D |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | REFUELING | Cog lvl & (Imp): | C/A (3.1/3.5) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | RLM |

51. 033G2.2.3 001/T2G2/T2G2/SPENT FUEL POOL/M (3.1/3.3)/M/TP02301/R/SDR

Which ONE of the following describes the power supply to the Unit 3 Emergency Spent Fuel Pool (SFP) cooling pump?

A. 480 volt Load Center 3C.

B. A temporary motor starter connected to an electrical receptacle in the New Fuel storage room.

C. A transfer switch inside the SFP cooling room selects the power supply between the 'A'/ 'B' SFP Cooling pumps and the Emergency SFP cooling pump.

D.✓ A temporary motor starter connected to an electrical receptacle in the cask wash area.

Question source: Modified from Turkey Point question bank Q# 1.1.24.41.5.15,M

Distractor Analysis:

A: Incorrect, power source for the 'A' and 'B' SFP cooling pumps

B: Incorrect, Correct for Unit 4

C: Incorrect, Transfer switch exists for the 'A' and 'B' SFP cooling pumps

D: Correct, Power source and locations listed in SD 41 page 35

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A A A A B D C C A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | SPENT FUEL POOL | Cog lvl & (Imp): | M (3.1/3.3) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

52. 035A4.01 001/T2G2/T2G2/S/G LEVEL CONTROL/M (3.7/3.6)/N/TP02301/C/SDR

- Unit 3 is performing a reactor startup per GOP-301, Hot Standby to Power Operation. Reactor power is currently 15%.
- Steam Generator (S/G) levels are being controlled manually on the Feedwater Bypass valves between 50% and 60%.

Which ONE of the following describes the process of transfering Steam Generator level control to automatic in accordance with GOP-301?

A.✓ Open/verify open Feedwater Isolation valves. Slowly open the Main Feedwater Control valves while simultaneously closing the Feedwater Bypass valves. Stabilize levels at program, match feedwater flow with steam flow, and transfer one S/G FW control at a time to AUTO.

B. Slowly open Feedwater Isolation valves while simultaneously closing the Feedwater Bypass valves. Stabilize levels at program, match feedwater flow with steam flow, and transfer one S/G FW control at a time to AUTO.

C. Open/verify open Feedwater Isolation valves. Slowly open the Main Feedwater Control valves to approximately 15% feedwater flow then close the Feedwater Bypass valves. Stabilize levels at program, match feedwater flow with steam flow, and transfer one S/G FW control at a time to AUTO.

D. Open/verify open the Main Feedwater Control valves. Slowly open Feedwater Isolation valves while simultaneously closing the Feedwater Bypass valves. Stabilize levels at program, match feedwater flow with steam flow, and transfer one S/G FW control at a time to AUTO.

Enabling Objectives: EO#2 and EO#6 of Lesson Plan LP 6902122

Distractor analysis:

A: Correct, GOP-301 step 5.71.

B: Incorrect, Do not transfer to AUTO without first slowly opening the Main Feedwater Control valves.

C: Incorrect, Do not open the Main Feedwater Control valves prior to closing the Feedwater Bypass valves.

D: Incorrect, Feedwater Isolation valves are opened first and the Main Feedwater Control valves are slowly opened.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B A D C A B A D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | S/G LEVEL CONTROL | Cog lvl & (Imp): | M (3.7/3.6) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

53. 036AA1.02 001/T1G3/T1G3/CONTAINMENT ARMS/C/A (3.1/3.5)/M/TP02301/C/SDR

- Unit 3 is in Mode 6 and Core Alterations are in progress.
- The fuel transfer carriage is at the containment upender.
- The reactor cavity is full and a containment purge is in progress.
- Containment Personnel Airlock doors are closed.

The following events occur:

- The power supply to PRMS R-11 monitor fails.
- Annunciator H-1/3, SFP HI LEVEL, alarms shortly after the R-11 power failure.

Which ONE of the following describes the required operator actions in response to the above events?

A. Initiate containment evacuation and isolate instrument air to containment.

B. Locally open the instrument air bleed valve, CV-2826, and increase CCW flow to the SFP heat exchanger.

C.✓ Move the fuel transfer carriage to the spent fuel pit and close the fuel transfer tube gate valve, 3-12-031.

D. Obtain NPS authorization to bypass R-11 from VPB and reestablish containment purge.

Question Source: Turkey Point requal test bank questions Q#69022400401-ORQ;ORQ#611 & Q#69022400402-ORQ;ORQ#612

Disrtactor Analysis:

A: Incorrect, Actions for R-11 being in alarm associated with an accident involving spent fuel inside containment.

B: Incorrect, Actions if level increase is being caused by SFP heatup.

C: Correct, The loss of power to R-11 causes the containment purge to automatically secure thus causing containment pressure to increase slightly causing the SFP level to increase to the alarm setpoint requiring the fuel transfer tube gate valve to be closed (annunciator H-1/3 actions).

D: Incorrect, The NPS can authorize containment purge initiation in an emergency, this is not an emergency situation and R-11 must be in operation for containment purge operation, R-11 is bypassed for testing and surveillance activities.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C D B D B A C C C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G3 | SRO Tier: | T1G3 |
| Keyword: | CONTAINMENT ARMS | Cog lvl & (Imp): | C/A (3.1/3.5) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

54. 037AA2.16 001/T1G2/T1G2/SG/TUBE/ LEAK/C/A (4.1/4.3)/N/TP02301/S/GWL

-Unit 3 has a Steam Generator Tube leak in progress.
-Actions of 3-ONOP-071.2 "Steam Generator Tube Leak", are being performed.
-An RCS Cooldown is in progress.

Which one of the following describes where RCS pressure should be maintained during the Steam Generator Cooldown?

A. RCS pressure should be maintained greater than 2000 psig until the cooldown is complete, then immediately reduced to equal steam generator pressure.

B. RCS pressure should be reduced to less than 1950 psig and then the Low Pressure Safety injection should be blocked, RCS pressure should remain constant until the cooldown is complete.

C. RCS pressure should be reduced to less than 1950 psig and the Low Pressure Safety Injection should be blocked, then RCS pressure should be immediately reduced to equal S/G pressure.

D.✓ RCS pressure should be reduced throughout the cooldown by maintaining subcooling at least 60 degrees F by CET's , until RCS pressure equals steam generator pressure.

LP 6902236 3/4-ONOP-071.2, Steam Generator Tube Leak enabling objective # 3.

A. Incorrect, RCS pressure should be reduced as soon as possible to reduce leakage into the S/G.

B. Incorrect, RCS pressure should be reduced to < 1950 psig and the Low pressure SI blocked, however this should be performed prior to the cooldown, pressure should then be reduced to stop leakage flow into the S/G.

C. Incorrect, RCS pressure should be reduced < 1950 psig and the low pressure SI blocked prior to the cooldown, RCS pressure should then be reduced but not immediately, this would cause a loss of subcooling.

D. Correct, RCS pressure should be reduced during the cooldown and should maintain 60 degrees subcooling until RCS equals S/G pressure.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A A D B D B D A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | SG/TUBE/ LEAK | Cog lvl & (Imp): | C/A (4.1/4.3) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

55. 038EG2.1.7 001/T1G2/T1G2/SGTR/M (3.7/4.4)/B/TP02301/C/GWL

-Unit 3 has experienced a SGTR.
-3-EOP-E-3, Steam Generator Tube Rupture, has been entered.
-At the step for identifing the ruptured steam generator, the crew has determined that all 3 steam generators are ruptured.

Which ONE of the following action(s) is correct in accordance with 3-EOP-E-3 Steam Generator Tube Rupture?

A. Immediately transition to 3-EOP-ECA-3.1 SGTR with Loss of Reactor Coolant- Subcooled Recovery Desired.

B.✓ Pick one SG to be available for cooldown. Isolate the remaining two SGs and transition to 3-EOP-ECA-3.1, SGTR with Loss of Reactor Coolant - Subcooled Recovery Desired when directed.

C. Isolate all three SGs per 3-EOP-E-3. The CAUTION (At least one SG must be maintained available for RCS cooldown) prior to step 3 does not apply if all SGs are ruptured.

D. Isolate the SGs with the highest level first, then cool down with the least ruptured SG and remain in 3-EOP-E-3 until directed to transition to 3-EOP-ES-3.1, POST-SGTR COOLDOWN USING BACK FILL.

LP 6902339 E-3, Steam GeneratorTube Rupture, Enabling Objective # 3.
Question from Farley Exam bank (slightly modified to fit TP).

A. Incorrect, the procedure directs the crew to isolate SGs first prior to directing a transition from E-3.

B. Correct, the note prior to step 3 reminds the operator that one SG must remain available for cooldown. The others should be isolated and transition is directed to EC-3.1 at step 7.

C. Incorrect, One SG must remain available to allow a plant cooldown to be conducted.

D. Incorrect, E-3 directs a transition to EC-3.1 if all the ruptured SGs cannot be isolated.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B C D A D A C B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | SGTR | Cog lvl & (Imp): | M (3.7/4.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

56. 039K5.05 001/T2G2/T2G2/STEAM DUMPS/M (2.7/3.1)/N/TP02301/C/RLM

Operators are initiating a plant cooldown using the Steam Dump to Condenser (SDTC) system.

$T_{avg}$ is currently 547°F.

Shortly after the cooldown is started, the SDTC valves automatically close.

Which ONE of the following describes the interlock that closed the SDTC valves and the basis for the interlock?

A. SDTC Low $T_{avg}$ interlock. To allow for manual SI Block.

B.✓ SDTC Low $T_{avg}$ interlock. To prevent inadvertant RCS cooldown.

C. SI High Steam Flow with Low $T_{avg}$ interlock. To allow for manual SI Block.

D. SI High Steam Flow with Low $T_{avg}$ interlock. To prevent inadvertant RCS cooldown.

Ref: TP Lesson plan 6902118, enabling objective 3

Distractor analysis:

Answer A is incorrect because it states the correct interlock but the wrong reason. Note that 543°F is the same low $T_{avg}$ value for both interlocks.

Answers B is correct. The SDTC low $T_{avg}$ interlock will actuate at 543°F and it is for the purpose of preventing inadvertant cooldown.

Answers C and D are incorrect because they state the wrong interlock.

Reworded stem to emphasis the basis for RCS cooldown limits and methods designed into the Main Steam system to prevent challenges to these limits. (In response to Chief Examiner comments)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B D B D B D D A A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | STEAM DUMPS | Cog lvl & (Imp): | M (2.7/3.1) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

57. 045A1.05 001/T2G3/T2G3/TURB TRIP/C/A (3.8/4.1)/N/TP02301/C/RLM

Unit 4 is operating at 100% power when the Main Turbine trips. The reactor does not automatically trip.

Assuming no operator action, which ONE of the following decribes the initial response of the primary plant parameters?

A. Rx pressure decreases, Th decreases, Tc increases

B. Rx pressure increases, Th increases, Tc decreases

C. Rx pressure decreases, Th decreases, Tc decreases

D.✓ Rx pressure increases, Th increases, Tc increases

REFERENCE: LP 6902928, SHO Page 2-3. Figure 2.1-5, 2.1-6

Distractor Analysis:

A. Incorrect, the reactor pressure can be expected to increase for this ATWS condition.

B. Incorrect, Tc will increase as the RCS heats up due to power production with no turbine energy sink.

C. Incorrect, the reactor pressure can be expected to increase for this ATWS condition.

D. Correct, all three parameters are expected to increase for this ATWS with no turbine energy sink.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B D C A C A D C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | TURB TRIP | Cog lvl & (Imp): | C/A (3.8/4.1) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

58. 051AA2.02 001/T1G2/T1G1/LOSS OF COND VACUUM/C/A (3.9/4.1)/B/TP02301/S/SDR

Unit 3 is experiencing a loss of condenser vacuum. The load is being reduced in accordance with GOP-103, Power Operation to Hot Standby. When turbine load reaches 100 MWe, vacuum drops and stabilizes at 21 inches Hg.

Which ONE of the following describes the crew response to this event?

A. Continue the load reduction while performing ONOP-014, Main Condenser Loss of Vacuum.

B. Stop the load reduction, place the standby steam jet air ejectors in service, and attempt to restore vacuum.

C.✓ Trip the reactor and turbine and perform the immediate actions of E-0, Reactor Trip or Safety Injection.

D. Use ONOP-100, Fast Load Reduction, to get the turbine off line as quickly as possible.

Question source: Turkey Point question bank Q# 1.1.44.22.7.1,M

Distractor analysis:

A: Incorrect, correct action if vacuum was still within the limits of ONOP-014 enclosure 1.

B: Incorrect, IAW procedure this action is done prior to initiating the load reduction and only if vacuum is being maintained within the limits of ONOP-014 enclosure 1.

C: Correct, Vacuum is NOT within the limits of ONOP-014 enclosure 1 thus requiring a reactor trip and turbine trip IAW ONOP-014 step 5.4.

D: Incorrect, ONOP-014 authorizes load reduction per GOP-103 and not per ONOP-100. Reactor trip is required.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| | | | | | Answer: | C | D | C | A | B | D | B | C | B | C | Scramble Range: A - D | | | |

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | LOSS OF COND VACUUM | Cog lvl & (Imp): | C/A (3.9/4.1) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

59. 051AG2.1.08 001/T1G1/T1G1/LOSS OF VACUUM/M (3.8/3.6)/B/TP02301/C/GWL

-Unit 3 is at 100% power.
-Annuciator E 5/3 "Condenser Low Vacuum" comes in.
-Condenser Vacuum is 25" hg, decreasing at a noticable rate.

Which ONE of the following would be the required action to have the Unit 3 NPO perfrom immediately?

A. Cut in make-up water to the Boot Seal.

B. Close Steam Generator Feed pump Seal water drain tank valve CV-2210.

C. Place the second bank of Steam Jet Air Ejectors in service.

D.✓ Place the Hogging Jet in service.

Bank Question 1.1.34.22.1.1.M.
3-ONOP-014.

A. Incorrect, this is not an immediate action.

B. Incorrect, this is not an immediate action.

C. Incorrect, this is not an immediate action.

D. Correct, IAW 3-ONOP-014 this is the immediate action to be taken.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B B B C B D B C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | LOSS OF VACUUM | Cog lvl & (Imp): | M (3.8/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

60. 054AA2.01 001/T1G2/T1G2/LOSS OF MAIN FEED/M (4.3/4.4)/N/TP02301/S/GWL

-Unit 3 is at 65% power.
-'A' S/G Feed Regulating Valve is in manual do to maintenance.
-The operator becomes distracted and 'A' S/G level increases to 81%.

Which ONE of the following will occur as a result of this condition?

A. Reactor trips as a result of a turbine trip, "A" feed reg valve closes in 20 sec. (slow close)

B. Reactor trips directly, "A" feed reg valve closes in 7sec. (fast close)

C.✓ Reactor trips as a result of a turbine trip, "A" feed reg valve closes in 7sec. (fast close)

D. Reactor trips directly, "A" feed reg valve closes in 20 sec. (slow close)

SD 063 SYS. 049,063. LP-6902163 enabling objective # 6.

A. Incorrect, the valves will close in 7 sec, (fast close).

B. Incorrect, the reactor trips due to a turbine trip.

C. Correct, the reactor trips as a result of the turbine trip, and the valves will close in 7 sec.

D. Incorrect, the reactor does not trip directly.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | C | B | D | C | B | D | D | D | A | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | LOSS OF MAIN FEED | Cog lvl & (Imp): | M (4.3/4.4) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

61. 055EK3.02 002/T1G1/T1G1/LOSS OF ALL AC/M (4.3/4.6)/N/TP02301/C/GWL

- ECA-0.0, "Loss of All AC Power," has been entered due to a Loss of All AC on Unit 3.
- The crew is at step 3 of ECA-0.0 "Check If RCS Is Isolated."

Which ONE of the following describes the correct sequence for RCS Isolation, and the reason for that sequence?

A. PORV's, Letdown Isolation Valves, Excess Letdown Isolation valves; because this is the most likely sequence for valves opening.

B. Letdown Isolation Valves, PORV's, Excess Letdown Isolation Valves; because this is the most likely sequence for valves opening.

C.✓ PORV's, Letdown Isolation Valves, Excess Letdown Isolation valves; isolation order is based on capacity of the outflow lines.

D. Letdown Isolation Valves, PORV's, Excess Letdown Isolation Valves; isolation order is based on capacity of the outflow lines.

LP6902348 EOP-ECA-0.0 Loss of All AC, enabling objective # 5.
BD-EOP-ECA-0.0

A. Incorrect, this is the correct sequence but not the correct reason.

B. Incorrect, this is not the correct sequence, and not the correct reason.

C. Correct, this is the correct sequence,and reason IAW ECA 0.0 and the Background document.

D. Incorrect, this is not the correct order.
Question Cog Level changed from C/A to M (Chief Examiner comment).

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A A A D B B A D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | LOSS OF ALL AC | Cog lvl & (Imp): | M (4.3/4.6) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

62. 055K3.01 001/T2G2/T2G2/SJAE/C/A (2.5/2.7)/N/TP02301/C/RLM

Unit 4 is operating at 100% power
Annunciator E-5/3, CONDENSER LO VACUUM, alarms
Vacuum as indicated on PI-1612 is decreasing

Which ONE of the following is the MOST probable cause of the decreasing vacuum?

A. High gland seal steam pressure

B.✓ Empty SJAE loop seal

C. Leaking MSR relief valves

D. High gland steam condenser pressure

REF: TP LP 6902122, enabling objective 2
System description SD 130, TURBINE, TURBINE OIL AND GLAND SEAL SYSTEMS
ONOP-14 Main Condenser Loss of Vacuum

Distractor analysis:

A is incorrect because excessive pressure will only blow steam out of seals externally, but have no effect on the sealing, hence vacuum capability.

B is correct because the loop seals, if empty allow air to sucked directly in to the condenser, causeing a loss of vacuum (see ONOP-014)

C is incorrect because these reliefs are under positive pressure at 100% power

D is incorrect because high gland steam condenser pressure will cause the gland seal steam to cross over the exhaust chamber and exit the seal externally.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B A B A B D C A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | SJAE | Cog lvl & (Imp): | C/A (2.5/2.7) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

63. 056K1.03 001/T2G1/T2G1/CONDENSATE & FEED/C/A (2.6/2.6)/M/TP02301/R/SDR

Unit 3 is operating at 100% steady state reactor power.
The '3C' Condensate pump is electrically tagged out for motor maintenance.

The '3A' Condensate pump trips on overcurrent.

Which ONE of the following describes the effect on the Steam Generator Feed Pumps (SGFPs)?

A. SGFP '3B' will automatically trip when the '3A' Condensate pump supply breaker opens and SGFP '3A' will trip 5 seconds later.

B. SGFP '3A' and SGFP '3B' will automatically trip when the '3A' Condensate pump supply breaker opens.

C.✓ SGFP '3A' will automatically trip 5 seconds later and SGFP '3B' will continue to run.

D. SGFP '3A' will automatically trip when the '3A' Condensate pump supply breaker opens and '3B' SGFP will trip 5 seconds later.

Question source: Turkey Point exam bank Q#1.1.24.22.6.3,M
Enabling Objective EO#6 of Lesson Plan LP6900122

Distractor Analysis:

A: Incorrect, The 3B SGFP will not trip since the 3B Condensate pump breaker is still closed.

B: Incorrect, The 3B SGFP will not trip since the 3B Condensate pump breaker is still closed.

C: Correct, The 3A SGFP will trip after 5 seconds since the logic diagram is satisfied. The 3B SGFP is unaffected and will continue to run. (See Logic Diagram for the SGFP figure 10 of System Discription112.).

D: Incorrect, The 3A SGFP will trip after 5 seconds since the logic diagram is satisfied by 3B SGFP breaker being closed, the 3A Condensate pump tripping open on overcurrent, and the 3C Condensate breaker being open due to electrical maintenance. The 3B SGFP is unaffected and will continue to run.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B D C A A A C A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CONDENSATE & FEED | Cog lvl & (Imp): | C/A (2.6/2.6) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

64. 057AA1.01 001/T1G1/T1G1/VITAL AC INSTRUMENT/C/A (3.7/3.7)/M/TP02301/C/SDR

Operators have placed the 'AS' Vital Inverter in service to replace the '3A' Inverter. Vital Instrument bus 3P07 is currectly being powered from the 'AS' Vital Inverter.

An Electrical maintenance worker inadvertantly opened the supply breaker to the 'AS' Vital Inverter vice the supply breaker to the '3A' Inverter.

An investigation revealed that the Alternate Source Transfer switch, 3Y01B, was locked in the "Backup to Normal Inverter" position.

Which ONE of the following describes the consequence of this event?

A. 3P07 automatically transfered to the Constant Voltage Transformer (CVT).

B. 3P07 automatically transfered back to the '3A' Inverter.

C.✓ A loss of Vital Instrument bus 3P07 occurred.

D. A loss of Vital Instrument bus 3P07 and 4P07 occurred.

Question Source: Modified from Turkey Point 2000 NRC Exam
Enabling Objective: EO#5 of Lesson Plan LP6902139

Distractor Analysis:

A: Incorrect, Without the 3Y01B switch being in the "Backup to Spare Inverter" position transfer will not occur.

B: Incorrect, Automatic transfer between inverters does not occur when one inverter is lost.

C: Correct, IAW system discription SD144, Improper manual transfer to the Spare Inverter (i.e. not properly selecting "Backup to Spare Inverter" on the 3Y01B switch) will lead to a loss of vital AC instrument bus 3P07.

D: Incorrect, 'AS' Vital Inverter is a backup source to both 3P07 and 4P07, 4P07 will be unaffected since it is receiving power from its normal source '4A' Inverter.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | C D C A D D D B C D | Scramble Range: A - D |

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | VITAL AC INSTRUMENT | Cog lvl & (Imp): | C/A (3.7/3.7) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

65. 058AA2.03 001/T1G2/T1G2/LOSS OF DC/M (3.5/3.9)/M/TP02301/R/GWL

-Unit 3 is at 100% power.
-A loss of DC bus 3D23 occurs.
-Offsite power remains available.

Which ONE of the following will be a result of the loss of power.

A. Control power to both PZR PORVs is lost.

B. Loss of all Unit 3 Control Room Annunciators.

C.✓ Loss of 'C' AFW pump control and protection.

D. '3A' Emergency Diesel Generator will autostart but not load.

Bank question 1.1.25.53.2.1.M
LP6902139 120 VAC and 125 VDC Distribution enabling objective # 5.

A. Incorrect, control power to only one PORV would be lost.

B. Incorrect, Control Room annunciators are losed upon a loss of 3D01.

C. Correct, IAW 3-ONOP-003.5, the C AFW pump will lose control and protection power.

D. Incorrect, the 3B diesel auto start capability will be lost.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | C | B | B | A | A | B | D | C | B | C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | LOSS OF DC | Cog lvl & (Imp): | M (3.5/3.9) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | GWL |

66. 058AG2.1.12 001/T1G2/T1G2/LOSS OF DC/C/A (3.7/4.1)/B/TP02301/S/SDR

Both Units are at 100% power with all systems operable except the '4A' EDG which is Out Of Service on a clearance. The '3B1' battery charger fails and all DC bus loads are assumed by the '3B2' battery charger.

Which ONE of the following describes the required operator response?

(References Provided)

A.✓ Restore the '3B1' battery charger to service within 72 hours or shutdown both Units within the next 12 hours.

B. Restore the '3B' battery bank to service within 2 hours or shutdown both Units within the next 12 hours.

C. Restore the '3B1' battery charger to service within 72 hours or shutdown only Unit 4 within the next 12 hours.

D. Restore the '3B' battery bank to service within 2 hours or shutdown only Unit 4 within the next 12 hours.

Question source: Turkey Point requal question bank 69025280301-ORQ; ORQ#600

Distractor analysis:

A: Correct, 3B1 has failed TS 3.8.2.1.b.1) not satisfied. 3B2 does not have 4A EDG operable TS 3.8.2.1.b.2) not satisfied. The conditions for 125-volt DC battery bank 3B and associated full capacity chargers can not be satisfied. TS 3.8.2.1 ACTION a. is applicable since 3B2 is available but not capable of being powered from its associated EDG.

B: Incorrect, Actions required for TS 3.8.2.1 ACTION b. Applicable if required battery banks are inoperable or no chargers operable. The 3B battery bank is still operable.

C: Incorrect, Correct action but TS 3.8.2.1 ACTION a. is applicable to both units simultaneously.

D: Incorrect, Actions required for TS 3.8.2.1 ACTION b. Applicable if required battery banks are inoperable or no chargers operable. The 3B battery bank is still operable. TS 3.8.2.1 ACTION b. is applicable to both units simultaneously.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A C A C B D A C D A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | LOSS OF DC | Cog lvl & (Imp): | C/A (3.7/4.1) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

67. 059A1.03 001/T2G1/T2G1/RUNBACK/M (2.7/2.9)/B/TP02301/R/RLM

Unit 3 is operating at 100% power
3A Steam Generator Feed Pump trips

Which ONE of the following describes the automatic action that occurs directly due to the Steam Generator Feed Pump trip?

A. Isolates Steam Generator Blowdown

B. A runback reduces load until Rx power is less than 45% on NIS power ranges.

C.✓ A runback reduces load until 1st stage pressure is less than 45% turbine load.

D. Starts Auxiliary Feedwater Pump A

REF: LP-6900122, Terminal objective 1, enabling objectives 3, 5, 6
TP ONOP-089
TP System Description -112
TP exam bank Question #: 1.1.24.22.6.33,M
Distractor analysis:

Answer A is incorrect because SGFP trip is not one of the Feedwater isolation initiators.

Answer B is incorrect because Rx power as seen by the NIS power ranges is not an input to the runback circuit.

Answer C is correct because the setpoint is 45% as sensed by main turbine 1st stage impulse pressure.

Answer D is incorrect because the controller Man/Auto circuit has no input from the SGFP's.

Notes:
Changed answers A and D to be more plausible. A and D would occur if 3A feedpump were the LAST feedpump running. However, the stem starts the transient at 100% power which requires both feedpumps to be operating. The trip of just one feedpump will not auto start AFW nor isolated S/G blowdown. (In response to Chief Examiners comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A C B B A D C A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | RUNBACK | Cog lvl & (Imp): | M (2.7/2.9) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | RLM |

68. 059A4.08 001/T2G1/T2G1/FEEDWATER/C/A (3.0/2.9)/N/TP02301/R/RLM

-Unit 3 is starting up per procedure 3-GOP-301, HOT STANDBY TO POWER OPERATION.

-3A Condensate Pump is running
-3A Steam Generator Feed Pump is running
-Switchover from the Feedwater Bypass valves to the Main Feedwater Control valves is in progress.
-Demand is increased on FCV-3-478, main feedwater flow control valve.
-Feed flow to the 3A Steam Generator does NOT increase.

Which ONE of the following describes the cause?

A. The Condensate recirc valve has failed open.

B. The Feedwater Isolatio signal has not been reset.

C. 3A Steam Generator Feed Pump recirc valves opened.

D.✓ FCV-3-478, 3A Feedwater Control valve, diaphragm has failed.

Ref: TP LP-6902122, Enabling Objective #6, and Terminal Objective #1
TP System Decription 112, pp. 20
TP Startup Procedure 3-GOP-301, step 5.71.2

Distractor analysis:

A is incorrect because the condensate recirc valve fails closed

B is incorrect because if the Feedwater isolation signal had not been reset, the bypass valve would not have been able to be opened and a SGFP could not be running.

C is incorrect because the stem states that the flow remains constant. A drop in feed pressure would cause flow to decrease. (Same is true for A)

D is correct because the FRV fails closed on a diaphragm failure but the controller demand will still increase per operator demand without any valve movement.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B A D D D D B D D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | FEEDWATER | Cog lvl & (Imp): | C/A (3.0/2.9) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | RLM |

69. 061AK1.01 001/T1G2/T1G2/AREA RAD MONITOR/C/A (2.5/2.9)/M/TP02301/C/SDR

Refueling operations are in progress on Unit 3 when the following occurs:

- Annunciator X-4/1, ARMS HI RADIATION, alarms
- Area Radiation Monitor, R-7, in the Spent Fuel Pit is the affected channel

Operators quickly entered ONOP-066, High Radiation Monitoring System Alarm, and determined that the high alarm is not valid and that R-7 has failed.

Which ONE of the following is correct regarding the Refueling operations in progress?

A.✓ Refueling operations shall be stopped immediately. Refueling operations can continue if a portable radiation monitor with an alarm is used in the Spent Fuel Pit.

B. Refueling operations are unaffected and may continue without restrictions.

C. Refueling operations shall be stopped until HP has completed surveys to ensure there is no source of high radiation in the Spent Fuel Pit area.

D. Refueling operations shall be stopped immediately. Refueling operations can not continue until R-7 has been repaired.

Question source: Modified from Turkey Point requal question bank 71021440301-ORQ; ORQ#066

Distractor Analysis:

A: Correct, Refueling operations should be stopped immediately when the annunciator alarms. The limitations of not having the detector available to provide alarms is to not allow refueling operations until a portable detector with an alarm can be provided (ONOP-066 and OP-038.1).

B: Incorrect, OP-038.1, Preparation for Refueling Activities, step 5.2.2.2 is not satisfied, therefore refueling operation can not continue.

C: Incorrect, HP is required to start performing surveys until the alarm is determined to be invalid, at which time they can terminate having to perform surveys. Us of HP instead of a detector or portable detector with an alarm is not recognized as acceptable per OP-038.1.

D: Incorrect, Refueling operations do not have to wait until R-7 is repaired.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A C B C C C A D C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | AREA RAD MONITOR | Cog lvl & (Imp): | C/A (2.5/2.9) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

70. 061K4.02 002/T2G1/T2G1/AFW/MFW RELATIONSHIP/C/A (4.5/4.6)/B/TP02301/R/SDR

Unit 4 has experienced a Loss of Offsite Power coincident with a Loss of Coolang Accncent (LOOP/LOCA) while operating at 100% power.

While the operators are [erfpr,omg 4-EOP-E-1. LOSS OF PRIMARY OR SECondary COOLANT, it is determined that the 'C' AFW pump must be shutdown.

The BOP observes that the AFW Autostart white indicating lights on 4QR50 and 4QR51 are both on.

Which ONE of the following conditions could be causing these lifhts to be lit?

A.✓ The red AMSAC Actuated light is lit.

B. Safety Injection is reset.

C. Both SGFP control switches have been green flagged.

D. The Startup Transformer is deenergized.

REFERENCE: 4-OP-075, Section 6.2

Distractor analysis:

A: Correct, if the red AMSAC light is lit, it implies an AFW start signal is still present and the AFW white light should be on.

B: Incorrect, Resetting SI is an input to the white lights that would contribute to their being out, not on.

C: Incorrect, green flagging the SGFP switches is an input to the white lights that would contribute to their being out, not on.

D: Incorrect, This would have previously been true on Unit 4 (and is currently true on Unit 3 today) but a recent PCM caused this signal to the white lights to drop out after two minutes.

Distractor C changed to one suggested by the Chief Examiner to make it more plausible. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A B C A A B A D A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | AFW/MFW RELATIONSHIP | Cog lvl & (Imp): | C/A (4.5/4.6) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

71. 061K6.01 001/T2G1/T2G1/AFW MALFUNCTION/M (2.5/2.8)/B/TP02301/C/SDR

The following plant conditions exist on Unit 3:

- 'A' AFW pump is running at low rpm and not delivering flow.
- A malfunction of the 'A' AFW pump turbine trip and throttle (T&T) valve is suspected.
- The 'A' AFW pump T&T valve indicates latched.

Which ONE of the following describes the actions to be taken in accordance with ONOP-075, "Auxiliary Feedwater System Malfunction"?

A. Shutdown the 'A' AFW pump by closing the steam supply MOV.

B. Locally verify the governor speed control knob is fully counter-clockwise.

C. Station an operator locally at the 'A' AFW pump to observe the T&T valve while cycling the valve using the control switch on the console.

D.✓ Locally adjust 'A' AFW pump speed by manually controlling the T&T valve to maintain discharge pressure 150 psig greater than steam supply pressure.

Question Source: Turkey Point exam bank Q#1.1.25.2.2.2,M
Enabling Objective EO#2&3 of Lesson Plan LP6902202

Distractor Analysis:

A: Incorrect, This is done for an AFW steam supply line fault.

B: Incorrect, The knob fully counter clockwise would cause low speed. The knob should be fully clockwise.

C: Incorrect, This is a reasonable trouble shooting approach but is not called for by ONOP-075.

D: Correct, ONOP-075 step 3.c RNO and Attachment 5.

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | |
| | | | | | Answer: | D | B | D | A | D | B | C | B | A | D | Scramble Range: A - D | | | | | |

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | AFW MALFUNCTION | Cog lvl & (Imp): | M (2.5/2.8) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

72. 062AA2.04 001/T1G1/T1G1/ICW/CCW/C/A (2.5/2.9)/N/TP02301/S/SDR

Unit 3 is at 100% power with the '3C' ICW Pump out of service.

A massive grass influx has resulted in causing ICW/CCW and ICW/TPCW basket strainer clogging.

The RCO reports:

- Component Cooling Water Supply Header temperature is currectly 116 °F and increasing slowly.
- Turbine Plant Cooling Water Supply Header temperature is currectly 105°F and increasing slowly.

Which ONE of the following describes the correct operator response?

A. Trip the reactor and Turbine.

B.✓ Reduce turbine load as necessary to maintain temperatures within normal bands.

C. Maintain turbine load and attempt to reduce CCW heat load and backwash the ICW/CCW basket strainer.

D. Shutdown the unit per Technical Specification 3.0.3.

REFERENCE: 3-ONOP-019, Step 10 and 11, FO Page Item 1
Enabling Objectives: EO#2 and EO#5 of Lesson Plan LP6902154

Distractor Analysis:

A: Incorrect, Trip criteria for ICW malfunction, ONOP-019, is CCW cannot be maintained less than 120 °F.

B: Correct, Correct action because most urgent temperature problem is with the TPCW.

C: Incorrect, Turbine load must be reduced.

D: Incorrect, Correct if total flow of ICW drops below minimum flow rate which is not specified in this question.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A A D B D D A D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | ICW/CCW | Cog lvl & (Imp): | C/A (2.5/2.9) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

73. 062K2.01 001/T2G2/T2G2/AC POWER/C/A (3.3/3.4)/N/TP02301/C/RLM

Unit 3 is at 100% power when the main output breaker (CB6) of the 3D Inverter trips open.

Which ONE of the following identifies the effect on the Unit 3 Reactor Protection System channels?

A. Channel 1 (Red Channel) is deenergized.

B. Channel 2 (White Channel) is deenergized.

C. Channel 3 (Blue Channel) is deenergized.

D. Channel 4 (yellow Channel) is deenergized.

Ref: POD 5610-T-E-1592

Distractor Analysis:

Answer A: Incorrect because 3D Inverter powers 3P09 which in turn powers Channel 4 of the Reactor Protection System.

Answer B: Incorrect because 3D Inverter powers 3P09 which in turn powers Channel 4 of the Reactor Protection System.

Answer C: Incorrect because 3D Inverter powers 3P09 which in turn powers Channel 4 of the Reactor Protection System.

Answer D: Correct because 3D Inverter powers 3P09 which in turn powers Channel 4 of the Reactor Protection System.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D C D A B A C D B C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | AC POWER | Cog lvl & (Imp): | C/A (3.3/3.4) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

74. 063K2.01 001/T2G2/T2G1/CONTROL PWR ABT/M (2.9/3.1)/N/TP02301/C/RLM

Unit 4 has lost the 4B DC bus (4D01).

Which ONE of the following statements correctly describes the control power source for 3D 4160V switchgear?

A. None, control power is lost.

B.✓ 4A DC bus (4D23)

C. 3A DC bus (3D01)

D. 3B DC bus (2D23)

REF: System description 144, Fig. 1
TP lesson plan 6902139, enabling objective 5

Distractor analysis:

Note: Per System Description 144, fig 1 attached, 3D AC bus has an ABT (3S75) supplied by either 4A or 4B DC busses.

Answer A is incorrect because the ABT will shift to supply control power to 3D 4160V if EITHER 4A or 4B DC busses are available.

Answer B is correct because the ABT will be aligned to 4A DC bus

Answer C and D are incorrect because niether are connected to the ABT.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A A C A A A B B C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G1 |
| Keyword: | CONTROL PWR ABT | Cog lvl & (Imp): | M (2.9/3.1) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

75. 064K2.02 001/T2G2/T2G2/EDG/M (2.8/3.1)/N/TP02301/C/RLM

Which ONE of the following is the correct power supply for the 3B EDG Fuel Oil Priming Pump and the Fuel Oil Transfer Pump, respectively?

A. 3D01, MCC 3H

B.✓ 3D23, MCC 3K

C. 3D01, MCC 3J

D. 3D23, MCC 3B

Ref: TP Lesson Plan 6902136, Enabling Objective #4
TP System Description 137, pp. 71

Distractor analysis:

Answer B is correct based on load list from system description.
All other answers are combinations of other power supplies.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D C D A C B B D B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | EDG | Cog lvl & (Imp): | M (2.8/3.1) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

76. 067AK1.01 001/T1G1/T1G1/FIRE/M (2.9/3.9)/M/TP02301/C/GWL

A report has been received in the control room of a fire in the 3A MCC.

Which ONE of the following describes the classification that will be reported over the plant page system, and the preferred supression agents that would be used in combating the fire?

A. Class B; First $CO_2$, then portable Halon.

B. Class C; First Water, then Dry Chemical.

C.✓ Class C; First $CO_2$, then portable Halon.

D. Class B; First Water, then Dry Chemical.

Modified from bank question # 3.4.1.2.7.4.M
No specific learning objective found.

Reference: 0-ONOP-016.10, Enclosure 5, Section 1.8.1

A. Incorrect, this is the correct classification.

B. Incorrect, this is the correct classification but wrong extinguishing agents.

C. Correct, this is the correct classification and extinguishing agent.

D. Incorrect, this is the wrong classification and extinguishing agents.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B B B D B D C A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | FIRE | Cog lvl & (Imp): | M (2.9/3.9) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

77. 068A2.02 001/T2G1/T2G1/LIQUID RAD DISCH/C/A (2.7/2.8)/N/TP02301/R/SDR

A liquid release is in progress. You have just been notified by the chemist that the Waste Monitor tank that is being pumped was not recirculated prior to sampling for the release.

Which ONE of the following discribes the actions that should be taken?

A. Increase monitoring of PRMS channel R-18 for any unexpected increase and direct chemistry to take periodic samples.

B. Direct chemistry to sample the release and adjust the alarm setting on PRMS channel R-18 if required.

C. Increase Circulating water flow by starting an additional Circ Water Pump and direct chemistry to take periodic samples.

D.✓ Stop the liquid release in progress and direct chemistry to take required samples.

Distractor analysis:

A: Incorrect, R-18 is normally continuously monitored during the release. The discharge should not continue with the posibility of R-18 alarm setpoint in error.

B: Incorrect, Discharge should be stopped. A new representative sample will need to be optained and the R-18 alarm setpoint adjusted if discharge is to be restarted.

C: Incorrect, Increasing Circ water flow will increase the dilution associated with the discharge.

D: Correct, Discharge should be stopped per ONOP-067 and samples taked to verify that the limits of 10CFR20 have not been exceeded.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | C | A | A | D | C | C | A | B | D |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | LIQUID RAD DISCH | Cog lvl & (Imp): | C/A (2.7/2.8) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

78. 068A3.02 001/T2G1/T2G1/LIQUID RAD DISCH/M (3.6/3.6)/N/TP02301/C/SDR

- S/G Blowdown is in service on Unit 3 with discharge to the cooling canals.
- Blowdown radiation monitor R-19 alarms.

Which ONE of the following describes a response of the R-19 alarm on the blowdown system?

A. Blowdown Isolation valves CV-6275A, CV-6275B, and CV-6275C automatically close and Blowdown Sample valves SV-3-2800, SV-3-2801, and SV-3-2802 automatically close.

B. Blowdown to the Canal valve, LCV-6265B automatically closes and Blowdown to the Condenser valve, LCV-6265A automatically opens.

C. Blowdown Isolation valves CV-6275A, CV-6275B, and CV-6275C automatically close and Blowdown to the Canal valve, LCV-6265B automatically closes.

D.✓ Blowdown to the Canal valve, LCV-6265B automatically closes and Blowdown Sample valves SV-3-2800, SV-3-2801, and SV-3-2802 automatically close.

REFERENCE: 3-ONOP-071.2, FO Page Item #4. SD-102, Figure 1.

Distractor Analysis:
A: Incorrect, valves CV-6275A, CV-6275B, and CV-6275C do not automatically close on R-19 alarm.

B: Incorrect, Blowdown to the Canal valve, LCV-6265B automatically closes and Blowdown to the Condenser valve, but LCV-6265A does not automatically open.

C: Incorrect, Blowdown Isolation Valves CV-6275A, CV-6275B, and CV-6275C do not automatically close.

D: Correct, Blowdown to the Canal valve, LCV-6265B automatically closes and Blowdown Sample valves SV-3-2800, SV-3-2801, and SV-3-2802 automatically close.

REFERENCE: 5614-M-3061, Sheets 1 & 2
5614-E-25, Sheet 25D

5610-E-25, Sheet 76

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | D A B C D A B C D A | Scramble Range: A - D |

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | LIQUID RAD DISCH | Cog lvl & (Imp): | M (3.6/3.6) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

79. 068AA1.31 001/T1G1/T1G1/CONTROL ROOM EVAC/M (3.9/4.0)/N/TP02301/C/SDR

A bomb threat has caused the NPS to direct a Control Room evacuation with both Units initially at 100% power. A Loss of Off-Site Power (LOOP) occurred as the Control Room was being evacuated.

Which ONE of the following describes the required operator response concerning the operation of the Emergency Diesel Generators (EDGs)?

A. The '3A' and '4A' EDGs are shutdown and the '3B' and '4B' EDGs are maintained in remote control.

B.✓ The '3A' and '4A' EDGs are shutdown and the '3B' and '4B' EDGs are placed in local control.

C. The '3B' and '4B' EDGs are shutdown and the '3A' and '4A' EDGs are placed in local control.

D. The '3B' and '4B' EDGs are shutdown and the '3A' and '4A' EDGs are maintained in remote control.

Enabling Objective EO4 of Lesson Plan LP6902252

Distractor Analysis:

A: Incorrect, 'B' EDGs are placed in local control per ONOP-105 Attachment #2 step 10 and Attachment #6 step 16.

B: Correct, The 'A' EDGs are shutdown per ONOP-105 Attachment #2 step 7 and Attachment #6 step 13. The 'B' EDGs are placed in local control per ONOP-105 Attachment #2 step 10 and Attachment #6 step 16.

C: Incorrect, The 'A' EDGs are shutdown and the 'B' EDGs are placed in local control.

D: Incorrect, The 'A' EDGs are shutdown and the 'B' EDGs are placed in local control.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A C A B C B D C B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | CONTROL ROOM EVAC | Cog lvl & (Imp): | M (3.9/4.0) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

80. 069AK2.03 001/T1G1/T1G1/CONTAINMENT INTEGRIT/C/A (2.8/2.9)/B/TP02301/C/SDR

The following conditions exist on Unit 3 while in Mode 3:

- A Containment entry is made.
- On the way out it is determined that both of the Containment Personnel Access Airlock doors can be opened at the same time.
- The Inside door is latched closed with NO apparent leakage past the door seal.
- The Outside door can NOT be latched closed and is able to swing freely.

Which ONE of the following statements is correct concerning the Containment Personnel Access Airlock doors?

(Reference provided)

A.✓ Consider the Outside door inoperable and apply Technical Specification Action 3.6.1.3.a.

B. Consider the air lock inoperable and apply Technical Specification Action 3.0.3.

C. Consider the air lock inoperable and apply Technical Specification Action 3.6.1.3.b.

D. Consider primary Containment Integrity inoperable and apply Technical Specification Action 3.6.1.1.

Question source: Turkey Point requal question bank 69027890401-ORQ; ORQ#683 (Reference provided) - TS 3.6.1.3 and TSPS 95-002)

Distractor analysis:
A: Correct, Outside door is inoperable and TS 3.6.1.3.a applies since only one containment air lock door is inoperable.

B: Incorrect, Applicant must determine the air lock is not inoperable, even with the air lock inoperable TS 3.0.3 would not be applicable.

C: Incorrect, Applicant must determine the air lock is not inoperable per TS 3.6.1.3 since the deficiency is a result of an air lock door being inoperable.

D: Incorrect, Applicant must realize that this does not make the Containment Integrity inoperable.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B C C A A D A C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | CONTAINMENT INTEGRIT | Cog lvl & (Imp): | C/A (2.8/2.9) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

81. 071G2.4.10 (R) 002/T2G1/T2G1/WASTE GAS RELEASE/C/A (3.0/3.1)/N/TP02301/R/GWL

-A Waste gas release is in progress on Unit 3.
-Annunciator H1/4 "PRMS HI RADIATION" alarms.
-R-14 alarm light is lit, and indication is continuing to trend up.

The SNPO reports that the lights for RCV-14 are as follows:

-Red light illluminated.
-Green light illuminated.
-White light illuminated.

Which one of the following describes the correct position and correct action to be taken?

A. RCV-14 is fully open, locally close the waste gas decay tank outlet valve.

B. RCV-14 is fully closed, check waste gas decay tank release flow rate at zero.

C. RCV-14 is still in its last demanded postion, close the waste gas decay tank outlet valve.

D. RCV-14 has had a trip signal and appears stuck, locally close RCV -14 isolation.

LP 6902168 Radiation Monitoring and Protection. Enabling Objective # 5.

A. Incorrect. RCV is intermediate, and the local RCV-14 isolation should be closed.

B. Incorrect. RCV 14 is not closed, and the local RCV-14 isolation should be closed.

C. Incorrect. RCV 14's last demanded postion was closed (from HI Alarm), and the local RCV-14 isolation should be closed.

D. Correct, RCV has had a closed signal, and appears to be open, and the local isolation should be closed.

Changed the wording of distractor D from 'closed signal' to 'trip signal'. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D D C D C C C D D D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | WASTE GAS RELEASE | Cog lvl & (Imp): | C/A (3.0/3.1) |
| Source: | N | Exam: | TP02301 |
| Test: | R | Misc: | GWL |

82. 071G2.4.44 (S) 001/T2G1/T2G1/GAS RELEASE/M (3.0/3.1)/B/TP02301/S/SDR

You are the NPS and the following sequence of events has occurred:

-At 0200 an unathorized release from the in-service Waste Gas Decay Tank occurred.
-At 0210 you, as the Emergency Coordinator (EC), requested the on-shift Chemistry Technician to perform an off-site dose calculation.
-At 0255 the Chemistry Technician reports that he has completed the off-site dose calculation and is waiting for the Chemistry Supervisor to arrive to verify the data since he believes a limit may have been exceeded.

Which ONE of the following describes the correct action you should take concerning the Protective Action Recommendations (PARs) for this event?

A.✓ Make the PARs using the chemistry technician's values without waiting for the verification.

B. Make the PARs after the Chemistry Supervisor completes the data verification.

C. Make the PARs using the default values.

D. Do not make the PARs at this time.

Question Source: Turkey Point requal exam bank 32020040301-ORQ; ORQ# 541

A: Correct, IAW EPIP-20126 the EC should be given the dose calculations as soon as they are available without waiting for the Chemistry Supervisor verification. The EC must use the most recent data to make the necessary PARs.

B: Incorrect, Waiting for the Chemistry Supervisor review has the potential to result unnecessary exposure to the general public and therefore would not be correct.

C: Incorrect, Default values are used when data is not available.

D: Incorrect, Unnecessary delay of the PARs could result in unnecessary exposure to the general public and therefore would not be correct.
Question replace SRO only question 071G2.4.10 (S). Original question written for 071G2.4.10 (S) did not match the K/A and was not at the SRO only level. It was decided that K/A 071G2.4.10 was not conducive to writting an SRO only question therefore, the K/A was randomly changed to 071G2.4.44. (Chief Examiner comment)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | A B C D A B C D A B | Scramble Range: A - D |

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | GAS RELEASE | Cog lvl & (Imp): | M (3.0/3.1) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

83. 071K4.05 001/T2G1/T2G1/WASTE GAS/C/A (2.7/3.0)/M/TP02301/R/SDR

A waste gas release is in progress.

Which ONE of the following will result in shutting of the waste gas release flow control valve, RCV-014?

A.✓ Trip of both Auxiliary Building Exhaust fans.

B. Trip of both Auxiliary Building Supply fans.

C. A high alarm occurs on the Plant Vent SPRING monitor.

D. A high alarm occurs on Containment process radiation monitor R-11 or R-12.

Question Source: Turkey Point question bank Q#1.1.24.50.6.8,M
Enabling Objective: EO#5 of Lesson plan LP6902155 and EO#6 of Lesson plan LP6902150

Distractor Analysis:

A: Correct, Loss of both auxiliary building exhaust fans will result in the shutting of RCV-014
B: Incorrect, RCV-014 is not affected by the status of Aux Building Supply fans.
C: Incorrect, R-14 plant vent monitor provides the auto trip of RCV-014.
D: Incorrect, R-14 plant vent monitor provides the auto trip of RCV-014.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C C B D D B B C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | WASTE GAS | Cog lvl & (Imp): | C/A (2.7/3.0) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

84. 072K3.01 001/T2G1/T2G1/CONTAINMENT VENT/C/A (3.2/3.4)/B/TP02301/C/SDR

Unit 4 operators are performing Core Alterations.

The following events occur:

- PRMS R-4-11 fails high.
- Core Alterations have been temporarily suspended.

Which ONE of the following describes the prerequisites to resume Core Alterations?

Fuel movement may be resumed only after:

A.✓ The control room ventilation system is in the recirculation mode and the containment ventilation isolation valves are maintained closed.

B. The control room ventilation system is in the recirculation mode and the containment ventilation isolation valves are reopened.

C. The control room ventilation system is in the normal mode and the containment ventilation isolation valves are reopened.

D. The control room ventilation system is in the normal mode and the containment ventilation isolation valves are maintained closed.

Question source: Turkey Point requal test bank 70021440101-ORQ; ORQ#864

Distractor analysis:

A: Correct, Required per Attachment 4 of OP-038.1, Preparation for Refueling Activities, and TS 3.9.13 (ACTION a and b) with one radiation monitor inoperable.

B: Incorrect, Containment isolation valves are required to be closed (TS 3.9.13 ACTION a and Attachment 4 of OP-038.1).

C: Incorrect, Control room ventilation must be operating in recirc mode (TS 3.9.13 ACTION b) and containment isolation valves are required to be closed (TS 3.9.13 ACTION a and Attachment 4 of OP-038.1)

D: Incorrect, Control room ventilation must be operating in recirc mode (TS 3.9.13 ACTION b)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | A | B | B | D | D | A | D | C C A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G1 | SRO Tier: | T2G1 |
| Keyword: | CONTAINMENT VENT | Cog lvl & (Imp): | C/A (3.2/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

85. 073K1.01 001/T2G2/T2G2/CCW HI RADIATION/C/A (3.6/3.9)/M/TP02301/C/SDR

Unit 4 is at 100% steady state reactor power when the following occurs:

- Annunciator H-1/4, PRMS HI RADIATION, alarms.
- Annunciator A-1/2, RCP THERMAL BARR COOLING WATER HI TEMP, alarms.

Operators have verified count rate meters on PRMS R-17A and R-17B have increased above the alarm setpoint and proper seal injection flow exists. Component Cooling Water (CCW) flow indicator from the RCP Thermal barriers FI-4-626 has increased to 125 gpm. CCW head tank level indicator LI-4-614A indicates 78%.

Which ONE of the following describes the current position of the CCW Head Tank Vent Valve, RCV-4-609 and RCP Thermal Barrier Outlet Valve, MOV-4-626?

A. RCV-4-609 is closed and MOV-4-626 is closed.

B.✓ RCV-4-609 is closed and MOV-4-626 is open.

C. RCV-4-609 is open and MOV-4-626 is open.

D. RCV-4-609 his open and MOV-4-626 is closed.

Question source: Turkey Point question bank Q# 1.1.24.40.5.14
Enabling Objectives EO#5 and EO#6 of Radiation Monitoring and Protection Lesson Plan LP6900168

Distractor Analysis:
A: Incorrect, RCV-609 will auto close on an H-1/4, PRMS HI RADIATION, R-17A/B alarm; MOV-626 will not auto close on an A-1/2,RCP THERMAL BARR COOLING WATER HI TEMP, alarm, it will auto close on an A-1/1 RCP THERMAL BARR COOLING WATER HI FLOW, alarm.

B: Correct, RCV-609 will auto close on an H-1/4, PRMS HI RADIATION, R-17A/B alarm; MOV-626 will remain open until auto closing on an A-1/1 RCP THERMAL BARR COOLING WATER HI FLOW.

C: Incorrect, RCV-609 will auto close on an H-1/4, PRMS HI RADIATION, R-17A/B alarm it also auto closes on a CCW head tank level above 85%; MOV-626 will not auto close on an A-1/2,RCP THERMAL BARR COOLING WATER HI TEMP, alarm.

D: Incorrect, RCV-609 will auto close on an H-1/4, PRMS HI RADIATION, R-17A/B alarm it also auto closes on a CCW head tank level above 85%; MOV-626 will auto close on an A-1/1 RCP THERMAL BARR COOLING WATER HI FLOW, alarm.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D C D B D B D A D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | CCW HI RADIATION | Cog lvl & (Imp): | C/A (3.6/3.9) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

86. 074EK2.03 001/T1G1/T1G1/CORE COOLING/C/A (4.0/4.0)/M/TP02301/C/GWL

-3-EOP-FR-C.1 "RESPONE TO INADEQUATE CORE COOLING" has been entered due to CET's greater than 1200 °F.

-Safety injection flow is NOT in progress, and was unable to be established by any means.
-Condensate Storage Tank levels indicate 9%.
-Steam Generator narrow range levels are A=13%; B=11%; C=5%
-Total AFW flow is 370 gpm.
-Containment Pressure is 10 psig.
-All Steam Generators are intact.
-5th (fifth) hottest core thermocouple is 1205 °F.

Which ONE of the following describes what action should be taken next and why?

A. Start bearing oil lift pumps and start all RCP's to start reflux cooling.

B. Transition to SACRG-1 Severe Accident Control Room Guidline-1, core damage has already occured.

C.✓ Align makeup water to the CST; this will prevent AFW pumps from loosing a suction source.

D. Secondary heat sink is adequate; Transition to procedure and step in effect.

Modified from a Farley Bank Question.
LP-6902347 Enabling objective # 3.

A. Incorrect, FR-C.1 does direct the starting of RCPs but only one at a time, and much later in the procedure.

B. Incorrect, The Transistion to SACRG-1 will be much later in the procedure. Core damage may or may not have occured.

C. Correct, In order to maintain a heat sink the source of water to the AFW pumps must be maintained.

D. Incorrect, while secondary heat sink may be adequate at this point, CET's must be less than 1200 degrees F to go to procedure and step in effect.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | C A A D A D D A A A | Scramble Range: A - D |
| RO Tier: | | T1G1 | | | SRO Tier: | T1G1 | |
| Keyword: | | CORE COOLING | | | Cog lvl & (Imp): | C/A (4.0/4.0) | |
| Source: | | M | | | Exam: | TP02301 | |
| Test: | | C | | | Misc: | GWL | |

87. 075A2.01 001/T2G2/T2G2/CIRC WATER INTAKE/C/A (3.0/3.2)/B/TP02301/C/SDR

The following conditions exist on Unit 3 with the Unit at 80% power:

- 3A1 Intake Well has a 1.6 foot water fall that is slowly increasing.
- 3A2 Intake Well has a 2.1 foot water fall that is slowly increasing.
- 3B1 Intake Well has a 2.6 foot water fall that is slowly increasing.
- 3B2 Intake Well has a 3.1 foot water fall that is slowly increasing.

Assuming the trends continue, which ONE of the following describes the correct operator actions?

A.✓ Trip the reactor and enter E-0, Reactor Trip or Safety Injection. Stop the 3B2 and 3B1 CWPs.

B. Ramp power down to ≤ 60% using ONOP-100, Fast Load Reduction. Stop the 3B2 and 3B1 CWPs.

C. Immediately stop the 3B2 and the 3B1 CWPs. Ramp power down to ≤ 60% using ONOP-100, FAST LOAD REDUCTION.

D. Immediately stop the 3B2 CWP. Ramp power to ≤ 60% using ONOP-100, FAST LOAD REDUCTION then stop the 3B1 CWP.

Question source: Turkey Point requal question bank 71021520301-ORQ; ORQ#610

Distractor analysis:

A: Correct, Applicant must realize that loss of the Circ Water Intake is inevitable applying ONOP-011 fold out page item #3 directing the reactor tripped if unable to maintain 2 CWPs running while < 60% or 3 CWPs running while > 60%. If the trends continue, as stated in the stem, at least 3 CWPs will have to be stopped per ONOP-011 fold out page item #1 since the Intake Well waterfall will be greater than 2.5 feet.

B: Incorrect, CWPs should be immediately stopped when a waterfall of >2.5 feet is present and not wait until after the load reduction.

C: Incorrect, Correct if able to maintain at least 2 CWPs running, from the stem the loss of at least 3 CWPs is inevitable. This could only be consider as a temporary fix to the situation presented.

D: Incorrect, Correct if conditions at the Intake was stable at the presented waterfall values.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A D A A B C C C D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | CIRC WATER INTAKE | Cog lvl & (Imp): | C/A (3.0/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

88. 076AA2.01 001/T1G1/T1G1/RCS ACTIVITY/M (2.7/3.2)/N/TP02301/C/SDR

Unit 3 is at 100% reactor power. Letdown flow is currently 105 gpm with a 45 gpm and a 60 gpm letdown orifice in service.

Which ONE of the following describes the first required actions for a high radiation alarm on PRMS channel R-20, Reactor Coolant Letdown Monitor?

A. Increase RCS cleanup flow to 120 gpm by adjusting letdown orifices and charging pumps.

B. Decrease letdown flow to 60 gpm and monitor PRMS channel R-20 response.

C.✓ Request a radiochemical analysis of the RCS for fission product concentration and gross activity and request a survey of the letdown line.

D. Reduce power as required to maintain less than 90% of the allowable Technical Specifications 3.4.8 limit of 100/E-BAR.

Distractor analysis:

A: Incorrect, This is performed if the high RCS activity is confirmed from an RCS sample.

B: Incorrect, Note in ONOP-041.1 states that letdown flows above 60 gpm can result in alarms.

C: Correct, The applicant must know that the R-20 alarm does not in itself confirm the high RCS activity due to the detector location and features, a sample must be taken to confirm high RCS activity. ONOP-041.4, step 5.1.

D: Incorrect, This is performed if the high RCS activity is confirmed from an RCS sample.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B B C B B C B C A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | RCS ACTIVITY | Cog lvl & (Imp): | M (2.7/3.2) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

89. 076K3.01 001/T2G3/T2G3/ICW/TPCW/C/A (3.4/3.6)/B/TP02301/R/SDR

The following conditions exist on Unit 3 at 100% power.

- The '3A' ICW pump is out of service.
- The '3B' and '3C' ICW pumps are running.
- The calculated minimum ICW flow through CCW heat exchangers (HX) is 11,000 gpm.

The following events occur:

- The '3B' ICW pump trips due to a bearing failure.
- The following flow exists after the '3B' ICW pump trips:
  - ICW flow through the CCW HXs: 11,200 gpm
  - ICW flow through the TPCW HXs: 8,100 gpm
- TPCW temperatures are 96 $^{o}$F.

Which ONE of the following describes the correct operator response?

A. Throttle CCW HX Outlet Spool Piece Bypass valve, 3-50-406, to reduce total ICW flow. Notify the IST coordinator to perform vibration monitoring of the '3C' ICW pump.

B.✓ Throttle TPCW HX Outlet Combined ICW Isolation valve, 3-50-401, to reduce total ICW flow. Notify the IST coordinator to perform vibration monitoring of the '3C' ICW pump.

C. Reduce load using 3-GOP-103, "Power Operation to Hot Standby." Throttle CCW HX Outlet Spool Piece Bypass valve, 3-50-406, to reduce total ICW flow.

D. Reduce load using 3-GOP-103, "Power Operation to Hot Standby." Throttle TPCW HX Outlet Combined ICW Isolation valve, 3-50-401, to reduce total ICW flow.

Question Source: Turkey Point requal Q#71021540402-ORQ ORQ#152
Enabling Objective: EO# 2,3,4 of Lesson Plan LP7102154

Distractor Analysis:
A: Incorrect, Calculated minimum ICW flow through the CCW HX is 11,000 gpm adjusting 3-50-406 alone will not result in total ICW flow less than 19,000 gpm.
B: Correct, Total ICW flow is 19,300 gpm, ONOP-019, step 4 RNO, states that with only one ICW pump flow must be less than 19,000 gpm. TPCW ICW flow is adjusted using 3-50-401 to bring total flow below 19,000 gpm and then the IST must monitor for vibration on the operating ICW pump, OP-019 step 4.20.
C: Incorrect, Load is reduced if ICW flow can not be reduced less than 19,000 gpm, it is not done in conjuction with or prior to attempting to adjust flow.
D: Incorrect, Load is reduced if ICW flow can not be reduced less than 19,000 gpm, it is not done in conjuction with or prior to attempting to adjust flow.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B C C D A A C C D C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | ICW/TPCW | Cog lvl & (Imp): | C/A (3.4/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

90. 076K3.05 001/T2G3/T2G3/ICW POWER SUPPLY/C/A (3.0/3.2)/B/TP02301/C/SDR

Unit 4 is in Mode 5 and all loops are filled. The following equipment is out of service:

- RHR loop 'A'
- '4C' ICW pump
- '4C' CCW pump

Which ONE of the following will result in inoperability of the operating RHR loop?

Failure of the:

A. '4A' EDG.

B. '4D' 4Kv bus.

C. '4A' CCW pump.

D.✓ '4B' ICW pump.

Distractor Analysis:
A: Incorrect, 4A EDG does not power the required RHR loop.

B: Incorrect, 4D Kv bus powers the C ICW pump which is not required.

C: Incorrect, 4A CCW pump is not the required pump for being powered from the 4B 4Kv bus

D: Correct, OP-050 step 4.5 has requirements for RHR in Mode 5. Loss of the 4B ICW pump will result in a loss one of the required RHR loops related support equipment that is powered from the same electrical source (4Kv bus) and an operable EDG.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C D D B A A B A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | ICW POWER SUPPLY | Cog lvl & (Imp): | C/A (3.0/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

91. 078A4.01 001/T2G3/T2G3/STARTING SETPOINTS/C/A (3.1/3.1)/N/TP02301/C/RLM

Unit 3 is operating at 100% power

Annunciator I-6/2, Instr Air Compressor Trouble, alarms.

Note: Assume air demand remains constant and the Instrument Air header is intact.

The control room operator notes that PI-3-1444, Unit 3 Instrument Air Pressure Indicator is slowly decreasing and begins to increase at approximately 95 psig and continues to increase to 110 psig.

Which ONE of the following describes the current status of the Instrument Air Compressors?

A.✓ The ELECTRIC LEAD compressor has tripped.
The ELECTRIC LAG compressor failed to load.
The DIESEL LAG compressor is supplying instrument air.
The DIESEL STANDBY compressor is in standby.

B. The ELECTRIC LEAD compressor is running.
The ELECTRIC LAG compressor is running.
The DIESEL LAG compressor is not running.
The DIESEL STANDBY compressor is in standby.

C. The ELECTRIC LEAD compressor has tripped.
The ELECTRIC LAG compressor is running and supplying instrument air.
The DIESEL LAG compressor is not running.
The DIESEL STANDBY compressor is in standby.

D. The ELECTRIC LEAD compressor is running.
The ELECTRIC LAG compressor failed to load.
The DIESEL LAG compressor failed to start.
The DIESEL STANDBY compressor is running.

Enabling Objective #2, #6 and Terminal Objective #1 from Instrument Air System Lesson Package 6900145 (SD-155).
Ref:
Turkey Point
Instrument Air control bands lesson package 6910145, page 13
Instrument Air ARP I 6/2 Instr air compressor trouble

Distractor analysis:

A: Correct, the alarm is actuated by compressor trip, not actual instrument air pressure value. Air pressure can decrease below 99+/- 2.5 psig only if electric lead trips and electric lag fails to load. In this case, diesel lead starts at 96+/- 2.5 psig and begins cycling between 104 and 110 psig.

B: Incorrect because no compressors are tripped and therefore the alarm would not annuciate.

C: Incorrect because air pressure should not drop below 99 psig with the lag compressor loading and should not go above the lag compressor unload point of 105 +/- 2.5 psig

D: Incorrect because no compressor has tripped and air pressure did not get low enough to start the diesel lag compressor.

Setpoints (+/- 2.5 psig)
Electric lead load/unload 104-110 psig
Electric lag load/unload 99-105 psig
Diesel lag start 96 psig load/unload 104-110 psig
Diesel stby start 90 psig load/unload 104-110 psig

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A D A D A B B C A C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G3 |
| Keyword: | STARTING SETPOINTS | Cog lvl & (Imp): | C/A (3.1/3.1) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | RLM |

92. 086A4.06 001/T2G2/T2G2/FIRE HALON/M (3.2/3.2)/B/TP02301/R/SDR

Operators are responding to a fire in the Cable Spreading Room (Fire Zone 98). The main Halon tanks automatically discharged and the fire is still not under control.

The fire team leader desires to reinitiate Halon to the area.

Which ONE of the following describes how Halon will be reinitiated?

A. Depress the Halon discharge push button located on local panel C286.

B. Depress the Halon discharge push button located on Control Room panel C39A.

C.✓ Place the MAIN/RESERVE switch located on local panel C286 in the RESERVE position.

D. Place the MAIN/RESERVE switch located on Control Room panel C39A in the RESERVE position.

Question source: Turkey Point question bank Q# 71021430402-ORQ ORQ# 705

Disteactor Analysis:

A: Incorrect, Halon has already discharged.

B: Incorrect, Halon has already discharged and this is the incorrect panel.

C: Correct, Step 5.1.6.1 of ONOP-016.8, RESPONSE TO A FIRE/SMOKE DETECTION SYSTEM ALARM.

D: Incorrect, This is the incorrect panel.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D B C D C C C D B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G2 | SRO Tier: | T2G2 |
| Keyword: | FIRE HALON | Cog lvl & (Imp): | M (3.2/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

93. 103A3.01 001/T2G3/T2G2/CONTAINMENT ISOLATIO/M (3.9/4.2)/B/TP02301/C/SDR

Which ONE of the following describes the actions an AUTOMATIC safety injection signal will have on the Unit 3 Containment systems?

A. Close all containment isolation Phase 'B' valves, stop the containment purge fans, and start the 'A' and 'C' ECCs.

B.✓ Close all containment isolation Phase 'A' valves, stop the containment purge fans, and start the 'A' and 'C' ECCs.

C. Close all containment isolation Phase 'A' valves, start the containment purge fans, and stop the 'A', 'B', and 'C' ECCs.

D. Close all containment isolation Phase 'B' valves, stop the containment purge fans, and start the 'A', 'B', and 'C' ECCs.

Question Source: Turkey Point exam bank Q#1.1.24.29.6.12,M
Enabling Objective: EO#6 of Lesson Plan LP6902129

Distractor Analysis:

A: Incorrect, Phase B does not actuate from an S signal.

B: Correct, SD-029, Containment Ventilation and Heat Removal Systems.

C: Incorrect, Containment purge fans stop and ECCs start.

D: Incorrect, Phase B does not actuate from an S signal and all three ECCs do not start only one per train.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | B | A | D | B | C | B | B | B D C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T2G3 | SRO Tier: | T2G2 |
| Keyword: | CONTAINMENT ISOLATIO | Cog lvl & (Imp): | M (3.9/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

94. G2.1.06 001/T3/T3/ADMIN ROLES/M (2.1/4.3)/M/TP02301/S/SDR

You are the Unit 3 Assitant Nuclear Plant Supervisor (ANPS).

An Unusual Event has just been declared on Unit 4 by the Nuclear Plant Supervisor (NPS).

Almost immediately thereafter the NPS becomes incapacitated due to a heart attack.

Which ONE of the following describes who must assume the duties of the Emergency Coordinator?

A. You must call the Nuclear Watch Engineer to assume the duties of the Emergency Coordinator.

B. The position will not be filled until a member of Plant Management Staff arrives to assume the duties of the Emergency Coordinator.

C. You must find a member of the plant staff with an active SRO license not presently on duty in the control room to assume the duties of the Emergency Coordinator.

D.✓ You must assume the duties of the Emergency Coordinator until a member of Plant Management Staff arrives to relieve you.

Question Source: Turkey Point Requal question bank Q#32020010307-ORQ;ORQ#283

Distractor Analysis:

A: Incorrect, ANPS is next in sequence per EPIP-20101, NWE takes the duty if ANPS is not available.

B: Incorrect, Position must be manned until relieved by a member of Plant Management Staff.

C: Incorrect, ANPS is next in sequence per EPIP-20101, any SRO takes the duty if ANPS or NWE is not available.

D: Correct, ANPS is next in sequence per EPIP-20101.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | B | D | C | C | D | B | D | C | C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | ADMIN ROLES | Cog lvl & (Imp): | M (2.1/4.3) |
| Source: | M | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

95. G2.1.09 002/T3/T3/CONTROL ROOM MANNING/M (2.5/4.0)/N/TP02301/S/SDR

You are the NPS on shift. Both units are at 100% steady state reactor power. Your presence has been requested at a meeting that will require you to be away from the Control Room for approximately 60 minutes.

Which ONE of the following describes your responsibilities in relation to the command and control function of Control Room personnel activities?

A. Must carry a portable radio or beeper, be no more that 10 minutes away, ensure that the STA is available to remain in the control room and announce this to the crew.

B. Must be no more that 10 minutes away and ensure that the fire brigade leader is available to remain in the control room and announce this to the crew.

C. Must be no more that 10 minutes away, designate the Communicator as being in charge and announce this to the crew.

D.✓ Must carry a portable radio or beeper, be no more that 10 minutes away, designate an ANPS as being in charge and announce this to the crew.

Enabling Objective EO#2 of Lesson Plan LP6902025

Distractor Analysis:
A: Incorrect, IAW ADM-200 the SRO left in charge can not be the STA.

B: Incorrect, IAW ADM-200 the SRO left in charge can not have fire brigade duties.

C: Incorrect, IAW ADM-200 the SRO left in charge can not be the Communicator.

D: Correct, IAW ADM-200 steps 3.3.25, 5.2.4, and 5.2.4.2.
Distractor C changed to prevent the posibility of also being argued as correct.
from:
'Must carry a portable radio or beeper, designate an ANPS as being in charge and announce this to the crew'
to:
'Must be no more that 10 minutes away, designate an ANPS as being in charge and announce this to the crew.'
(Chief Examiner comment)

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | |
| | | | | | Answer: | D | C | C | B | C | B | C | B | D | D | Scramble Range: A - D | | | | | | | |

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | CONTROL ROOM MANNING | Cog lvl & (Imp): | M (2.5/4.0) |
| Source: | N | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

96. G2.1.12 (R) 001/T3/T3/AFW TECH SPEC/M (2.9/4.0)/B/TP02301/R/SDR

Which ONE of the following describes the components which may be aligned to either AFW Train (in accordance with plant procedures and Technical Specifications) in order to maintain dual train redundancy?

A. MOV-1403, AFW Steam supply from 'A' S/G and 'B' AFW pump

B. MOV-1403, AFW Steam supply from 'A' S/G and 'C' AFW pump

C. MOV-1404, AFW Steam supply from 'B' S/G and 'B' AFW pump

D.✓ MOV-1404, AFW Steam supply from 'B' S/G and 'C' AFW pump

Question source: Turkey Point question bank Q#1.1.24.23.5.25,M
Enabling Objective: EO#1 of Lesson Plan LP6902527

Distractor Analysis:

A: Incorrect, MOV-1403 is a designated Train 2 valve; B AFW pump is a designated Train 2 pump.

B: Incorrect, MOV-1403 is a designated Train 2 valve.

C: Incorrect, B AFW pump is a designated Train 2 pump.

D: Correct, Per T.S. table 3.7-3 Auxiliary Feedwater System Operability, Notes 1 and 2

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | D | C | D | A | C | D | D | A | C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | AFW TECH SPEC | Cog lvl & (Imp): | M (2.9/4.0) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

97. G2.1.12 (S) 001/T3/T3/RCS LEAK/C/A (2.9/4.0)/B/TP02301/S/SDR

Unit 4 is in Mode 3 and Pressurizer pressure is 2235 psig.

Which ONE of the following conditions results in HHSI Loop B hot leg check valve, 4-874B, having acceptable leakage in accordance with Technical Specifications?

(Reference provided)

A. The current measured leakage is 5.5 gpm.

B. The previously measured leakage was 4.0 gpm and the currently measured leakage is 4.6 gpm.

C.✓ The previously measured leakage was 0.5 gpm and the currently measured leakage is 2.5 gpm.

D. The previously measured leakage was 3.0 gpm and the currently measured leakage is 4.4 gpm.

Question Source: Turkey Point test bank Q# 1.1.28.24.3.4,M
Provide Tech Spec 3.4.6.2 as a reference
Enabling Objective EO1 of Tech Spec lesson plan LP6902524

Distractor Analysis:
A: Incorrect, Leak rate is outside the acceptable 5.0 gpm limit per table 3.4-1 note 4 of TS 3.4.6.2.

B: Incorrect, Per table 3.4-1 note 3 of TS 3.4.6.2, leak rate change is too great. Leak rate must be less than 4.5 gpm to be acceptable (5.0-4.0=1.0; 1.0*0.5=0.5; 4.0+0.5=4.5).

C: Correct, Per table 3.4-1 note 2 of TS 3.4.6.2, leak rate change and final leak rate are acceptable. Leak rate must be less than 2.75 to be acceptable (5.0-0.5=4.5; 4.5*0.5=2.25; 0.5+2.25=2.75).

D: Incorrect, Per table 3.4-1 note 3 of TS 3.4.6.2, leak rate change is too great. Leak rate must be less than 4.0 gpm to be acceptable (5.0-3.0=2.0; 2.0*0.5=1.0; 3.0+1.0=4.0).

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A C A C A C A C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | RCS LEAK | Cog lvl & (Imp): | C/A (2.9/4.0) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

98. G2.1.22 002/T3/T3/MODE/C/A (2.8/3.3)/N/TP02301/C/SDR

Unit 4 operators are conducting a reactor startup.

Which ONE of the following describes when the operators will announce entry into Mode 2?

A. When operators begin withdrawing Control Bank "A".

B.✓ When control rod height is 1000 pcm below the predicted critical rod height.

C. When control rod height is at the predicted critical rod height.

D. When the NIS intermediate ranges equal $10^{-8}$ amps.

Enabling Objective: EO#1 of Lesson Plan LP6902518

Reference Technical Specification Definitions Table 1.2 and 0-OSP-040.4, Step 8.3.11.

Distractor Analysis:

A: Incorrect, per OSP-040.4. Mode 2 is entered when Keff is >0.99 which occurs when rod height is 1000 below critical rod height.

B: Correct, Mode 2 is entered when Keff is >0.99 which occurs when rod height is 1000 below critical rod height.

C: Incorrect, Mode 2 is entered when Keff is >0.99 which occurs when rod height is 1000 below critical rod height.

D: Incorrect, Mode 2 is entered when Keff is >0.99 which occurs when rod height is 1000 below critical rod height.
Added the words 'at least' to the stem prior to 'two (2)' since going from Mode 5 to Mode 6 also requies the head bolts to be detensioned. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D C A C A D A A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | MODE | Cog lvl & (Imp): | C/A (2.8/3.3) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

99. G2.1.29 001/T3/T3/VALVE LINEUP/M (3.4/3.4)/B/TP02301/C/SDR

The inside SNPO is performing 0-OSP-205, "Verification of Administratively Controlled Valves, Locks, and Switches."

Which ONE of the following describes the required "As-found" condition of valve 892A, SI Pump Mini Flow Recirc X-Conn Valve?

Locked closed with:

A. a tan colored lock and secured such that it is incabable of even slight movement.

B. an orange colored lock and secured such that it is incabable of even slight movement.

C. a tan colored lock and secured such that it would require intentional manipulation to allow operation.

D.✓ an orange colored lock and secured such that it would require intentional manipulation to allow operation.

Question Source: Turkey Point 2001 requal exam

Reference: 0-OSP-205, "Verification of Administratively Controlled Valves, Locks, and Switches."
NOTE: Licensee did not provide this reference in initial submittal of reference material.

Distractor Analysis:

A. Incorrect; Tan is the wrong color for this valve that is common to both units and the locking device does not have to render it incapable of even slight movement.

B. Incorrect; Orange is the correct color for this valve that is common to both units, but the locking device does not have to render it incapable of even slight movement.

C. Incorrect; Tan is the wrong color for this valve that is common to both units.

D. Correct; Orange is the correct color for this valve that is common to both units and the locking device needs to be secured such that it requires intentional manipulation to allow operation.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B D B B D D A B D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | VALVE LINEUP | Cog lvl & (Imp): | M (3.4/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

100. G2.1.32 001/T3/T3/FIRE LIMITATIONS/M (3.4/3.8)/B/TP02301/C/SDR

Unit 3 is at 100% power when it is determined that 9 of the 16 smoke detectors are inoperable inside containment.

Which ONE of the following describes the required operator response?

A. Monitor the containment air temperature at least once per 8 hours.

B.✓ Monitor the containment air temperature at least once per hour.

C. Establish a fire watch patrol to inspect the containment within 1 hour.

D. Restore the inoperable detectors to operable status within 14 days.

Question source: Turkey Point requal test bank 69020380302-ORQ; ORQ#177
REFERENCE: 0-ADM-016, Step 5.6.3.3.b

Distractor analysis:

A: Incorrect, 9 of 16 detectors inoperable is more the one half which requires monitoring the containment air temperature at least once per hour.

B: Correct, 0-ADM-016, Section 5.6.3.3.b. 9 of 16 detectors inoperable is more the one half which requires monitoring the containment air temperature at least once per hour.

C: Incorrect, Establishing a fire watch patrol is an option but is required within 8 hours, not 1 hour.

D: Incorrect, Restoration within 14 days is a requirement if less than one half of the detectors are inoperable. in this case more than one half are inoperable.

Licensee did not provide ADM-016 as part of the reference material therefore, question could not be validated prior to draft exam submittal. Question was last reviewed by the licensee on 12/20/01 according to the requal question bank.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B B A C A D C A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | FIRE LIMITATIONS | Cog lvl & (Imp): | M (3.4/3.8) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

101. G2.2.01 002/T3/T3/STARTUP/M (3.7/3.6)/B/TP02301/C/SDR

The following conditions exist on Unit 4:

- The Unit is in Mode 3.
- The reactor trip breakers are closed.
- RCS $T_{avg}$ is 548 $^{o}$F.
- RCS pressure is 2235 psig.
- A dilution to the calculated critical boron concentration is in progress.

Which ONE of the following is allowed per 4-GOP-301, "Hot Standby to Power Operation"?

A.✓ Energization of the Pressurizer backup heaters.

B. Testing of the AFW pumps.

C. Stopping of an operating Reactor Coolant Pump.

D. Withdrawal of the shutdown control rods.

Question Source: Turkey point 1999 NRC Exam

Distractor Analysis:

A: Correct, Allowed by the GOP.

B: Incorrect, Requires power to be 2-3%. Plant is currently being diluted to the critical boron concentration.

C: Incorrect, All reactor coolant loops must be in operation for Mode 3.

D: Incorrect, Reactor is below the POAH, reactivity shall not be changed by rod withdrawal and boron dilution at the same time.

Deleted the word 'obtain' from the fifth condition stated in the stem. (Chief Examiner comment)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A C D D A A D A C A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | STARTUP | Cog lvl & (Imp): | M (3.7/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

102. G2.2.11 001/T3/T3/TEMPORARY CHANGES/M (2.5/3.4)/N/TP02301/C/SDR

Which ONE of the following describes a procedure change that would be allowed to be approved as a One Time Only OTSC?

A. Changing a definition in 0-EPIP-20101, Duties of the Emergency Coordinator.

B.✓ Adding a Q.C. hold point to 4-GOP-301, HOT STANDBY TO POWER OPERATION.

C. Deleting a form contained in an Operations Surveillance Procedure for an operator log taken via the TAPTS Program.

D. Changing a responsibility in a Quality Instruction (QI) procedure.

REFERENCE: 0-ADM-102, ON THE SPOT CHANGES TO PROCEDURES, Section 1.4,5.1

Distractor analysis:

A: Incorrect, ADM-102 does not allow OTSCs to be written on EPIPs.

B: Correct, Adding a QC hold point does not change the intent of the procedure and is allowed by ADM-102.

C: Incorrect, ADM-102 does not allow OTSCs to be written on forms contained in the TAPTS program.

D: Incorrect, ADM-102 does not allow OTSCs to be written on QIs.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | B | B | C | A | C | A | A | B | A | B |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | TEMPORARY CHANGES | Cog lvl & (Imp): | M (2.5/3.4) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

103. G2.2.12 (R) 001/T3/T3/SURVEILLANCE/C/A (3.0/3.4)/B/TP02301/R/SDR

Unit 3 is in Mode 1 when a review of plant documentation reveals that the last time the required Technical Specification surveillance was performed on any Pressurizer heaters was 120 days ago.

Which ONE of the following describes the actions required by Technical Specifications?

(References provided)

A. Place Unit 3 in Hot Standby within the next 6 hours.

B. Place Unit 3 in Hot Standby with the Reactor Trip Breakers open within 6 hours and place Unit 3 in Hot Shutdown within the following 6 hours.

C. Perform the required surveillances within the next 72 hours or place Unit 3 in Hot Standby within the next 6 hours and in Hot Shutdown within the following 6 hours.

D.✓ Perform the required surveillances within the next 24 hours or place Unit 3 in Mode 3 within the next 6 hours.

Provide the following Tech. Spec. References: TS Sections 3/4.0 & Section 3/4.4.3
Question source: Turkey Point requal question bank 69025240303-ORQ; ORQ#408

Distractor analysis:

A: Incorrect, TS 3.0.3 actions.

B: Incorrect, TS 3.4.3 action b. with inoperable Pressurizer.

C: Incorrect, TS 3.4.3 action a. with only one group of heaters operable.

D: Correct, TS 4.0.3 failure to meet surveillance requirement for pressurizer heaters (92 days) and 25% extention (115 days allowed by TS 4.0.2) actions.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 1 2 3 4 5 6 7 8 9 | |
| | | | | | Answer: | D A B D D D C C D B | Scramble Range: A - D |
| RO Tier: | | T3 | | | SRO Tier: | T3 | |
| Keyword: | | SURVEILLANCE | | | Cog lvl & (Imp): | C/A (3.0/3.4) | |
| Source: | | B | | | Exam: | TP02301 | |
| Test: | | R | | | Misc: | SDR | |

104. G2.2.12 (S) 001/T3/T3/SURVEILLANCE/C/A (3.0/3.4)/B/TP02301/S/MEE

Unit 3 is currently in Mode 4, Hot Shutdown. At 0900 today, it is discovered that a rountine 24-hour surveillance involving Shutdown Margin was last performed at 0600 on the previous day.

Which ONE of the following describes the response to the failure to perform the surveillance?

A. Technical Specification LCO 3.0.3 must be applied.

B. LCO is declared as not being met and the ACTION statement must be immediately initiated.

C. The surveillance may be delayed until 0600 tomorrow per Technical Specification 4.0.3.

D.✓ The surveillance requirements are satisfied if the surveillance is completed by 1200 today.

REF: TS 4.0.2 (Amendment Nos. 189 and 183)
SOURCE: Farley 2001 NRC Exam, Byron Exam 2000-301

A. Not declared until 25% extension exceed IAW 4.0.2

B. Not declared until 25% extension exceed IAW 4.0.2

C. Per SR 4.03, the ACTION statements may be delayed upto 24 hours to permit completion of the surveillance when the allowable outage time limits of the ACTION requirements are less than 24 hours.

D. Correct - Per SR 4.02 there is an allowable extension of not to exceed 25% of the interval.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | D | C | B | C | C | D | D | B | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | SURVEILLANCE | Cog lvl & (Imp): | C/A (3.0/3.4) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | MEE |

105. G2.3.01 001/T3/T3/RADIATION EXPOSURE/M (2.6/3.0)/B/TP02301/C/SDR

With the plant in Mode 5, Cold Shutdown, a small accessible area in containment has a general area dose rate of 1150 mrem/hr. The top of this area cannot be enclosed for the purpose of locking the area.

Which ONE of the following describes the minimum additional measures (other than appropriate posting) that must be executed for this area?

A.✓ Must be barricaded off, conspicuously posted, and a flashing light must be activated.

B. Must be roped off and the entrance to the containment must be kept locked.

C. Must be barricaded off, conspicuously posted, and a guard posted at the entrance to the this area.

D. A flashing light must be activated and the entrance to containment must be kept locked.

SOURCE: Farley 2001 NRC Exam
Enabling Objective: EO#3 of Lesson Plan LP6900519

A - Correct, Per TS 6.12 High Radiation Area section 6.12.2, which states: For individual high radiation ares accessible to personnel with radiation levels of greater than 1000 mrem/hr and less than 500 rads/hr that are located within large ares, such as PWR containment, where no enclosure exist for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

B - Incorrect, This is correct if the entire containment was affected by radiation level in excess of 1000 mrem/hr, this would be too restrictive.

C - Incorrect, This would result in unnecessary exposure to the guard.

D - Incorrect, This is correct if the entire containment was affected by radiation level in excess of 1000 mrem/hr, this would be too restrictive.
Source: Farley NRC Exam 1993

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A A A B C A D D D D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | RADIATION EXPOSURE | Cog lvl & (Imp): | M (2.6/3.0) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

106. G2.3.10 (R) 001/T3/T3/RADIATION EXPOSURE/C/A (2.9/3.3)/B/TP02301/R/SDR

Given the following conditions at a work site:

- Radiation level is 40 mrem/hr
- Radiation level with shielding is 10 mrem/hr
- One worker will place the shielding
- Time to place the shielding is 15 minutes
- Time to conduct task by one worker is 30 minutes with or without shielding
- Time to conduct task by two workers is 20 minutes with or without shielding
- A does rateof 40 mrem/hr will be received while placing the shielding

Which ONE of the following would result in the lowest whole body dose?

A.✓ Place shielding. Perform task with one worker.

B. Place shielding. Perform task with two workers.

C. Do not place shielding. Perform task with one worker.

D. Do not place shielding. Perform task with two workers.

Question source: Summer 2000 NRC Exam

Distractor analysis:
A: Correct, 10 mrem (placing shielding) + 5 mrem (conduct task) = 15 mrem.

B: Incorrect, 10 mrem (placing shielding) + 2(3.33) mrem (conduct task) = 16.66 mrem.

C: Incorrect, 20 mrem (conduct task)

D: Incorrect, 2(13) mrem (conduct task) = 26 mrem.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | A | A | B | A | B | B | A | D B C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | RADIATION EXPOSURE | Cog lvl & (Imp): | C/A (2.9/3.3) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

107. G2.3.10 (S) 002/T3/T3/HIGH ACTIVITY/M (2.9/3.3)/B/TP02301/S/SDR

The following conditions exist on Unit 3 following a return to 100% power:

-RCS DEQ I-131 is 50 μCi/gm.
-RCS DEQ I-131 has been greater than 1 μCi/gm for > 48 hours.
-Gross RCS activity is 25 μCi/gm.
-100/E-bar is 48 μCi/gm.

Which ONE of the following describes the correct operator actions?

(Reference Provided)

A.✓ Reduce power using GOP-103, Power Operation to Hot Standby, to place the Unit in at least Mode 3 with $T_{avg}$ < 500 °F within 6 hours and continue to sample the RCS for Iodine once every 4 hours.

B. Operation at 100% reactor power may continue as long as the RCS is sampled for Iodine once every 4 hours.

C. Reduce power using GOP-103, Power Operation to Hot Standby, to ≤ 80% and continue to sample the RCS for gross radioactivity once every 72 hours.

D. If gross activity is not restored within limits within 24 hours be in at least Mode 3 with Tavg <500 °F within the next 6 hours.

Question source: Turkey Point requal test bank 69025240310-ORQ; ORQ#180

Distractor Analysis:

A: Correct, TS 3.4.8 ACTION a. Iodine greater than 1 μCi/gm and has been that way for > 48 hours. High activity levels must be reduced in order to prevent excessive levels of radiation and high personnel exposure on containment entries.

B: Incorrect, Required action for Iodine greater than 1 μCi/gm.

C: Incorrect, Reducing power to <80% would be appropriate if 100/E-bar limits were exceeded but they are not.

D: Incorrect, Action if Iodine not above the limit 1 μCi/gm

Question stem, answer and distractor C changed to bring the question more in line with the K/A. Chief Exminer comment stated that the original question was oriented toward TS and not toward procedure action as required by the K/A.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C B A A A B B D A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | HIGH ACTIVITY | Cog lvl & (Imp): | M (2.9/3.3) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

108. G2.3.11 001/T3/T3/RADIATION RELEASE/M (2.7/3.2)/B/TP02301/C/SDR

The following conditions exist:

- Both units are in Mode 5.
- 4A1 Circulating Water Pump is the only circulating water pump which is running.
- PRMS R-18, Liquid Effluent Monitor, is out of service.
- A liquid release is in progress.

The following occurs:

- 4A1 Circulating Water Pump trips.

Which ONE of the folowing identifies the correct operator response to the loss of the 4A1 Circulating Water Pump?

A. Verify two ICW pumps running and continue the release.

B.✓ Verify the release is terminated until at least one Circulating Water Pump is running.

C. Continue the release while starting another Circulating Water Pump.

D. Verify RCV-018 has automatically closed terminating the release.

Question Source: Turkey Point 1998 NRC Exam

Distractor Analysis:
A: Incorrect, Discharge of RCV-018 is into the circ water system not the ICW.

B: Correct, Operator must verify the release is terminated because the FSAR requires at least 157,000 gpm of circ water flow.

C: Incorrect, Release without circ water flow is violation of FSAR.

D: Incorrect, With R-18 out of service RCV-018 will not automatically isolate.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | B | A | A | C | B | A | A | A | A | C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | RADIATION RELEASE | Cog lvl & (Imp): | M (2.7/3.2) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

109. G2.4.08 001/T3/T3/SACRG-1/C/A (3.0/3.7)/B/TP02301/S/GWL

-A Loss of all AC has occured on Unit 3.
-3-EOP-ECA-0.0 was in progress when an SI signal was received.
-Efforts to restore AC power have **not** been successful.
-The STA reports the status of the CSF's to be as follows:
- -Subcriticality - GREEN
- -Core Cooling - RED
- -Heat Sink - RED
- -Integrity - GREEN
- -Containment - GREEN
- -Inventory - YELLOW

Which one of the following is the correct procedure to transition to?

A. 3-EOP-ECA-0.2, "Loss of All AC Power Recovery with SI Required."

B. 3-EOP-FR-C.1, "Response to Inadequate Core Cooling."

C. 3-EOP-FR-H.1, "Response to a Loss of Secondary Heat Sink."

D.✓ 3-SACRG-1, "Severe Accident Control Room Guideline Initial Response."

Bank question from Farley NRC Exam 1999.

LP-6902348 EOP-ECA-0.0 Loss of All AC Power, enabling objective # 2.

A. Incorrect, with core exit TCs greater than 1200 $^{o}$F the SACRG is the correct proedure to go.

B. Incorrect, FR's are not entered during ECA-0.0 because they assume one train of AC power is available.

C. Incorrect, FR's are not entered during ECA-0.0 because they assume one train of AC power is available.

D. Correct, With a red path on Core Cooling core exit TCs are greater than 1200 $^{o}$F, therefore SACRG-1 is the correct procedure to transition to.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D D B D C B C B B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | SACRG-1 | Cog lvl & (Imp): | C/A (3.0/3.7) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

110. G2.4.09 001/T3/T3/OMS/C/A (3.3/3.9)/B/TP02301/C/SDR

The following conditions exist on Unit 3 while on RHR:

- RCS temperature is 300 °F.
- RCS pressure momentarily spikes to 550 psig.

The RCO took the following actions:

- Verified the amber and blue lights for MOV-750 and MOV-751, Loop C RHR Pump Suction Stop Valves, were lit.
- Depressed and released the override pushbuttons to open MOV-750 and MOV-751.
- Determined that MOV-750 and MOV-751 continued to stroke closed.

Which ONE of the following describes why MOV-750 and MOV-751 continued to stroke closed?

A.✓ The Overpressure Mitigating System (OMS) mode selector switches are in the NORMAL position.

B. The MOVs must stroke to the fully closed position before they will automatically reopen.

C. The RCS pressure was too high when the override pushbuttons were depressed.

D. The override pushbuttons need to be held in the depressed position until the yellow lights go out.

Question source: Turkey Point question bank Q# 1.1.25.10.4.19,M

Distractor analysis:

A: Correct, OMS mode selector switch is not placed into the LO press OPS until RCS is less than 285 °F (OP-041.4, Step 5.2.2.12). Override pushbutton does not function unless the OMS is in LO press mode.

B: Incorrect, This is not how the override pushbutton worksalthough many MOVs work this way.

C: Incorrect, Pressure spiked and did not remain high as stated in the stem.

D: Incorrect, This is typical of many controllers but not required for the override pushbuttons.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | A | D | B | C | C | B | B | B D C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | OMS | Cog lvl & (Imp): | C/A (3.3/3.9) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

111. G2.4.16 (R) 001/T3/T3/EOP NETWORK/M (3.0/4.0)/M/TP02301/R/SDR

Considering the ONOP-004 series:

ONOP-004, Loss of Offsite Power
ONOP-004.1, System Restoration Following Loss of Offsite Power
ONOP-004.2, Loss of 3A 4KV Bus
ONOP-004.3, Loss of 3B 4KV Bus
ONOP-004.4, Loss of 3C 4KV Bus
ONOP-004.5, Loss of 3D 4KV Bus

Which ONE of the following describes the applicability/usage of the ONOP-004 series of procedures in relation to the EOP implementation hierarchy?

A. All 6 of these procedures are applicable AFTER ECA-0.0, Loss of All AC Power, has been entered.

B. Any of these 6 procedures can be performed when needed in PARALLE with the EOP Network.

C. When a Loss of Offsite Power (LOOP) has occurred and AFTER the immediate actions of E-0, Reactor Trip or Safety Injection, are complete any of these 6 procedures can be performed when needed.

D.✓ Any of these 6 procedures, with the EXCEPTION of ONOP-004, can be performed when needed in parallel with the EOP Network.

Question source: Turkey Point requal test bank 69022630201-ORQ; ORQ#590
Enabling Objectives: EO#2 of LP 6902255, EO#1 of LP 6902256, & EO#1 of LP 6902263

Distractor Analysis:

A: Incorrect, ONOP-004 is not applicable during the performance of any EOPs.

B: Incorrect, ONOP-004 is not applicable during the performance of EOPs.

C: Incorrect, ONOP-004 is not applicable during the performance of any EOPs.

D: Correct, All ONOP-004 procedures can be performed in parallel with the EOP network with the exception of ONOP-004, which is not applicable while in the EOP network.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 9 |
| | | | | | Answer: | D | A | C | A | C | B | A | A B C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | EOP NETWORK | Cog lvl & (Imp): | M (3.0/4.0) |
| Source: | M | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

112. G2.4.16 (S) 001/T3/T3/ATWS EOP IMP/C/A (3.0/4.0)/B/TP02301/S/SDR

Unit 4 is operating at 100% power with the 4A EDG out of service when the following sequence of events occur:

- The operators respond to an ATWS using FR-S.1, "Response to Nuclear Power Generation/ATWS."
- The reactor trips due to a loss of off-site power.
- The 4B EDG locks out and cannot be restarted.

Which ONE of the following describes the correct operator response?

A. Complete the actions of FR-S.1 and then go to ECA-0.0, "Loss of All AC Power." Power will be restored to a 4KV bus using the appropriate ONOP upon completion of ECA-0.0.

B. Complete the actions of FR-S.1 and then go to ECA-0.0, "Loss of All AC Power." Power will be restored to a 4KV bus using the appropriate ONOP while performing the actions of ECA-0.0.

C. Stop performance of FR-S.1 and immediately go to ECA-0.0, "Loss of All AC Power." Power will be restored to a 4KV bus using the appropriate ONOP upon completion of ECA-0.0.

D.✓ Stop performance of FR-S.1 and immediately go to ECA-0.0, "Loss of All AC Power." Power will be restored to a 4KV bus using the appropriate ONOP while performing the actions of ECA-0.0.

Question Source: 1999 NRC Exam
Enabling Objective EO5 of ADM-211 LP#6902320

Distractor Analysis:

A: Incorrect, FR-S.1 assumes at least one emergency 4KV bus has power. When both busses are deenergized, ECA-0.0 takes precedence over FR-S.1. Operators should not wait until completion of ECA-0.0 to repower a bus.

B: Incorrect, FR-S.1 assumes at least one emergency 4KV bus has power. When both busses are deenergized, ECA-0.0 takes precedence over FR-S.1.

C: Incorrect, Operators should not wait until completion of ECA-0.0 to repower a bus.

D: Correct, ADM-211, step 5.1.2 and step 5.13.2 first example; and ECA-0.0, step 10 RNO.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A A B C A A C B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | ATWS EOP IMP | Cog lvl & (Imp): | C/A (3.0/4.0) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

113. G2.4.20 001/T3/T3/COLD LEG RECIRC/M (3.3/4.0)/B/TP02301/C/SDR

While performing EOP-ES-1.3, "Transfer To Cold Leg Recirculation," and after placing the control switches to the CLOSE position for the RHR suction from the RWST valves (MOV-862A and MOV-862B) the ANPS reads the following CAUTION:

"DO NOT CONTINUE until RHR pump suction is isolated from the RWST"

Which ONE of the following describes the consequences of continuing in ES-1.3 before the MOV-862 A&B valves are fully closed?

A.✓ If the containment pressure is greater than the RWST pressure, contaminated sump water will flow from the containment to the RWST.

B. If an RHR pump is restarted before the MOV-862 A&B valves are fully closed, the RHR pump will not have adequate NPSH.

C. If high head SI pumps are running, they will short circuit flow back to the RWST, robbing the reactor of cooling flow.

D. The RHR pumps are interlocked with MOV-862 A&B such that the RHR pumps cannot be started until the MOV's are completely closed.

Question Source: Turkey Point 2000 NRC Exam.
Enabling Objective EO#4 of Lesson Plan LP6902330

Distractor Analysis:

A: Correct, LP6902330 page 24, step 19.

B: Incorrect, NPSH is provide through the MOV-862's from the RWST and via MOV-860's and MOV-861's once transfered to the sump.

C: Incorrect, HHSI pumps are pumping directly into the RCS and only recirculating back to the RWST.

D: Incorrect, MOV-750 and MOV-751, RHR suctions from the RCS, are interloccked with MOV-862's not the RHR pumps.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | A | C | A | A | B | B | B | C | D | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | COLD LEG RECIRC | Cog lvl & (Imp): | M (3.3/4.0) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

114. G2.4.41 001/T3/T3/EMER CLASSIFICATION/C/A (2.3/4.1)/B/TP02301/S/SDR

The following events occurred on Unit 3 while it was in Mode 1 and Unit 4 was defueled:

1200: A main feed line break destroys all main, standby and auxiliary feed capability.

1205: Operators initiate Bleed and Feed in accordance with FR-H.1, "Response to Loss of Secondary Heat Sink."

1206: A Loss Of Offsite Power occurs. Both EDGs lock out and cannot be restarted.

1208: A Pressurizer Safety valve lifts and fails to reseat.

1209: Operators enter ECA-0.0, "Loss of All AC Power."

1309: 3A 4KV Bus is energized from 3C Bus.

1214: Operators transition to ECA-0.2, "Loss of All AC Power Recovery with SI Required."

Which ONE of the following identifies the highest emergency classification that applies?

(Reference Provided)

A. Unusual Event.

B. Alert.

C. Site Area Emergency.

D.✓ General Emergency.

Question source: Turkey Point question bank. Q# 32020030310-ORQ; ORQ# 580

Distractor Analysis:
A: Incorrect, The conditions provided meet the GE criteria per 0-EPIP-20101, Encl. 1, Cat 9.

B: Incorrect, The conditions provided meet the GE criteria per 0-EPIP-20101, Encl. 1, Cat 9.

C: Incorrect, The conditions provided meet the GE criteria per 0-EPIP-20101, Encl. 1, Cat 9.

D: Correct, EPIP 20101, Enclosure 1, Cat 9.B

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A C B A D C B C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T3 | SRO Tier: | T3 |
| Keyword: | EMER CLASSIFICATION | Cog lvl & (Imp): | C/A (2.3/4.1) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

115. W/E02EA1.1 001/T1G2/T1G1/SI TERMINATION/M (4.0/3.9)/B/TP02301/C/SDR

Unit 3 operators have entered 3-EOP-ES-1.1, "SI Termination," and are preparing to start a Main Feedwater pump and secure the 'A' Auxiliary Feedwater (AFW) pump.

The Following conditions exist:

- 'A' AFW pump is running
- 'B' and 'C' AFW pumps are stopped and aligned for auto start.
- The NWE locally starts the '3A' Steam Generator Feedwater Pump (SGFP).

The BOP verifies that the '3A' SGFP is running but fails to "red flag" the '3A' MFP control switch semaphore.

Which ONE of the following describes the effect of the BOP's failure to "red flag" the '3A' SGFP control switch semaphore?

A.✓ AFW pump automatic start capability will be degraded.

B. 'B' and 'C' AFW pumps will automatically start.

C. The '3A' SGFP will not trip from a Safety Injection (SI) signal.

D. The '3A' SGFP will automatically trip in 50 seconds.

Question Source: Turkey Point question bank Q# 1.1.24.23.6.24,M

EOP-ES-1.1 step 31 checks if AFW should be stopped an directs the starting of a SGFP per OP-074. The NOTE prior to step 13.b of OP-074 illistrates that failure to match the flags in the control room for the SGFP just started will not enable the SGFP trip AFW start signal from that SGFP.

DISTRACTOR ANALYSIS:

A: Correct.

B: Incorrect, Tripping of the SGFP if the flags are matched will cause the starting of the AFW pumps, failure to match the flage does not enable this feature.

C: Incorrect, SI signal trips the breaker to the SGFP independent of the control room switch position.

D: Incorrect, 50 second trip is an anti pumping feature.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C A C D D B D B A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | SI TERMINATION | Cog lvl & (Imp): | M (4.0/3.9) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | SDR |

116. W/E03EK3.1 001/T1G2/T1G2/ES-1.2/M (3.3/3.7)/M/TP02301/C/GWL

-Unit 4 has had a Small Break LOCA.
-The Crew has entered 4-EOP-ES-1.2 Post LOCA Cooldown and Depressurization, and is performing the step for checking if SI Accumulators should be isolated.

Which ONE of the following describes the reason(s) for isolating the Accumulators?

A.✓ To prevent gas binding in the S/Gs, or a hard bubble in the Pressurizer.

B. To prevent gas binding in the RCPs, when started, or a hard bubble in the reactor vessel head.

C. To prevent gas binding in the running charging pumps, and loss of NPSH for the RHR pumps.

D. To prevent injection of the accumulator in to the RCS, and thereby preventing an excess cooldown.

LP 6902329 EOP-ES-1.2 Post LOCA Cooldown and Depressurization. Enabling objective # 4. Modified from a Farley Bank question.

A. Correct, using the basis information provided in LP 6902329.

B. Incorrect, Gas binding in the RCPs is not a concern.

C. Incorrect, In this mode of operation gas binding of the charging pumps is not a concern, the Nitrogen would come out of soulution in the VCT, or the source of water to the pumps would be the RWST, or the containment sump.

D. Incorrect, The accumulators may have already injected into the RCS, the concern is Nitrogen injecting into the RCS.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C C D A C D A A B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | ES-1.2 | Cog lvl & (Imp): | M (3.3/3.7) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

117. W/E04EA2.1 001/T1G2/T1G1/LOCA/OUTSIDE/M (3.4/4.3)/B/TP02301/S/SDR

Operators are responding to a LOCA outside containment using ECA-1.2, "LOCA Outside Containment." The crew efforts to isolate the break are unsuccessful.

Which ONE of the following identifies the procedure ECA-1.2 will direct the operators to transition to?

A. E-1, "Loss of Reactor or Secondary Coolant."

B. ES-1.2, "Post LOCA Cooldown and Depressurization."

C. ES-1.3, "Transfer to Cold Leg Recirculation."

D.✓ ECA-1.1, "Loss of Emergency Coolant Recirculation."

Question source: Turkey point question bank Q# 1.1.26.33.3.3,M

DISTRACTOR ANALYSIS:

A: Incorrect, Step 3 ECA-1.2, directs transition to ECA-1.1 if RCS pressure is not increasing due to not having isolated the break.

B: Incorrect, Step 3 ECA-1.2, directs transition to ECA-1.1 if RCS pressure is not increasing due to not having isolated the break.

C: Incorrect, Step 3 ECA-1.2, directs transition to ECA-1.1 if RCS pressure is not increasing due to not having isolated the break.

D: Correct, Step 3 ECA-1.2, directs transition to ECA-1.1 if RCS pressure is not increasing due to not having isolated the break.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | A | D | B | A | D | B | C | A | C |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | LOCA/OUTSIDE | Cog lvl & (Imp): | M (3.4/4.3) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | SDR |

118. W/E04EA2.2 001/T1G2/T1G1/LOCA/OUTSIDE/M (3.6/4.2)/B/TP02301/R/SDR

The crew has transitioned to ECA-1.2, "LOCA Outside Containment."

Which ONE of the following parameters is used to determine if the break is isolated, in accordance with ECA-1.2?

A. Pressurizer level increasing.

B. RCS subcooling increasing.

C. Core exit thermocouple temperature decreasing.

D.✓ RCS pressure increasing.

Question source: Turkey Point question bank Q# 1.1.26.33.3.2,M

DISTRACTOR ANALYSIS:

A: Incorrect, PZR level alone is not sufficient indication of break isolation.

B: Incorrect, RCS subcooling increasing is indication of heat removal and possible pressure increase but not a sole indicator of break isolation.

C: Incorrect, Core exit thermocouple temperature decreasing is indication of heat removal not a sole indicator of break isolation.

D: Correct, Step 3 of ECA-1.2

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCS | Time: | 1 | Points: | 1.00 | Version: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | Answer: | D | B | C | B | A | A | B | C | B | A |

Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G1 |
| Keyword: | LOCA/OUTSIDE | Cog lvl & (Imp): | M (3.6/4.2) |
| Source: | B | Exam: | TP02301 |
| Test: | R | Misc: | SDR |

119. W/E05EA2.1 001/T1G2/T1G2/HEAT SINK/C/A (3.4/4.4)/B/TP02301/S/GWL

-A small break LOCA is in progress on Unit 3.
-Containment temperature is 195 °F.
-Total AFW flow is 300 gpm.
-SG Narrow range levels all indicate 8%.
-Core Exit TCs indicate 735 °F.
-SI Flow is in progress.
-The crew has reached the transition step of 3-EOP-E-0 "Reactor Trip or Safety Injection", and have diagnosed that the RCS is NOT intact.

Which ONE of the following procedures should be implemented based on the above conditions?

A. 3-EOP-FR-C.2, "Response to Degraded Core Cooling"

B. 3-EOP-E-1, "Loss of Primary or Secondary Coolant"

C. 3-EOP-ES-1.2, "Post LOCA Cooldown and Depressurization"

D. 3-EOP-FR-H.1, "Reponse to Loss of Secondary Heat Sink"

Slightly Modified bank question from TP question and Farley question.
LP 6902337 EOP-FR-H1,2,3,4&5, Heat Sink. Enabling Objective # 1.

A. Incorrect, C.2 is an orange path, and H.1 is a red path.

B. Incorrect, E-1 would be the correct path if a red or orange path was not present.

C. Incorrect, ES-1.2 will be the correct Event Specific procedure to enter after transition from E-1.

D. Correct. The CSFs direct entry in FR-H.1 on a red path.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A C C C C D D C D Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | HEAT SINK | Cog lvl & (Imp): | C/A (3.4/4.4) |
| Source: | B | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

120. W/E08EA2.1 001/T1G1/T1G1/FR-P.1/C/A (3.4/4.2)/M/TP02301/S/GWL

-Unit 4 has had a Large Steam Break 30 minutes ago.
-Safety Injection is still in progress.
-Containment Pressure indicates 45 psig.
-RCS Cold Leg Temperature indicates 310 °F.
-RCS Pressure is 1450 psig and rising.

Which ONE of the following describes the action(s) that should be taken based on the above conditions?

A. 4-EOP-FR-Z.1 is the only procedure that should implemented until entry conditions are restored to yellow or green path.

B. 4-EOP-FR-P.1 is the only procedure that should implemented until entry conditions are restored to yellow or green path.

C. 4-EOP-FR-Z.1 should be implemented until completion and then 4-EOP-FR-P.1 should be implemented.

D.✓ 4-EOP-FR-P.1 should be implemented until completion, then 4-EOP-FR-Z.1 should be implemented.

Modified from a Farley bank question.
LP- 6902336 EOP-FR-P.1/P.2 Integrity, Enabling Objective # 1.

A. Incorrect, FR-P.1 should be entered first (higher priority orange path), Then FR-Z.1 should be entered.

B. Incorrect FR-P.1 shuld be entered first, Then FR-Z.1 should be entered.

C. Incorrect, FR-P.1 should be entered first (higher priority orange path), Then FR-Z.1 should be entered.

D. Correct, According to the CSF's P.1 should be entered, then Z,1 should be entered. (May want to change until completion to at the step for performing a soak.)

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D B C B A B C D C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | FR-P.1 | Cog lvl & (Imp): | C/A (3.4/4.2) |
| Source: | M | Exam: | TP02301 |
| Test: | S | Misc: | GWL |

121. W/E09EG2.4.48 001/T1G1/T1G1/ES-1.2/C/A (3.5/3.8)/N/TP02301/C/GWL

-Unit 3 Reactor tripped due to a loss of off site power.
-3A 4KV Bus is deenergized and 3B 4KV Bus is powered from the 3B EDG.
-A Natural Circulation cooldown and depressurization has been started in accordance with 3-EOP-ES-0.2 "Natural Circulation Cooldown.
- SI has been blocked.
-CET subcooling indicates 218 $^{o}$F.
-RCS Cold leg temperatures have not changed over the last 30 minutes.

Which ONE of the following describes the correct actions to be taken?

A. Continue depressurization to decrease subcooling.
Dump Steam to the condenser at a faster rate to increase natural circulation.

B. Stop RCS depressurization to increase subcooling.
Dump steam to the condenser at a faster rate to increase natural circulation.

C. Continue depressurization to decrease subcooling.
Dump Steam to atmosphere at a faster rate to increase natural circulation.

D.✓ Stop RCS depressurization to increase subcooling.
Dump steam to atmosphere at a faster rate to increase natural circulation.

Turkey Point Lesson Plan LP-6902324 Enabling objectives # 3 and 4.

A. Incorrect, first the crew should stop depressurizing the RCS and then increase the cooldown, Steam dumps will not work after a loss of off site power.

B. Incorrect, unable to dump steam to the condenser after an LOOP.

C. Incorrect, RCS depressurization should be stopped first.

D. Correct, RCS depressurization should be stopped first, and then steam dumped to the atmosphere to increase natural circulation.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A B A D B D D A A Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | ES-1.2 | Cog lvl & (Imp): | C/A (3.5/3.8) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

122. W/E11EG2.4.18 001/T1G2/T1G2/ECA-1.1 BASIS/M(2.7/3.6)/B/TP02301/C/GWL

Which ONE of the following describes the mitigating strategies contained in EOP-ECA-1.1, "Loss of Emergency Coolant Recirculation"?

A. Minimizing the depletion of the RWST, Maximizing Subcooling, determination of minimum containment spray requirements.

B. Maximizing Subcooling, minimizing the depletion of the RWST, and depressurization of the RCS to minimize break flow.

C.✓ Minimizing the depletion of the RWST, determination of minimum containment spray requirements, and depressurization of the RCS to minimize break flow.

D. Maximizing Subcooling, determination of minimum containment spray requirements, and depressurization of the RCS to minimize break flow.

Modified from a Bank Question # 1.1.26.32.1.3.M
LP 6902332 3/4-EOP-ECA-1.1 Loss of Emergency Coolant Recirculation, Enabling objective 4.

A. Incorrect, ECA-1.1 does not attempt to maximize subcooling.

B. Incorrect, ECA-1.1 does not attempt to maximize subcooling.

C. Correct, these are the mitigating statigies used by ECA-1.1.

D. Incorrect, ECA-1.1 does not attempt to maximize subcooling.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A C C A B A A C C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G2 | SRO Tier: | T1G2 |
| Keyword: | ECA-1.1 BASIS | Cog lvl & (Imp): | M(2.7/3.6) |
| Source: | B | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

123. W/E12EK1.3 001/T1G1/T1G1/ECA-2.1/C/A (3.4/3.7)/N/TP02301/C/GWL

-Unit 3 has had a Reactor Trip and Safey Injection, 20 minutes ago.
-RCS Cold leg temperature is 475 °F.
-The crew has entered 3-EOP-ECA-2.1 Uncontrolled Depressurization of All Steam Generators, and have reduced AFW flow to 25 gpm per S/G.

Subsequently hot leg temperatures begin to increase.

Which ONE of the following describes the correct operator response?

A. Maintain AFW flow to all three steam generators at 25 gpm each.

B.✓ Contol AFW flow to all three steam generators to stabilize hot leg temperatures.

C. Maintain AFW flow to all three steam generators at 25 gpm each and increase steam dump flow.

D. Increase AFW to all steam generators, feed to maintain steam generator levels between 6% and 50%.

LP 6902335 EOP-ECA-2.1, Uncontrolled Depressurization of All S/Gs Enabling Objective # 3.

A. Incorrect, Heat Sink is insufficient. ECA-2.1 directs operators to increase AFW flow to stabilize hot leg temperatures.

B. Correct, ECA-2.1 directs operators to increase AFW flow to stabilize hot leg temperatures.

C. Incorrect, ECA 2.1 directs operators to increase AFW flow to stabilize hot leg temperatures and does not direct them to increase steam dump flow.

D. Incorrect, S/G levels cannot be maintained at these levels without aggrivating the excessive RCS cooldown.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A A D B D A A B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G1 | SRO Tier: | T1G1 |
| Keyword: | ECA-2.1 | Cog lvl & (Imp): | C/A (3.4/3.7) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

124. W/E13EA2.1 001/T1G3/T1G3/SG OVERPRESSURE/C/A (2.9/3.4)/M/TP02301/C/GWL

- Unit 3 has had a Reactor trip from 100% power.

- "A" SG NR level is 5%; "B" SG NR level is 0%; "C" SG NR level is 16%.
- "C" SG WR levels are 81%.
- "A" &" "C" SG Steam Dump to Atmosphere valves are cycling to maintain SG pressure.
- The "B" SG Steam Dump to Atmosphere valve is inoperable.
- One "B" SG safety is cycling 60 psig above its design setpoint.
- AFW flow indicates: 125 gpm on "A" SG, 110 gpm on "B" SG, and 115 gpm on "C" SG.
- Containment conditions are normal.

Which ONE of the following is the correct procedure to address these conditions?

A. 3-EOP-FR-H.1-"Loss of Secondary Heat Sink."

B.✓ 3-EOP-FR-H.2-"Response to Steam Generator Overpressure."

C. 3-EOP-FR-H.3-"Response to Steam Generator High Level."

D. 3-EOP-FR-H.4-"Response to Loss of Normal Steam Release Capabilities."

LP-6902337 EOP-FR-H1,2,3,4,&5, enabling objective #1
Modified from Surry NRC Exam 2002 question.

Distractor Analysis:

A. Incorrect, total AFW flow is greater than 345 gpm, and one narrow range level is greater than 6%.

B. Correct, one SG safety is cycling 60 psig above its design setpoint (1075 + 60 = 1135 psig) this is greater than the entry conditons for H-2 of 1130 psig.

C. Incorrect, Wide range level indicates greater than 80% the entry conditions use the narrow range level.

D. Incorrect, This would be the correct procedure to enter if the steam generator pressure was between 1080 and 1130 psig.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B B A C D B B B C Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G3 | SRO Tier: | T1G3 |
| Keyword: | SG OVERPRESSURE | Cog lvl & (Imp): | C/A (2.9/3.4) |
| Source: | M | Exam: | TP02301 |
| Test: | C | Misc: | GWL |

125. W/E15EK3.1 001/T1G3/T1G3/CONTAINMENT FLOODING/M (2.7/2.9)/N/TP02301/C/GWL

3- EOP- FR-Z.2, RESPONSE TO CONTAINMENT FLOODING, Step #1 states: "Try to identify unexpected source of water to sump." This is based on a water level greater than the design basis flood level as provided by water from the RWST, SI Accumulators and what other sources?

A. CCW, ICW, Unit 4 RWST, main steam and feedwater.

B.✓ Unit 4 RWST, main steam, feedwater, and primary makeup water and CCW.

C. Main steam, feedwater, ICW and primary makeup water, and CCW.

D. ICW, primary makeup water, main steam, Unit 4 RWST, and feedwater.

LP 6902338 EOP-FR-Z.1, Z.2 and Z.3 Enabling Objective # 4.

A. Incorrect, Intake cooling is not a source of water in containment.

B. Correct, These are sources of water that could raise containment level.

C. Incorrect, Intake cooling is not a source of water in containment.

D. Incorrect, Intake cooling is not a source of water in containment.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B B C B D C B B B Scramble Range: A - D

| | | | |
|---|---|---|---|
| RO Tier: | T1G3 | SRO Tier: | T1G3 |
| Keyword: | CONTAINMENT FLOODING | Cog lvl & (Imp): | M (2.7/2.9) |
| Source: | N | Exam: | TP02301 |
| Test: | C | Misc: | GWL |