Final Submittal

(Blue Paper)

TURKEY POINT JULY/AUGUST 2005 EXAM

50-250/2005-301 AND 50-251/2005-301

JULY 18 - 22, 2005 & AUGUST 1 - 5, 2005
JULY 15, 2005 (WRITTEN)

COMBINED RO/SRO WRITTEN EXAM

WITH KAS, ANSWERS, REFERENCES,

AND ANALYSIS

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1. 002K6.02 001/T2G2//RCS RCP/C/A(3.1/3.6)/B/TP05301/R/MC/EXL

A Unit 3 startup is in progress. Reactor power is 28%.

- RCP "C" breaker trips due to an overcurrent condition

Which ONE of the following describes the Reactor status and "delta T" long-term response?

A reactor trip _____ occur and Loops "A" and "B" "delta T" both _____.

A. WILL increase

B✓ WILL NOT increase

C. WILL decrease

D. WILL NOT decrease

Feedback

REFERENCES:

1. SD 063, REACTOR PROTECTION AND SAFEGUARDS ACTUATION SYSTEM, pages 42,43,56, fig 4A, rev 04/17/02

DISTRACTORS:

A Incorrect. A reactor trip will not occur at power levels below 45% when only one RCP breaker is open.

B Correct. Without rod motion or operator action, Tavg of the unaffected loops will increase due to the fact that only 2 S/Gs will be supplying the steam that 3 S/Gs once were (i.e. "Q dot" of the reactor has not changed) Since Tavg of the reactor has not changed and the delta T in loop C has dropped to 0, the delta T in loops A and B increases and so does Tavg in those loops.

C Incorrect. See A and B.

D Incorrect. See B.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Coolant System (RCS); Knowledge of the effect or a loss or malfunction on the following RCS components: RCP

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2. 003A2.05 001/T2G1//RCP SEALS/C/A(2.5/2.8)/M/TP05301/R/MC/EXL

Unit 4 is in Mode 1 operating at 100% power when LT-4-115 fails high. Following the failure VCT level decreases to 10% and VCT pressure decreases to 14 psig. The operators also observed that the following annunciators are lit:

- A4/6, VCT HI/LO LEVEL
- A4/5, VCT HI TEMP / HI/LO PRESS

The failure of LT-4-115 caused RCP #2 seal leakoff flow to (1)_____ and will require operators to (2)_____ to restore seal leakoff flows to normal?

A. (1)increase, (2)take LCV-4-115A control switch to VCT position

B. (1)increase, (2) open LCV-4-115B and shut LCV-4-115C to shift charging pump suction to the RWST then increase makeup flow

C✓ (1)decrease, (2)take LCV-4-115A control switch to VCT position

D. (1)decrease, (2) open LCV-4-115B and shut LCV-4-115C to shift charging pump suction to the RWST then increase makeup flow

Feedback

REFERENCES:

1. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 43,44, rev 07/23/02
2. ONOP-046.4, MALFUNCTION OF BORON CONCENTRATION CONTROL SYSTEM, pages 3,14-18, rev 07/22/02
3. SD 013/SYS.046,047, CHEMICAL AND VOLUME CONTROL SYSTEM, pages 48,49, rev 06/21/04

DISTRACTORS:

A Incorrect. Flow will decrease, stated action is correct.

B Incorrect. Flow will decrease, stated action is not correct. Operators would verify this shift automatically happens when level reaches 4%.

C Correct. The backpressure on #1 seals is the summation of piping flow resistance in the seal water return lines and VCT pressure. Decreased backpressure would cause an increase in #1 seal water flow. Therefore the #2 seal flow will decrease if the backpressure on the #1 seal decreases. Taking CS to VCT position is required by ONOP-046.4, step 29.

D Incorrect. Stated action is not correct. Operators would verify this shift automatically happens when level reaches 4%.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Coolant Pump System (RCPS); Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effects of VCT pressure on RCP seal leakoff flows.

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3. 003AA2.05 001/T1G2//DROPPED ROD/M(2.5/3.2)/M/TP05301/R/MC/EXL

A Unit 4 Bank "D" control rod (H-8) dropped fully into the core.

The measured core QPTR will _____.

The location of the dropped rod may be determined by observing a localized _____ in the CET temperature nearest the affected fuel assembly.

A. Decrease; decrease

B. Not change; decrease

C. Increase, increase

D. Not change; increase

Feedback

REFERENCES:
1. SD 003/SYS.059B, Incore Instrumentation, fig 1, rev 2:02/24/94

DISTRACTORS:

A Incorrect. QPTR will not change since rod H-8 is in the center of the core and affects all 4 radial quadrants equally.

B Correct. QPTR will not change since rod H-8 is in the center of the core and affects all 4 radial quadrants equally. CET temperature will decrease due to decrease flux in the vicinity of the dropped rod leading to reduced heat generated in that area of the core.

C Incorrect. QPTR will not change since rod H-8 is in the center of the core and affects all 4 radial quadrants equally. CET temperature will decrease due to decrease flux in the vicinity of the dropped rod leading to reduced heat generated in that area of the core.

D Incorrect. CET temperature will decrease due to decrease flux in the vicinity of the dropped rod leading to reduced heat generated in that area of the core.

K/A CATALOGUE QUESTION DESCRIPTION:
- Dropped Control Rod; Ability to determine and interpret the following as they apply to the Dropped Control Rod: Interpretation of computer in-core TC map for dropped rod location.

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4. 003AG2.2.25 001//T1G2/DROPPED ROD/M(2.5/3.7)/N/TP05301/S/MC

Unit 4 had been operating at 100% power when a Bank "D" rod dropped. The crew entered ONOP-028.3, DROPPED RCCA. The rod was declared inoperable and power was reduced to < 50%.

Which ONE of the following describes the basis for the Technical Specifications LCO requiring the crew to reduce reactor power to 75% within one hour?

A. Ensures minimum DNBR in the core remains less than or equal to 1.17 (WRB-1 Correlation) for continued operation and in short-term transients.

B. Provides adequate protection against $F_Q(Z)$,Heat Flux Hot Channel Factor, in the event of a subsequent Loss of All AC Power (LOAAC) event.

C. Provides assurance that the effects of residual xenon redistribution impact from past operation near EOL is minimal.

D. Ensures that design margins to core limits will be maintained under both steady-state and anticipated transient conditions.

Feedback

REFERENCES:

1. Technical Specifications, 3.1.3.1, pages 3/4 1-17 & 1-18, Amendment Nos. 186 & 216
2. ADM-536, TECHNICAL SPECIFICATION BASES CONTROL PROGRAM, pages 32-36,41, rev 05/01/03

DISTRACTORS:

A Incorrect. The goal is to maintain DNBR greater than applicable design limits.

B Incorrect. The LOAAC accident is not an anticipated transient condition as described in Chapter 14 of the FSAR.

C Incorrect. This is the basis for Tech Spec 3.2.1, AXIAL FLUX DIFFERENCE, but had nothing to do with EOL.

D Correct. IAW ref 2, page 33, paragraph 3.

K/A CATALOGUE QUESTION DESCRIPTION:

- Dropped Control Rod; Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

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5. 004K3.07 001/T2G1//CVCS PZR LVL/C/A(3.8/4.1)/M/TP05301/R/MC/EXL

Unit 3 is in Mode 1 and the following conditions exist:

- Reactor power is 40%, steady state conditions
- Rod control is in MANUAL
- Letdown flow is 45 gpm
- The running charging pump is in AUTO
- VCT level is 30%

Instrument air pressure is subsequently lost to the running charging pump.

Which ONE of the following describes the initial effect of this failure on Pressurizer level and Charging pump NPSH?

A. Pressurizer level will decrease, Charging Pump NPSH will decrease.

B. Pressurizer level will decrease, Charging Pump NPSH will increase.

C. Pressurizer level will increase, Charging Pump NPSH will decrease.

D. Pressurizer level will increase, Charging Pump NPSH will increase.

Feedback

REFERENCES:

1. SD 013/SYS.046,047, CHEMICAL AND VOLUME CONTROL SYSTEM, pages 50,76, rev 06/21/04

DISTRACTORS:

A Incorrect. PZR level will increase because charging pump speed will increase to maximum. NPSH will decrease because VCT level and pressure will decrease due to charging pump max speed.

B Incorrect. PZR level will increase because charging pump speed will increase to maximum.

C Correct. PZR level will increase because charging pump speed will increase to maximum. NPSH will decrease because VCT level and pressure will decrease due to charging pump max speed.

D Incorrect. NPSH will decrease because VCT level and pressure will decrease due to charging pump max speed.

K/A CATALOGUE QUESTION DESCRIPTION:

- Chemical and Volume Control System; Knowledge of the effect that a loss or malfunction of the CVCS will have on PZR level and pressure.

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6. 005AK2.01 001/T1G2//RCC ROD/M(2.5/2.5)/B/TP05301/R/MC/EXL

Unit 4 is operating in Mode 1 at 95% power when the operators notice the following:

- Control Bank "D" group step counters indicate 192 steps
- Control Bank "D" rod D8 RPI indicates 206 steps

In response to the above conditions, the crew entered ONOP-028.1, RCC MISALIGNMENT. The Reactor Operator determined that Rod D8 is movable.

Which ONE of the following describes how the Reactor Operator will realign rod D8 per ONOP-028.1?

A. ✓ With Rod Control Bank Selector Switch in CBD (Control Bank "D"), disconnect the lift coils of the unaffected rods and insert rod D8 to 192 steps.

B. With Rod Control Bank Selector Switch in MAN, disconnect the lift coils of the unaffected rods and insert rod D8 to 192 steps.

C. With Rod Control Bank Selector Switch in MAN, disconnect the lift coil of the affected rod and withdraw Control Bank "D" to 206 steps.

D. With Rod Control Bank Selector Switch in CBD (Control Bank "D"), disconnect the lift coil of the affected rod and withdraw Bank "D" to 206 steps.

Feedback

REFERENCES:
1. ONOP-028.1, RCC MISALIGNMENT, page 9, rev 02/21/97

DISTRACTORS:

A Correct. IAW ref 1.

B Incorrect. Rods are moved in individual banks.

C Incorrect. Rods are moved in individual banks.

D Incorrect. Disconnecting the unaffected control bank D rod lift coils is performed after is has been determined the misaligned rod is movable.

K/A CATALOGUE QUESTION DESCRIPTION:
- Inoperable/Stuck Control Rod; Knowledge of the interrelations between the Inoperable/Stuck Control Rod and the following: Controllers and positioners.

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7. 005K4.01 001/T2G1//RHRS OMS/M(3.0/3.2)/N/TP05301/R/MC/EXL

Unit 4 is in Mode 4 and SOLID. RHR is in service and Overpressure Mitigation System (OMS) primary and backup status lights are "ON." A 10 second pressure spike to 550 psig causes the following to actuate:

- Annunciator A-3/2, OMS HI PRESS ALERT
- Annunciator A-3/3, OMS CONTROL ACTIVATED

Which ONE of the following describes a correct operator response and the basis for that response?

A. ✔ The crew should override MOV-750 and 751, NORMAL RHR SUCTION FROM LOOP valves before they fully close to maintain letdown available.

B. The crew should take MOV-535 and 536, PORV Isolation Valves, to CLOSE to mitigate a subsequent low pressure excursion should either of the PORVs actuate.

C. The crew should allow MOV-750 and 751, NORMAL RHR SUCTION FROM LOOP valves to close then enter ONOP-050, LOSS OF RHR, to restore RHR and pressure control.

D. The crew should close affected PORVs and increase charging and letdown flow by opening PCV-145 and HCV-142 to mitigate the momentary pressure excursion.

Feedback

REFERENCES:

1. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 33-35, rev 07/23/02
2. SD 021/SYS.050,062,064, EMERGENCY CORE COOLING SYSTEMS, pages 21,49,figs 8&9, rev 04/22/04
3. SD 007/SYS.041A, REACTOR COOLANT SYSTEM, pages 40-44, rev 04/15/04

DISTRACTORS:

A Correct. A "close action override pushbutton" feature will stop the closing action of MOV-751 and 751 while they are in motion. This feature is in operation with the Overpressure Mitigating System (OMS) in low pressure operation and RCS pressure <525 psig. This feature allows prompt action to reverse a pressure excursion (momentary or spurious) while the system is solid preventing the opening of PORV's by OMS action (with 751, 751 closed no letdown is available to relieve the pressure).

B Incorrect. The crew should not isolate PORVs.

C Incorrect. The crew should not allow MOV-750 and 751 to shut.

D Incorrect. The crew should shut the affected PORV is the pressure signal is NOT valid and then reduce /stop charging to maintain RCS pressure and increase letdown by opening PCV-145 and HCV 142.

K/A CATALOGUE QUESTION DESCRIPTION:

- Residual Heat Removal System (RHRS); Knowledge of RHRS design features(s) and/or interlock(s) which provide for the Overpressure mitigation system.

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8. 006G2.1.28 001//T2G1/ECCS/M(3.2/3.3)/N/TP05301/S/MC

Unit 4 entered FR-C.2, RESPONSE TO DEGRADED CORE COOLING, after an ORANGE condition was identified. IAW FR-C.2 all Accumulator Discharge MOVs were closed.

Which ONE of the following describes why the Accumulator Discharge MOVs are shut?

A. To minimize subsequent RCS cool down and vessel thermal shock.

B. To minimize subsequent nitrogen introduction into the RCS.

C. To prevent Accumulator injection flow from hindering HHSI or RHR cooling flow.

D. To prevent the loss of Accumulator water which will be needed if conditions degrade to a RED condition.

Feedback

REFERENCES:

1. BD-EOP-FR-C.2, RESPONSE TO DEGRADED CORE COOLING, page 35, rev 12/14/02
2. EOP-FR-C.2, RESPONSE TO DEGRADED CORE COOLING, page 12, rev 12/14/02
3. SD 021/SYS.050,062,064, page 19, rev 04/22/04

DISTRACTORS:

A Incorrect. Thermal shock is a lower concern than degraded core cooling. Actions are taken in FR-C.2 to inject accumulators.

B Correct. IAW Basis.

C Incorrect. Accumulator injection will supplement and not hinder HHSI or RHR flow to the core.

D Incorrect. Accumulator injection is indeed called upon in the RED condition (FR-C.1) but it is also called for in this ORANGE condition to preclude a RED condition.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Core Cooling System (ECCS); Knowledge of the purpose and function of major system components and controls.

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9. 006K1.08 001/T2G1//ECCS CVCS/M(3.6/3.9)/M/TP05301/R/MC/EXL

Unit 4 is in Solid Plant condition with RHR in service when the following failure occurs:

- HCV-142, RHR LETDOWN TO CVCS, diaphragm fails

Which ONE of the following describes the effect of the diaphragm failure on the RCS?

A. RCS pressure control is affected, temperature control is affected.

B. RCS pressure control is affected, temperature control is not affected.

C. RCS pressure control is not affected, temperature control is affected.

D. RCS pressure control is not affected, temperature control is not affected.

Feedback

REFERENCES:

1. SD 013/SYS.046,047, pages 50,51,55-58,76, fig 1, rev 06/21/04
2. SD 021/SYS.050,062,064, page 34, fig 1, rev 04/22/04
3. LESSON PLAN 6902113, page 84, rev 01/18/02

DISTRACTORS:

A Incorrect. Temperature control is NOT affected.

B Correct. The RHR and CVCS systems are cross connected by opening HCV-142. Pressure is maintained using PCV-145. PCV-145 which was controlling RCS pressure was isolated when HCV-142 shut. HCV-758 which controls cooldown can still control temperature.

C Incorrect. Both are wrong.

D Incorrect. Pressure control is lost.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Core Cooling System (ECCS); Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the CVCS system.

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10. 006K2.01 001/T2G1//ECCS PWR SUP/M(3.6/3.9)/N/TP05301/R/MC/EXL

Unit 4 is operating at 100% power. The 4B HHSI pump has been tagged out for a motor replacement. Shortly following the tagout and disassembling of the 4B HHSI pump motor, Unit 4 experiences a large break LOCA in conjunction with a loss of the 4A 4kV bus.

- The crew entered and completed the required actions of EOP-E-0, REACTOR TRIP OR SAFETY INJECTION
- Operators were not successful in restoring either the 4B HHSI pump or the 4A 4kV bus

For the current conditions, which ONE of the following is available to supply injection flow to Unit 4?

	RHR	HHSI
A.	4A	3A & 4B
B. ✓	4B	3A & 3B
C.	4B	4A & 4B
D.	4A	4A & 3B

Feedback

REFERENCES:

1. SD 140/SYS.002,004,005,006,007,092, MAIN POWER DISTRIBUTION, fig 6, rev 2:08/30/91
2. SD 021/SYS.050,062,064, EMERGENCY CORE COOLING SYSTEMS, pages 37-39, 47-50, fig 61, rev 02/05/04

DISTRACTORS:

A Incorrect. The 4A HHSI pump would not be available.

B Correct. Only the Unit 3 HHSI pumps have power and are available. Only the 4B RHR pump has power and is available.

C Incorrect. The 4A & 4B HHSI pumps are not available.

D Incorrect. The 4A HHSI pump would not be available and the 4A RHR pump would not be available..

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Core Cooling System (ECCS); Knowledge of bus power supplies to the ECCS pumps.

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11. 006K3.02 001/T2G1//ECCS FUEL/C/A(4.3/4.4)/M/TP05301/R/MC/EXL

Unit 4 Accumulator parameters are as follows:

- Pressure 698 psig
- Level 6550 gallons
- Boron Concentration 1955 ppm

The potential impact of these parameter values during a 3" small break LOCA is:

A. ✔ Excessive non-condensible gas introduction into the RCS resulting in interruption of core cooling flow.

B. Too little accumulator water injected into the RCS resulting in increased peak clad temperatures.

C. Too much accumulator water injected into the RCS resulting in increased peak clad temperatures.

D. Dilution of RCS boron concentration resulting in inadequate shutdown margin.

Feedback

REFERENCES:
1. SD-021, TAA LP 6900918

DISTRACTORS:

A Correct. Accumulator pressure is too high.

B Incorrect. While Accumulator level is near the low end of the band, it is adequate and with the existing high pressure it is assured of being completely injected into the core.

C Incorrect. Accumulator level is near the low end of its allowable band.

D Incorrect. While low, the boron concentration is adequate.

K/A CATALOGUE QUESTION DESCRIPTION:
- Emergency Core Cooling System (ECCS); Knowledge of the effect that a loss or malfunction of the ECCS will have on the Fuel.

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12. 007A3.01 001/T2G1//PRTS/C/A(2.7/2.9)/B/TP05301/R/MC/EXL

Unit 3 is operating in Mode 1 at 100% power.

- Annunciator A-7/1, PRT HI/LO LEVEL HI PRESS/TEMP, actuates
- No other Annunciators have actuated
- A review of the parameters shows the following:

Time	1300 hrs	1400 hrs
PRT Level	72%	83%
PRT Temperature	108°F	108°F
PRT Pressure	6 psig	7 psig
PZR Level	53%	53%
Tavg	574°F	574°F
Containment Temperature	102°F	102°F

Assuming all plant systems are in normal alignment, discharge from which ONE of the following caused annunciator A-7/1 to actuate?

A. Letdown line relief valve, RV-203.

B. ✔ RCP seal water return line relief valve, RV-382.

C. PORV block valve, MOV-535, packing leakoff.

D. Reactor vessel head vent system.

Feedback

REFERENCES:

1. SD 009/SYS.041C, PRESSURIZER AND RELIEF SYSTEM, pages 31-35, fig 1, rev 007/23/02
2. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, page 57, rev 07/23/02

DISTRACTORS:

A Incorrect. Water entering the PRT from this source (at 290^{O}F) would increase PRT temperature.

B Correct. With no corresponding alarm from the RCP THERMAL BARR COOLING WATER HI TEMP annunciator (alarms at 145^{O}F), and no noticeable increase in PRT temperature, this is the MOST LIKELY source.

C Incorrect. Water from this source would be the hottest and would noticeably affect PRT temperature.

D Incorrect. Water from this source would be near RCS Tavg and would noticeably affect PRT temperature.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Relief Tank/Quench Tank System (PRTS); Ability to monitor automatic operation of the PRTS, including components which discharge to the PRT.

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3. 007A4.01 001/T2G1//PRTS PRT/M(2.7/2.7)/N/TP05301/R/MC/EXL

Unit 3 is operating at 100% power. Operators are raising Pressurizer Relief Tank (PRT) level IAW OP-041.3, PRESSURIZER RELIEF TANK. PRT Primary Water Makeup Valve, CV-519B, is OPEN, Primary Water Containment Isolation Valve, CV-519A, is in AUTO and indicates open.

- Annunciator A-7/1, PRT HI/LO LEVEL, HI PRESS/TEMP actuates

Which ONE of the following describes the position of the two PRT primary water supply valves for the current plant condition with no operator action?

	CV-519A	CV-519B
A.	SHUT	OPEN
B.	SHUT	SHUT
C.	OPEN	OPEN
D.	OPEN	SHUT

Feedback

REFERENCES:

1. SD 009.SYS.041C, PRESSURIZER AND RELIEF SYSTEM, pages 33,58,59, fig 1, rev 07/23/02

DISTRACTORS:

A Incorrect. Both will remain open.

B Incorrect. Both will remain open.

C Correct. CV-519A spring returns to AUTO after being opened or shut. It shuts automatically upon a phase A containment isolation signal. CV-519B responds to manual operation only.

D Incorrect. Both will remain open.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Relief Tank/Quench Tank System (PRTS); Ability to manually operate and/or monitor in the control room: PRT spray supply valve.

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14. 007EK2.03 001/T1G1//RX TRIP PNL/C/A(3.5/3.6)/N/TP05301/R/MC/EXL

A Unit startup is in progress with reactor power at 12% and increasing. The generator is synchronized to the grid and feedwater control is in manual. The operators are performing actions to control steam generator level when the following is observed:

- Annunciator C 1/4, SG "A" Lo-Lo Level, actuates
- SG levels are noted as follows; SG "A" 10%, SG "B" 12%, SG "C" 14%
- Reactor Trip Breakers are shut
- No rod bottom lights are illuminated

Given the above conditions, which ONE of the following describes the initial actions that should be taken by the operating crew?

A. Operators should continue to raise SG level to prevent a reactor trip on lo-lo SG level.

B. Operators should continue to increase reactor power, not to exceed 25% reactor power given the current plant conditions.

C✔ Operators should manually trip the reactor and turbine.

D. Operators should monitor safety trees using EOP-F-0.

Feedback

REFERENCES:

1. EOP-E-0, "Reactor Trip or Safety Injection", Sect. 2.0, rev 02/22/02
2. SD 063/SYS. 049, 063, "Reactor Protection and Safeguards Actuation System", February 25, 1983 Event, page 76, rev 04/17/02
3. ARP-097.CR, "Control Room Annunciator Response", page 132, rev 07/23/02

DISTRACTORS:

A Incorrect. Reactor should have tripped, coincidence requires 2/3 signals from ANY SG. Plausible because the applicant may confuse 2/3 signals from one SG with 2/3 signals required from all SG's.

B Incorrect. Reactor should have tripped with power greater than 10%.

C Correct. These are the first two actions called out in EOP-E-0.

D Incorrect. The reactor should have tripped, however, this is not the first action an operator would take. Plausible because the applicant may confuse this action with the "Response Not Obtained" action required when, upon verifying a reactor trip, the reactor trip and bypass breakers are not open which is the second step in EOP-E-0.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Trip; Knowledge of the interrelations between a reactor trip and the Reactor trip status panel.

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15. 008A2.07 001/T2G1//CCWS/C/A(2.5/2.8)/N/TP05301/R/MC/EXL

Unit 3 is operating in Mode 1. The crew split the CCW headers in an effort to find a small leak in the CCW system. The 3B and 3C CCW pumps are aligned to Train "B" with the 3B CCW pump running and the 3C CCW pump in standby. The 3A CCW pump is in Pull-To-Lock. The 3B CCW pump shaft shears and the following Annunciators actuate:

- H-8/3, CCW PP HEADER LO PRESS
- A-1/3, RCP THERMAL BARR COOLING WATER LO FLOW
- H-9/5, RCP MOTOR BRG COOLING WATER LO FLOW

Given the current plant conditions, the 3C CCW pump will (1)_____ and (2)_____.

A. (1)NOT auto start; (2)Operators must immediately trip the reactor and stop all affected RCPs to prevent excessive RCP Motor Bearing temperature.

B. (1)AUTO start on low CCW header pressure of 77 psig in 30 seconds; (2)Operators should verify the auto start of the 3C CCW pump and continue to operate the charging pumps as before.

C. (1)NOT auto start; (2)Operators must manually operate the charging pump at maximum speed to prevent excessive charging pump coupling oil temperature.

D. (1)AUTO start on RCP Thermal Barrier cooling water low flow of 66 gpm; (2)Operators must immediately trip the reactor and stop all affected RCPs due to HI RCP Motor bearing temperature.

Feedback

REFERENCES:

1. ONOP-030, COMPONENT COOLING WATER MALFUNCTION, pages 16,26,Foldout, rev 05/24/02
2. SD 040/(SYS.030), COMPONENT COOLING WATER, pages 17,22,23,30-32,figures 1&2, rev 07/08/04

DISTRACTORS:

A Incorrect. Tripping the reactor and RCPs is not required unless the RCP bearing temperature annunciator actuates AND its associated motor bearing temperature is > 195^{o}F.

B Correct. The CCW pump will auto start in 30 seconds restoring CW flow. No further action is required.

C Incorrect. The 3C CCW pump will auto-start.

D Incorrect. The CCW pump will auto start. Thermal barrier low flow is not an auto-start signal.

K/A CATALOGUE QUESTION DESCRIPTION:

- Component Cooling Water System (CCWS); Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Consequences of high or low CCW flow rate and temperature; the flow rate at which the CCW standby pump will start.

16. 008AA1.07 001/T1G1//PZR STM/M(4.0/4.2)/B/TP05301/R/MC/EXL

Unit 3 is stable at 100% power.

- A pressurizer safety valve opens and fails to reseat and the unit trips

Which ONE of the following indications would the operator expect to see as a result of this event?

A. Safety tailpipe temperature would initially increase to greater than 600°F and then subsequently decrease.

B. Safety tailpipe temperature would initially increase to greater than 600°F and then continue to increase to PZR saturation temperature.

C. Safety tailpipe temperature would initially increase to between 200°F and 300°F then subsequently decrease.

D. Safety tailpipe temperature would initially increase to between 200°F and 300°F then continue to increase to PZR saturation temperature.

Feedback

REFERENCES:

1. ONOP-041.5, PRESSURIZER PRESSURE CONTROL MALFUNCTION, Attachment 2, Foldout, rev 10/07/01

DISTRACTORS:

A Incorrect. This would be the correct temperature for pressure at 2240 psig. Since the pressure the steam is going to is 8 to 11 psig, the temperature will be between 212 to 330 degrees per the steam tables.

B Incorrect. Same as above for temperature.

C Correct. After the safety has relieved to the PRT, the pressure will start increasing towards 100 psig. Per the steam tables, as the pressure rises towards 100 psig, the temperature will also rise until the rupture disc relieves, then the pressure will drop along with a corresponding drop in temperature.

D Incorrect. As the pressure rises towards 100 psig, the temperature will also rise.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open); Ability to operate and/or monitor the following as they apply to the Pressurizer Vapor Space Accident: Reseating of code safety and PORV.

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17. 009EG2.2.22 001/T1G1//SBLOCA/M(3.4/4.1)/B/TP05301/R/MC/EXL

A Small Break LOCA has occurred inside Unit 3 containment. The crew is implementing EOP-E-0, REACTOR TRIP OR SAFETY INJECTION.

Which ONE of the following is the reason for tripping the reactor coolant pumps (RCPs)?

A. To ensure RCPs are available later should they be needed in response to an inadequate core cooling condition.

B. To prevent RCP runout in the event of a large break LOCA.

C. To prevent excessive depletion of RCS inventory through a small break in the RCS.

D. To prevent damage to RCPs due to pumping a two-phase mixture.

Feedback

REFERENCES:
1. BD-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, page 45, rev 02/22/02

DISTRACTORS:

A Incorrect. See justification for C.

B Incorrect. See justification for C.

C Correct. Tripping of the RCPs during accident conditions prevents excessive depletion of Reactor Coolant System water inventory through a break in the Reactor Coolant System.

D Incorrect. See justification for C.

K/A CATALOGUE QUESTION DESCRIPTION:
- Small Break LOCA; Knowledge of limiting conditions for operations and safety limits.

18. 010A3.02 001/T2G1//PZR PCS/M(3.6/3.5)/B/TP05301/R/MC/EXL

Unit 4 is operating at 100% steady-state power. All systems are in automatic and functioning properly when pressurizer pressure channel PT-444 fails high.

Which ONE of the following represents the plant/system response if NO operator action is taken?

A. Backup PZR heaters will deenergize and both PORVs will open. RCS pressure will decrease resulting in a reactor trip and SI.

B. Backup PZR heaters will energize and both spray valves will close. RCS pressure will increase resulting in a reactor trip.

C. Backup PZR heaters will deenergize and both spray valves will open. RCS pressure will decrease resulting in a reactor trip and SI.

D. Backup PZR heaters will energize and both spray valves will close. RCS pressure will cycle with PCV-456 and NO reactor trip will result.

Feedback

REFERENCES:

1. SD 009/SYS.041C, pages 39,48, rev 07/23/02

DISTRACTORS:

A Incorrect. Only one PORV, PCV-455C, would open.

B Incorrect. PZR heaters will Deenergize, pressure will drop and the reactor will trip on low pressure. With the exception of the high pressure trip, this is how the plant would respond if PT-444 failed low. Pressure would then drop to 2000 psig and cycle around that point (setpoint of PCV-456).

C Correct. As per page 48 of ref 1.

D Incorrect. This answer would be correct if PT-444 had failed low.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Pressure Control System (PZR PCS); Ability to monitor automatic operation of the PZR PCS, including PZR pressure.

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19. 011EA2.08 001/T1G1//LB LOCA/M(3.4/3.9)/N/TP05301/R/MC/EXL

A Large Break LOCA coincident with a Loss Of Off-site Power (LOOP) has occurred on Unit 3.

At ___ hours after event initiation, EOP-E-1 directs the crew to EOP-ES-1.4, "Transfer to Hot Leg Recirculation."

A. 8 hours.

B. 10 hours.

C✓ 12 hours.

D. 24 hours.

Feedback

REFERENCES:

1. EOP-E-1, "Loss of Reactor or Secondary Coolant," Steps 28,29,32,33, rev 04/03/02
2. BD-DOP-E-1, "Basis; Loss of Reactor or Secondary Coolant," Step 29, rev 04/03/02

DISTRACTORS:

A Incorrect. IAW Step 28, "prior to 8 yours after event initiation, perform post accident chemical injection to RCS."

B Incorrect. IAW Step 29, "check time since event initiation – greater than 10 hours." Basis for this step is EOP Setpoint V.2, time after LOCA to prepare for hot leg recirculation.

C Correct. IAW Step 32, "at 12 hours after event initiation, goto EOP-ES-1.4, transfer to hot leg recirculation."

D Incorrect. IAW Step 33, at 24 hours after event initiation, verify two emergency containment coolers on operation."

K/A CATALOGUE QUESTION DESCRIPTION:

- Large Break LOCA; Ability to determine or interpret the conditions necessary for recovery when accident reaches stable phase as they apply to a Large Break LOCA

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20. 011K4.02 001/T2G2//PZR LCS/C/A(3.3/3.4)/M/TP05301/R/MC/EXL

Unit 3 has been operating at 50% power for the last 24 hours. All systems are aligned for normal operation and are operating normally when the median Tavg input to LC-459F, PZR Level Controller, fails high.

With no operator action, which ONE of the following describes the initial plant response to this malfunction?

Charging pump speed will automatically _____, followed by _____.

A. decrease, actuation of G 1/1, CHARGING PUMP LOW SPEED.

B. decrease, automatic energization of both groups of PZR backup heaters.

C. increase, automatic energization of both groups of PZR backup heaters.

D✓ increase, actuation of G 1/2, CHARGING PUMP HIGH SPEED.

Feedback

REFERENCES:

1. SD 009/SYS. 041C, page 36,37, rev 07/23/02
2. SD 013/SYS.046,047, page 34, rev 06/21/04
3. DWG 56-10-T-D-15, rev 20

DISTRACTORS:

A Incorrect. Speed would increase, not decrease.

B Incorrect. Speed would increase.

C Incorrect. Speed would increase and the CHARGING PUMPS HIGH SPEED Alarm would actuate but PZR heaters would not energize because actual level is below programmed level.

D Correct. Failure of the Tavg signal to the controller will cause charging pumps to speed up, which will result in the charging pump high speed alarm.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Level Control System; Knowledge of PZR LCS design features(s) and/or interlock(s) which provide for PZR level controller.

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21. 012K1.04 001/T2G1//RPS RPIS/C/A(3.2/3.3)/M/TP05301/R/MC/EXL

Unit 4 is operating at 25% power, steady state conditions, when the Reactor Operator reports that control rods are stepping inward in AUTOMATIC. The operator places the rods in MANUAL and rod motion stops. Rod positions just prior to rods stepping in were:

- Control Bank C at 230 steps
- Control Bank D at 107 steps

Rods moved continuously for 10 steps before the operator took rods to MANUAL. Which ONE of the following describes (1) a possible cause of inward rod motion, (2) the final RPI for Control Bank C and (3) the final RPI for Control Bank D?

Assume PT-446 is the selected channel.

A. (1) Loop Tcold failed high
(2) 225
(3) 97

B. (1) Loop Tcold failed low
(2) 220
(3) 107

C. (1) First Stage Pressure Transmitter, PT-446 failed high
(2) 220
(3) 97

D. (1) First Stage Pressure Transmitter, PT-446 failed low
(2) 225
(3) 97

Feedback

REFERENCES:

1. SD 006/SYS.028B, ROD POSITION INDICATION SYSTEM, pages 22,23, rev 04/13/04
2. SD 063/SYS.049,063, REACTOR PROTECTION AND SAFEGUARDS ACTUATION SYSTEM, pages 38-42, rev 04/17/02
3. SD 007/SYS.041A, REACTOR COOLANT SYSTEM, pages 26,27,figs 10&11, rev 04/15/04
4. Lesson Plan 6902163, SD-063, RPS&SAS, pages 40-42, rev 07/10/02
5. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 90,103,117,118,124,370, rev 07/23/02

DISTRACTORS:

A Incorrect. Loop RTD failures are blocked from affecting the rod control system by the Tavg median signal selector.

B Incorrect. Loop RTD failures are blocked from affecting the rod control system by the Tavg median signal selector.

C Incorrect. This failure will not result in inward rod motion.

D Correct. This failure will result in inward rod motion. The values given for rod position are correct for 10 steps inward for Bank D. Bank C position is correct for 5 steps inward movement once 102 step overlap is reached.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Protection System; Knowledge of the physical connections and/or cause effect relationships between the RPS and the Rod Position Indication System (RPIS).

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22. 013K1.02 001/T2G1//ESFAS RCP/M(3.2/3.6)/N/TP05301/R/MC/EXL

Unit 4 was operating at 100% power when a LOCA inside containment occurred. Safety Injection actuated shortly after the LOCA and Phase "B" Containment Isolation actuated some time after the SI.

- The leak has been identified as being on the discharge of Loop "C" RCP
- RCS Subcooling is 85^{O}F

Which ONE of the following describes the effect on the RCPs as a result of Phase "B" Containment Isolation and how is continued RCP operation affected and why?

A. RCP seal water return isolation valve, MOV-4-381, shuts. The RCPs may continue to run without any adverse effects since RCP design makes allowance for this condition.

B. RCP CCW supply isolation valve, MOV-4-716B, shuts. The RCPs must be secured to prevent overheating of the pumps' motors.

C. RCP CCW supply isolation valve, MOV-4-716B, shuts. The RCPs may continue to run until one of the RCPs associated HI TEMP alarms actuates.

D. RCP seal water return isolation valve, MOV-4-381, shuts. The RCPs must be secured immediately to conserve RCS inventory due to the leak location.

Feedback

REFERENCES:

1. EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, foldout, rev 02/12/04
2. BD-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, pages 24,75, rev 02/12/04
3. BD-EOP-FR-Z.1, RESPONSE TO HIGH CONTAINMENT PRESSURE, page 7, rev 02/22/02
4. SD 008/SYS.041B, REACTOR COOLANT PUMPS, page 21, fig 5, rev 02/23/04
5. SD 063/SYS.049,063, REACTOR PROTECTION AND SAFEGUARDS ACTUATION SYSTEM, pages 49,50,85,86, fig 15, rev 04/17/02

DISTRACTORS:

A Incorrect. This is true for, and occurs upon actuation of Phase A, NOT Phase B. The question specifically asks about Phase B.

B Correct. RCP CCW supply and return isolation valves shut upon actuation of Phase B. The RCPs must be stopped to prevent damage due to overheating of the seals and the motor.

C Incorrect. The RCPs must be secured immediately.

D Incorrect. The reason is not correct because the subcooling value given is adequate.

K/A CATALOGUE QUESTION DESCRIPTION:

- Engineered Safety Features Actuation System (ESFAS); Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: RCP

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23. 013K5.01 001/T2G1//ESFAS/C/A(2.8/3.2)/N/TP05301/R/MC/EXL

Unit 4 is at power with a normal electrical lineup when a large break LOCA occurs inside containment immediately followed by a lockout of the Unit 4 Startup Transformer. Concurrently, the following components fail:

- 4A EDG
- 4D Load Center
- Containment High Pressure switch PS-2007
- Containment Hi-Hi Pressure switch PS-2056

For the current plant conditions, which ONE of the following describes the status of the Containment Spray System?

A. BOTH the "A" & "B" containment spray trains were lost; ONE train of containment spray Automatic Actuation Logic and Actuation Relays was lost.

B. BOTH the "A" & "B" containment spray trains were lost; NEITHER train of containment spray Automatic Actuation Logic and Actuation Relays was lost.

C. Only the "A" containment spray train was lost; ONE train of containment spray Automatic Actuation Logic and Actuation Relays was lost.

D. Only the "B" containment spray train was lost; NEITHER train of containment spray Automatic Actuation Logic and Actuation Relays was lost.

Feedback

REFERENCES:

1. SD 025/SYS.068, CONTAINMENT PSRAY SYSTEM, pages 7,8,18,19, rev 07/22/99
2. SD 140/SYS.002,004,005,006,007,092, MAIN POWER DISTRIBUTION, fig 1, rev 8:01/04/00

DISTRACTORS:

A Incorrect. Neither CS actuation train was lost.

B Correct. Spray Pump 4B is powered from Load Center 4D so safety train "B" is lost. LOOP with 4A EDG failure results in loss of power to Train A ECCS equipment. 2/3 coincidence is required for CS initiation. Only one Hi-Hi containment pressure signal and only one High containment pressure signal was lost so neither CS actuation train was lost. An applicant might confuse this with the fact that any one of the six pressure switches initiates the Containment High or Hi-Hi pressure alarm on annunciator H-5/1.

C Incorrect. Both containment spray trains were lost and neither CS actuation train was lost.

D Incorrect. Both containment spray trains were lost.

NOTE: This question meets the "definitions" portion of the K/A in that the applicant must know and understand the definitions and differences between the two to answer the question.

K/A CATALOGUE QUESTION DESCRIPTION:

- Engineered Safety Features Actuation System (ESFAS); Knowledge of the operational implications of the following concepts as they apply to the ESFAS: Definitions of safety train and ESF channel.

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24. 014A2.02 001//T2G2/RPIS/C/A(2.6/3.0)/M/TP05301/S/MC

Unit 4 is at 100% power with all control rods in the fully withdrawn position when power is lost from the RPI inverter.

Which ONE of the following describes the effect on the RPI system and correct operator response to this event?

A. RPI indication has been lost. Reduce thermal power to less than 75% within 8 hours.

B. RPI indication has been lost. Restore the failed inverter to operable status within 1 hour or place Unit 4 in Hot Standby within the following 6 hours.

C. RPI power has auto swapped to the CVT. Initiate PWOs to repair the failed Inverter and calibrate the RPI system to compensate for changes in power supply voltage.

D. RPI power has auto swapped to the CVT. Restore the failed inverter to operable status within 1 hour or place Unit 4 in Hot Standby within the following 6 hours.

Feedback

REFERENCES:

1. ONOP-028.2, RCC POSITION INDICATION MALFUNCTION, pages 5,6, rev 04/12/02
2. SD-006/SYS.028B, ROD POSITION INDICATION SYSTEM, pages 9,10, fig 5, rev 04/13/04
3. ONOP-028.1, RCC MISALIGNMENT, pages 6,7, rev 04/12/02
4. Tech Spec 3.1.3.3, REACTIVITY CONTROL SYSTEMS, page 1-23, Amendment Nos. 149 & 144

DISTRACTORS:

A Incorrect. Power has not been lost to the RPI System.

B Incorrect. Power has not been lost to the RPI System.

C Correct. IAW ONOP-028.2.

D Incorrect. The shutdown statement would be correct if all RPI indication had been lost. Since it has not been lost, the shutdown requirement does not apply.

K/A CATALOGUE QUESTION DESCRIPTION:

– Rod Position Indication System (RPIS); Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of power to the RPIS.

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25. 015AA1.22 001/T1G1//RCP SEALS/C/A(4.0/4.2)/M/TP05301/R/MC/EXL

Unit 3 has been operating at 100% power under steady state conditions for the past 3 days when Annunciator A-1/5, RCP SEAL LEAKOFF HIGH FLOW, actuates. The crew also observed the following annunciators and plant indications:

– "B" RCP No. 1 Seal Leakoff Flow Wide Range	Pegged High
– "B" RCP No. 1 Seal D/P	25 psid
– "B" RCP Seal Water Injection Flow	14 gpm
– Charging Flow	75 gpm
– Pressurizer Level	Decreasing rapidly
– A 6/4 - RCP SEAL WATER LO D/P	Lit
– A 6/5 - RCP LABYRINTH SEAL LO D/P	Lit
– A 6/6 - SEAL WATER INJ FILTER HI D/P	Lit
– G 2/2 - RCP "B" STANDPIPE HI LEVEL	Lit
– G 5/3 - CNTMT LEVEL INCREASING > 1 GPM	Lit

Which ONE of the following RCP Seal failures occurred?

A. No. 2 and No. 3 seals have failed and the RCS pressure drop is across the No. 1 seal.

B. No. 2 seal has failed and is allowing water from the standpipe to flow out the No. 1 seal leakoff line.

C. No. 1 and No. 2 seals have failed causing failure of No. 3 seal.

D. No. 1 seal has failed and the RCS pressure drop is across the No. 2 seal.

Feedback

REFERENCES:

1. SD 008/STS.041B, "Reactor Coolant Pumps," pages 12-14,27,28,3,33,38,39,41, figures 2,4,5,6 rev 02/23/04

DISTRACTORS:

A Incorrect. The D/P across the No. 1 Seal should indicate "pegged high" (i.e. >400psid which is upper range of the meter; 2235 RCS pressure minus ~40# backpressure which is VCT pressure). However, the D/P is 25 psid indicating that the seal has indeed failed but, due to the failure of the #2 Seal and the orifice effect of water flowing past the #1 Seal, a small differential pressure still exists.

B Incorrect. The No. 1 Seal has also failed.

C Correct. The RCP SEAL LEAKOFF HIGH FLOW Annunciator has actuated by FT-155A located in the "B" RCP No. 1 Seal Leakoff Line indicating failure of No. 1 Seal failure and the "B" RCP STANDPIPE HIGH LEVEL Annunciator is lit indicating leakage past the No. 2 Seal.

D Incorrect. The "B" RCP STANDPIPE HIGH LEVEL Annunciator is lit indicating that the No. 2 Seal has also failed.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Coolant Pump (RCP) Malfunctions; Ability to operate and/or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow), RCP seal failure/malfunction.

26. 015AG2.4.49 001//T1G1/RCP/C/A(4.0/4.0)/M/TP05301/S/MC

Unit 3 has been operating at 100% power for three days when the following conditions occur:

- Annunciator A-1/5, RCP SEAL LEAK-OFF HI FLOW, actuates
- Annunciator G-2/2, RCP B STANDPIPE HI LEVEL, actuates
- RCP "B" seal injection flow is 7.8 gpm
- RCP "B" seal leak-off flow is 6.1 gpm
- Seal return temperature is 150°F and rising steadily

Based on the above indications, the crew enters ONOP-041.1, REACTOR COOLANT PUMP OFF-NORMAL. IAW ONOP-041.1, the SRO should direct the operating crew to perform which ONE of the following?

A. RCP "B" operation may continue for up to 24 hours due to number two seal sticking.

B. ✔ Manually trip the reactor, then stop RCP "B" and close its seal leakoff valve after the pump stops.

C. Commence unit shutdown using ONOP-100, FAST LOAD REDUCTION, when the turbine is tripped, then trip the reactor, when the reactor is tripped, then stop RCP "B".

D. Begin preparations to shutdown and stop RCP "B" using GOP-103, POWER OPERATION TO HOT STANDBY and contact plant management for further guidance.

Feedback

REFERENCES:

1. ONOP-041.1, REACTOR COOLANT PUMP OFF-NORMAL, pages 7,12,13,23,30, rev 06/14/99C1
2. ARP-097CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 25,352, rev 06/09/03

DISTRACTORS:

A Incorrect. This would be true on initial startup (or for 8 hours during normal operation).

B Correct. IAW ref 1.

C Incorrect. This would be true if seal flow was less than 6 gpm but greater than 5.5 gpm.

D Incorrect. This would be true if seal flow was less than 5.5 gpm.

K/A CATALOGUE QUESTION DESCRIPTION:

- Reactor Coolant Pump Malfunction; Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

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27. 015K3.06 001/T2G2//NIS/M(2.9/3.2)/B/TP05301/R/MC/EXL

The following conditions exist:

- The plant is at 75% power
- Rod Control is in AUTO
- NI-44 fails high

With NO Operator action, which ONE of the following correctly describes how control rods will respond to this failure?

A. ✓ Rods will step in until NI-44 and turbine power rates of change are matched.

B. Rods will step in until Tave and Tref are matched.

C. Rods will step in until BOTH NI-44 and turbine power rates of change are matched AND Tave and Tref are matched.

D. Rods will step in continuously and will not stop until rod control is placed in MANUAL.

Feedback

REFERENCES:

1. SD 005/SYS.027A,028A, "Full Length Rod Control," page 25, rev 04/13/04
2. SD 005/SYS.027A,028A, "Full Length Rod Control," figures 12 & 13, rev 07/21/94
3. LP 6902104, "Excore Nuclear Instrumentation," page 69, rev 04/14/03

DISTRACTORS:

A Correct. Rods will move in to lower power as NI-44 fails high but will stop when NI-44 rate of change decreases to match turbine power rate of change.

B Incorrect. NI-44 does not have input into the Tavg/Tref comparison circuit.

C Incorrect. NI-44 does not have input into the Tavg/Tref comparison circuit.

D Incorrect. Rods will move in to lower power as NI-44 fails high but will stop when NI-44 rate of change decreases to match turbine power rate of change.

K/A CATALOGUE QUESTION DESCRIPTION:

- Nuclear Instrumentation System; Knowledge of the effect that a loss or malfunction of the NIS will have on the reactor regulating system.

28. 017K3.01 001/T2G2//ITM NAT CIRC/C/A(3.5/3.7)/B/TP05301/R/MC/EXL

Given the following plant conditions:

- A small break Loss Of Coolant Accident (LOCA) has occurred
- ALL RCPs are stopped
- Core Exit Thermocouple System (CET) readouts have failed
- Pressurizer pressure channel PT-455, indicates 1725 psig
- Pressurizer pressure channel PT-457, indicates 1735 psig
- RCS pressure PT-404 indicates 1690 psig
- RCS pressure PT-406 indicates 1685 psig
- RTD temperatures (degrees F) as follows:

	Loop A	Loop B	Loop C
Thot	540	550	560
Tcold	533	543	553

Which ONE of the following RCS Subcooling values (in degrees F) will be displayed on QSPDS?

(NOTE: Steam tables are provided as a reference.)

A. 73

B. 60

C. 57

D. 53

Feedback

REFERENCES:

1. EOP-ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION, page 34, rev 04/03/02
2. BD-EOP-ES-0.2, NATURAL CIRCULATION COOLDOWN, page 31, rev 08/03/01

DISTRACTORS:

A Incorrect. Subtracted the lowest Thot RTD (613-540=73F).

B Incorrect. Subtracted the highest Tcold RTD (613-553=60).

C Incorrect. Used highest pressure (1735psig+15psi=1750psia and Tsat is 617F) for Tsat and subtracted highest RTD (617-560=57F).

D Correct. Calculated using Tsat for the lowest pressure (1685 psig+15psi=1700psia and Tsat is 613^{o}F) MINUS hottest temperature RCS RTD (613-560=53^{o}F).

K/A CATALOGUE QUESTION DESCRIPTION:

- In-Core Temperature Monitor System (ITM); Knowledge of the effect that a loss or malfunction of the ITM system will have on natural circulation indications.

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29. 022A1.03 001/T2G1//CCS HUMIDITY/C/A(3.1/3.4)/N/TP05301/R/MC/EXL

Unit 3 is operating at 100% steady state power when a large break LOCA inside containment occurs.

- The "A" Train sequencer fails
- Containment Spray Pump "B" tripped on overload immediately after automatically starting

Which ONE of the following describes the 3-EOP-E-0 manual actions necessary to prevent exceeding containment design parameters for this event?

A. Start the 3B or 3C ECC only.

B. Start the 3B and 3C ECC only.

C. Start the 3B or 3C ECC and 3A CSP.

D. Start the 3B and 3C ECC and the 3A CSP.

Feedback

REFERENCES:

1. SD 029/SYS.053,055,056,057,058, CONTAINMENT VENTILATION AND HEAT REMOVAL SYSTEMS, pages 8,9,15fig 7, rev 03/10/04
2. SD 025/SYS.068, CONTAINMENT SPRAY SYSTEM, page 6, rev 07/22/99
3. SD 040(SYS.030), fig 1, rev 07/08/04
4. Containment Spray System Design Basis Document, Section 3.1

DISTRACTORS:

A Incorrect. No CSPs are running. Minimum requirements are for 1 CSP and 2 ECCs.

B Incorrect. Starting 2 ECCs will result in 3 ECCs running which is not allowed.

C Correct. Two ECCs and 1 CSP are required to maintain equipment qualifications per the Design Basis Document.

D Incorrect. Starting 2 ECCs will result in 3 ECCs running which is not allowed IAW EOP-E-0.

K/A CATALOGUE QUESTION DESCRIPTION:

- Containment Cooling System (CCS); Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including containment humidity.

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30. 022AK1.01 001/T1G1//RCP SEALS/C/A(2.8/3.2)/B/TP05301/R/MC/EXL

Unit 3 tripped due to a loss of all AC power. Plant conditions are as follows:

- Power has been restored
- Transition has just been made from 3-EOP-ECA-0.0 to 3-EOP-ECA-0.1
- Common Seal Water Return Temperature to CVCS is 220°F
- No. 1 Seal Water Outlet Temperature for all RCPs is 220°F
- Annunciator A 1/6, "No. 1 Seal Leak-Off Hi Temp" is lit
- Annunciator A 1/2, "RCP Thermal Barrier Cooling Water Hi Temp" is lit
- Seal Injection Manual Isolation Valves, 297A, 297B, 297C are closed
- RCP Thermal Barrier CCW Outlet Valve, MOV-3-626, is closed

IAW 3-EOP-ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, which ONE of the following is correct?

A. Do NOT attempt to restore RCP seal injection or thermal barrier cooling.

B. Adjust RCP Seal Injection Manual Isolation Valves to establish pump bearing cooldown rate less than or equal to 1°F/minute to minimize the potential for thermal shock of the seals

C. Slowly establish Component Cooling Water flow to the thermal barrier heat exchanger prior to restoring seal injection flow to limit the introduction of steam into the CCW system.

D. Immediately establish a 100°F/hour cooldown of the RCS using natural circulation.

Feedback

REFERENCES:

1. 3-EOP-ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, Step 1, rev 04/30/02
2. SD 008/SYS.041B, rev 02/23/04

DISTRACTORS:

A Correct. No attempt is made to restore seal cooling IAW ref 1.

B Incorrect. No attempt is made to restore seal cooling IAW ref 1.

C Incorrect. No attempt is made to restore seal cooling IAW ref 1.

D Incorrect. No cooldown is initiated in ECA-0.1.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Reactor Coolant makeup; Knowledge of the operational implications of the consequences of thermal shock to RCP seals as they apply to Loss of Reactor Coolant Pump Makeup.

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31. 025AK1.01 001/T1G1//LOSS OF RHRS/C/A(3.9/4.3)/N/TP05301/R/MC/EXL

Unit 4 experienced a LOCA. Cold Leg Recirculation is in progress. The crew also observed the following annunciators and plant conditions:

- RWST Level is <60,000 gallons
- Annunciator H6/2, RHR HX HI/LO FLOW, actuates
- RHR flow is fluctuating between 2750 and 3250 GPM
- RHR pump motor amps are oscillating
- RVLMS head level indicates 33%

Which ONE of the following would cause low RHR flow based on the current plant conditions?

A. Low RWST level.

B. Low HHSI pump flow.

C. Clogging of the containment sump screens.

D. Chemical plating occurring in the core.

Feedback

REFERENCES:

1. SD 021/SYS.050,062,064, page 40, fig 5, rev 04/22/04
2. 3-ARP-0097.CR, page 430, rev 07/23/02
3. 3-EOP-ES-1.3, Step 17

DISTRACTORS:

A Incorrect. During cold leg recirculation the Lo Head RHR pumps take a suction from the containment recirculation sumps.

B Incorrect. IAW ref 1, when RWST level reaches the lo-lo setpoint (60,000 gal), the operating HHSI pumps and containment spray pump are stopped so these pumps could no be causing this condition as they might if they were still running.

C Correct. Clogging of the containment sump strainer would cause the RHR pumps to cavitate resulting in the indications given.

D Incorrect. While chemical plating would result in reduced flow through the core and possibly reduces RHR flow, it would not cause the RHR pumps to cavitate.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Residual Heat Removal System (RHRS); Knowledge of the operational implications of a loss of RHRS during all modes of operation as it applies to Loss of Residual Heat Removal System.

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32. 026AK3.02 001/T1G1//LOSS OF CCW/C/A(3.6/3.9)/N/TP05301/R/MC/EXL

Unit 4 was operating at 100% power with the "A" CCW pump breaker tagged and racked out. The 4D Bus is aligned to 4A Bus. A LOCA in conjunction with a Loss Of Off-site Power (LOOP) occurs. Current plant conditions are as follows:

- Unit 4 tripped.
- SI actuated.
- 4B Diesel Generator failed to start.
- 4A Emergency Load Sequencer initiated
- All other components and systems operated as designed

For the above conditions, which ONE of the following describes how CCW flow will be reestablished?

A. The "C" CCW pump will not automatically start. An operator must manually start the "C" CCW pump.

B. The "C" CCW pump will not automatically start. An operator must first restore power to the associated bus, then manually start the "C" CCW pump.

C. The "C" CCW pump will be automatically started by the sequencer.

D. The "C" CCW pump will be automatically started on low CCW system pressure.

Feedback

REFERENCES:

1. SD 040/(SYS.030), "Component Cooling Water," pages 8,17,18,22,26, figs 1,1A,2 rev 07/08/04
2. Lesson Plan 6902140, SD-140/(SYS.030), Component Cooling Water, TO (1) page 4(6), and page 19, para c.2), rev 08/14/02

DISTRACTORS:

A Incorrect. The CCW pump will be started by the sequencer.

B Incorrect. The CCW pump will be started by the sequencer. Since the "C" CCW pump would be the only pump to start in this scenario, the applicant may confuse the 10 second start associated with the low CCW header pressure automataic pump start. Also, even though this is the only pump running, one pump is capable of providing adequate flow to both trains which are normally cross-connected.

C Correct. With the "A" CCW Pump Breaker racked out, the "D" 4 KV bus will be powered from the "A" bus and the "C" CCW Pump breaker control logic will block the low pressure automatic start (sequenced at 30 seconds from CCW system low pressure). The Emergency Load Sequencer will start the pump 25 seconds after sequencer initiation.

D Incorrect. If not for the loss of off-site power, the low pressure automatic start signal would normally start the "C" CCW Pump after a 30 second time delay. However, the low pressure automatic start is blocked on a loss of offsite power.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Component Cooling Water (CCW); Knowledge of the reasons for the automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS as they apply to the Loss of Component Cooling Water.

33. 026G2.1.2 001/T2G1//CSS/M(3.0/4.0)/N/TP05301/R/MC/EXL

Operators are performing 3-GOP-305, "Hot Standby to Cold Shutdown," and are preparing to perform required actions related to Containment Spray Pumps.

Which ONE of the following describes the required operator actions for the given plant conditions in accordance with 3-GOP-305?

A. When RCS temperature is between 350°F and 200°F, place both CSPs in Pull-To-Lock and lock closed both discharge isolation valves.

B. When RCS temperature is between 350°F and 200°F, place both CSPs in standby and remove power from both discharge MOVs.

C. When RCS temperature is less than 200°F, place both CSPs control switches in Pull-To-Lock and lock closed both discharge isolation valves.

D. When RCS temperature is less than 200°F, place both CSPs control switches in standby and remove power from both discharge MOVs.

Feedback

REFERENCES:

1. 3-GOP-305, Step 5.19.4 and Attachment 5.

DISTRACTORS:

A Incorrect. The actions stated are correct but the Containment Spray system must remain in service until RCS temperatures are less than 220°F.

B Incorrect. The RCS temperature values are not correct and the actions stated are not correct. Control switches must be placed in PTL and the procedure does not call for removing power from the discharge MOVs.

C Correct. Correct per the references given..

D Incorrect. The RCS temperature values are correct but the actions stated are not correct. Control switches must be placed in PTL and the procedure does not call for removing power from the discharge MOVs..

K/A CATALOGUE QUESTION DESCRIPTION:

- Containment Spray System; Knowledgeable of operator responsibilities during all modes of plant operation.

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34. 027AA2.03 001/T1G1//PZR PCS/C/A(3.3/3.4)/B/TP05301/R/MC/EXL

Unit 4 is operating at 75% power.

- RCS pressure is decreasing
- PI-445 indicates 2500 psig
- PORV-456 opens

Assuming no operator action, which ONE of the following is correct?

A. ✔ All pressurizer heaters energize. RCS Pressure will stabilize around 2000 psig.

B. Spray valves close. Pressure will continue to decrease until the reactor trips at 1835 psig.

C. Spray valves open. RCS Pressure will stabilize around 2000 psig.

D. All pressurizer heaters deenergize. Pressure will continue to decrease until the reactor trips at 1835 psig.

Feedback

REFERENCES:

1. SD 009/SYS.041C, page 30,48, rev 07/23/02

DISTRACTORS:

A Correct. PORV-456 will open. All PZR heaters will energize and Interlock will close PORVs at 2000 psig preventing reactor trip.

B Incorrect. Interlock will close PORVs at 2000 psig preventing reactor trip.

C Incorrect. Spray valves will be open.

D Incorrect. All PZR heaters will energize due to lowering pressure. Interlock will close PORVs at 2000 psig preventing reactor trip.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Pressure Control System (PZR PCS) Malfunction; Ability to determine and interpret the effects of RCS pressure changes on key components in plant as they apply to the Pressurizer Pressure Control Malfunction

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35. 027AG2.2.25 001//T1G1/PZR PRESS/C/A(2.5/3.7)/M/TP05301/S/MC

Unit 4 is operating at 100% power on February 25, 2005, at 0930, when pressurizer pressure instrument PT-455 fails low. At 1045 pressure instrument PT-456 fails to 2300 psig. No bistables on either channel have been tripped.

Based on the above plant conditions, which ONE of the following describes the actions(s) that must be performed to satisfy Technical Specifications and why?

A. Be in at least Mode 3 within 13 hours; permits the time limits of the ACTION requirements to be reset to the point in time where the plant entered the new Mode to allow completion of remedial measures and a return to POWER.

B. Be in at least Mode 3 within 7 hours; permits shutdown in a controlled and orderly manner.

C. Be in at least Mode 4 within 7 hours; permits shutdown in a controlled and orderly manner.

D. Be in at least Mode 4 within 13 hours; permits the time limits of the ACTION requirements to be reset to the point in time where the plant entered the new Mode to allow completion of remedial measures and a return to POWER.

Feedback

REFERENCES:

1. Tech Specs 3/4.3.1, REACTOR TRIP SYSTEM INSTRUMENTATION, Table 3.3-1, Amendment NOS. 140 & 135
2. Tech Specs 3/4.0, APPLICABILITY, 3.0.3, Amendment NOS. 137 & 132
3. 0-ADM-536, TECH SPEC BASES CONTROL PROGRAM, pages 22,23, rev 05/01/03

DISTRACTORS:

A Incorrect. Wrong time requirement and reason.

B Correct. IAW 3.0.3, within 1 hour action shall be initiated to place the unit in: (1) at least HOT STANDBY within the next 6 hours (for a total of 7), (2) at least HOT SHUTDOWN within the following 6 hours (for a total of 13), (3) at least COLD SHUTDOWN within the subsequent 24 hours (for a total of 37).

C Incorrect. Wrong time requirement.

D Incorrect. Wrong reason.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurizer Pressure Control System Malfunction; Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

36. 029A3.01 001/T2G2//CPS ISOLATION/M(3.8/4.0)/M/TP05301/R/MC/EXL

The following conditions exist:

Unit 4 is in mode 5 with a containment purge in progress when Containment Radiation Monitor R-12 fails high.

With NO Safety Injection Signal present, which ONE of the following statements is correct?

A. Operators must manually isolate the Containment Purge System by closing the purge supply and exhaust valves and containment instrument air bleed valves. Purge supply and exhaust fans will automatically trip.

B✔ An automatic isolation of the Containment Purge System will occur. Purge supply and exhaust valves will shut. Containment instrument air bleed valves will shut, and purge supply and exhaust fans will trip.

C. An automatic isolation of the Containment Purge System will occur. Purge supply and exhaust valves will shut. Containment instrument air bleed valves will remain open. Purge supply and exhaust fans must be manually tripped.

D. Operators must manually isolate the Containment Purge System by closing the purge supply and exhaust valves. Containment instrument air bleed valves will remain open. Purge supply and exhaust fans must be manually tripped.

Feedback

REFERENCES:

1. 0-OP-053, step 4.15
2. SD-029/SYS, Containment Ventilation and Heat Removal Systems, page 27, para 14, rev 10/18/00 (W97/TNR/tm/bc/er)
3. 5610-T-L-1, Sheet 11

DISTRACTORS:

A Incorrect. Automatic initiation of the Containment Purge System will occur.

B Correct. High containment gaseous activity on Containment Radiation Monitor, R-12 actuates a trip of Containment Purge System supply fans, exhaust fans, and associated valves (containment ventilation isolation signal). An automatic Safety Injection Signal, if it were present, would of itself, actuate a trip of all the above.

C Incorrect. Containment isolation valves will automatically shut and purge supply and exhaust fans will automatically trip.

D Incorrect. Automatic initiation of the Containment Purge System will occur, containment isolation valves will automatically shut, purge supply and exhaust fans will automatically trip.

K/A CATALOGUE QUESTION DESCRIPTION:

- Containment Pruge System (CPS); Ability to monitor automatic operation of the Containment Pruge System including CPS isolation.

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37. 029EK3.10 001/T1G1//ATWS RODS/C/A(4.1/4.1)/N/TP05301/R/MC/EXL

Unit 4 was operating at 100% power when RCS and Pressurizer pressure increased to 2395 psig. NO automatic protective functions actuated as a result of the increased pressure. The operator inserted a manual trip but the reactor failed to trip.

Which ONE of the following represents the NEXT action, if any, operators should take?

A. Manually insert rods into the core in order to decrease reactor power.

B. Manually initiate safety injection to ensure at least one train of safeguards equipment is available.

C. Locally open reactor trip and bypass breakers to rapidly decrease reactor power.

D. No automatic protective functions should actuate for this transient and no actions should have been attempted.

Feedback

REFERENCES:

1. EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, page 5, rev 04/15/99
2. BD-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, page 8, rev 04/15/99
3. EOP-E-0, Reactor Trip or Safety Injection, pages 3,4, rev 02/22/02

DISTRACTORS:

A Correct. Per ref 1.

B Incorrect. Safety injection WOULD be required if pressurizer pressure were to reach 1730 psig, NOT for high pressure.

C Incorrect. This would be performed only AFTER manual rod insertion had been attempted and proved unsuccessful.

D Incorrect. Pressure has exceeded the design basis transient limit.

K/A CATALOGUE QUESTION DESCRIPTION:

- Anticipated Transient Without Scram (ATWS); Knowledge of the reasons for manual rod insertion as it applies to the ATWS.

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8. 033AG2.2.22 001/T1G2//LOSS OF IR NI/M(3.4/4.1)/M/TP05301/R/MC/EXL

Unit 3 is in Mode 2 with a reactor startup in progress. The following conditions exist:

- Reactor power is 5 E-10 amps
- Source range high voltage is de-energized
- Intermediate Range channel N-35 has failed low

After placing the LEVEL TRIP switch on the failed channel drawer in BYPASS, which ONE of the following actions and limits are required by ONOP-059.7, INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION?

A. Restore the inoperable channel to operable prior to increasing power above 5%.

B. Verify P-6 is in its required state within 1 hour or place the Unit in at least Hot Standby within the next 6 hours.

C. Re-energize source range by depressing both P-6 DEFEAT pushbuttons when the operable intermediate range channel indicates less than 10 E-10.

D. Operation above P-6 may continue unrestricted up to 100% rated thermal power IAW Technical Specifications.

Feedback

REFERENCES:

1. ONOP-059.7, INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION, pages 8,9, rev 03/26/03

DISTRACTORS:

A Correct. Per section 5.2.1 steps 1 and 2.

B Incorrect. This action would be correct if power had been below permissive P-6 (power < 1 E-10) when the failure occurred.

C Incorrect. Action is applicable for Modes 3, 4, and 5 and Mode 2 if a reactor trip had occurred.

D Incorrect. Statement is not correct IAW Technical Specifications and not IAW ONOP-059.7.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Intermediate Range Nuclear Instrumentation; Knowledge of limiting conditions for operations and safety limits.

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39. 033GG2.4.30 001//T2G2/SFPCS/C/A(2.2/3.6)/N/TP05301/S/MC

Unit 4 is in Mode 6. On January 29th at 0900 the water level in the Spent Fuel Pool was lowered to 56' to perform maintenance. All movement of fuel assemblies and crane operation in the fuel storage area had been suspended at 0700 the same day. Maintenance was scheduled for completion with level restored by February 5th at 0900.

- Maintenance was completed and level restored on February 6th at 1000

Which ONE of the following correctly completes the statement:

This event is ___(1)___ to the NRC because ___(2)___.

A. Reportable; SFP level remained below the minimum for more than 24 hours beyond originally scheduled.

B. Reportable; SFP level remained below the minimum for more than 7 days.

C. Not Reportable; SFP level was not lowered below the minimum level required by Tech Specs.

D. Not Reportable; the amount of time the SFP level remained below the minimum did not exceed 7 days.

Feedback

REFERENCES:

1. Tech Specs, 3.9.11, REFUELING OPERATIONS – WATER LEVEL – STORAGE POOL, page 9-12, Amendment Nos. 224 & 219

DISTRACTORS:

A Incorrect. The time exceeded 7 days.

B Correct. SFP level shall be maintained greater than or equal to elevation 56' – 10". If the level is not restored within 7 days, the NRC shall be notified within the next 24 hours.

C Incorrect. Level was lowered below the minimum required by Tech Specs.

D Incorrect. The amount of time the SFP level remained below the minimum exceeded the maximum time allowed by Tech Specs.

K/A CATALOGUE QUESTION DESCRIPTION:

- Spent Fuel Pool Cooling System (SFPCS); Knowledge of which events related to system operations/status should be reported to outside agencies.

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40. 034A4.01 001/T2G2//FHES RAD/C/A(3.3/3.7)/M/TP05301/R/MC/EXL

Refueling operations are in progress on Unit 4 when a fuel assembly with 10,000 MWD/MTU is dropped directly to the floor of the Spent Fuel Pit (SFP). Operators see bubbles coming from the damaged fuel assembly.

Which ONE of the following radiation monitors would actuate annunciator H 1/4, PRMS HI RADIATION, to alert operators to this event?

A. R-12 (Unit 4 Containment Air Gaseous Monitor).

B. ✓ R-14 (Plant Vent Gaseous Monitor).

C. RAD-6304 (Plant Vent Stack SPING/4 Monitor).

D. RI-4-1422B (Unit 4 SFP South Wall ARM).

Feedback

REFERENCES:

1. SD 041/SYS. 033,034A, 035A, 036A, page 22. rev 12/26/01
2. SD 068/SYS. 066, 067, pages 8, 23, 24, 28, 32-35, 44-48. rev 11/08/00
3. 3-ONOP-067

DISTRACTORS:

A Incorrect. R-12 has an input into annunciator H 1/4 but it will not detect radiation release based upon this event.

B Correct. Consists of 4 GM tubes located inside the plant vent (direct acting) to monitor the gaseous activity passing through the plant vent stack. The discharge from the Unit 4 SFP area is directed to the plant vent stack.

C Incorrect. While its sensing point is located inside the plant vent, it does not have input into H 1/4. Only control room indication is on ERDADS screen.

D Incorrect. While this detector is located in the Unit 4 SFP, it does not have input into H 1/4.

K/A CATALOGUE QUESTION DESCRIPTION:

- Fuel Handling Equipment System (FHES); Ability to manually operate and/or monitor in the control room radiation levels.

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41. 038EA2.07 001/T1G1//SGTR/C/A(4.4/4.8)/N/TP05301/R/MC/EXL

Unit 3 is operating at 100% power with all controls in automatic when you see the following:

- Decreasing PZR level and pressure
- Increasing Charging flow
- S/G "A" level increases 4% and returns to program level
- Steam flow and pressure for all S/Gs remains constant
- All loop cold leg temperatures remain constant

Which ONE of the following explains the cause of the plant response?

A. A S/G Safety Valve on S/G "A" failed open.

B. A SGTR on S/G "A" has occurred.

C. A steam break downstream of the MSIV for S/G "A" has occurred.

D. A loss of feed to S/G "A" has occurred.

Feedback

DISTRACTORS:

A Incorrect. Steam flow in the affected S/G would increase and TC for that loop would decrease.

B Correct.

C Incorrect. Steam flow for the affected S/G would increase and affected loop TC would decrease.

D Incorrect. Loop "A" TC would not remain constant and level, after increasing, would continue to drop below program level. Additionally, S/G level would not initially increase then return to program as a result of this event

K/A CATALOGUE QUESTION DESCRIPTION:

- Steam Generator Tube Rupture (SGTR); Ability to determine or interpret the following as they apply to a SGTR: Plant conditions, from survey of control room indications.

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42. 039GG2.1.32 001//T2G1/MRSS/M(3.4/3.8)/N/TP05301/S/MC

Unit 4 is operating at 100% power when "A" MSIV is found to be inoperable in the OPEN position at 1400, 02-21-05.

Which ONE of the following describes the actions to be taken and why?

A. Be in MODE 3 by 2000, 02-21-05. Limits the pressure rise within containment in the event a steam line break occurs within containment.

B. Be in MODE 3 by 0200, 02-22-05. Minimizes the negative reactivity effects of the Reactor Coolant System cooldown associated with the blowdown in the event of a steam line break.

C. Be in MODE 3 by 1400, 02-22-05. Minimizes the negative reactivity effects of the Reactor Coolant System cooldown associated with the blowdown in the event of a steam line break.

D. Be in MODE 3 by 2000, 02-22-05. Limits the pressure rise within containment in the event a steam line break occurs within containment.

Feedback

REFERENCES:

1. Tech Specs, 3.7.1.5, MAIN STEAM ISOLATION VALVES, page 7-10, Amendment Nos. 137 & 132
2. 0-ADM-536, TECHNICAL SPECIFICATION BASES CONTROL PROGRAM, page 85, rev 05/01/03

REFERENCE PROVIDED: TS 3.7.1.5

DISTRACTORS:

A Incorrect. Action is incorrect. Basis is correct.

B Incorrect. Action is incorrect. Basis is incorrect.

C Incorrect. Action is incorrect. Basis is incorrect.

D Correct. "With one MSIV inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 24 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. The OPERABILITY of the MSIVs ensures that no more than one steam generator will blow down in the event of a steam line rupture." "This restriction is required to (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment."

K/A CATALOGUE QUESTION DESCRIPTION:

- Main and Reheat Steam; Ability to explain and apply all system limits and precautions.

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43. 039K1.05 001/T2G1//MRSS T/G/M(2.5/2.6)/B/TP05301/R/MC/EXL

A plant startup is in progress on Unit 3. Latch up of the turbine per 3-OP-089, MAIN TURBINE, is in progress.

- The Unit 3 Secondary Operator latches the turbine by placing the Overspeed Trip Mechanism Lever to the RESET position and then slowly releases the lever to the NORMAL position

Based on this action, which ONE of the following indicates the expected response for the following valves?

	Turbine Stop	Turbine Control	Reheat Stop	Intercept
A.	remain closed	open	remain closed	open
B.	remain closed	remain closed	open	open
C.	open	remain closed	open	remain closed
D.	open	open	remain closed	remain closed

Feedback

REFERENCES:
1. OP-089, MAIN TURBINE, pages 13,14, rev 09/02/97

DISTRACTORS:

A Incorrect. Turbine Stop Valves open, Turbine Control Valves remain closed, Reheat Stop Valves open, and Intercept Valves remain closed.

B Incorrect. Turbine Stop Valves open and Intercept Valves remain closed.

C Correct. As per ref 1.

D Incorrect. Turbine Control Valves remain closed and Reheat Stop Valves open.

K/A CATALOGUE QUESTION DESCRIPTION:
- Main and Reheat Steam System (MRSS); Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the T/G.

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44. 039K5.05 001/T2G1//MRSS CD LIMT/M(2.7/3.1)/B/TP05301/R/MC/EXL

Operators initiated a plant cooldown on Unit 4 using the Steam Dump To Condenser System (SDTC). Shortly after the cooldown is started, the crew notices that SDTC valves automatically close. Tavg is 543°F.

Which ONE of the following describes the interlock that closed the SDTC valves and the basis for the interlock?

A. SDTC Low Tavg interlock; prevents inadvertent RCS cooldown.

B. SDTC Low Tavg interlock; allow for manual SI Block.

C. SI High Steam Flow with Low Tavg interlock; allows for manual SI Block.

D. SI High Steam Flow with Low Tavg interlock; prevents inadvertent RCS cooldown.

Feedback

REFERENCES:

1. SD 105/SYS.072B, STEAM DUMP SYSTEM, pages 9,11,12 rev 03/27/03

DISTRACTORS:

A Correct. The SDTC low Tavg interlock will actuate at 543°F and it is for the purpose of preventing inadvertent cooldown.

B Incorrect. It states the correct interlock but the wrong reason. Note that 543°F is the same low Tavg value for both interlocks.

C Incorrect. States the wrong interlock.

D Incorrect. States the wrong interlock.

K/A CATALOGUE QUESTION DESCRIPTION:

- Main and Reheat Steam System (MRSS); Knowledge of the operational implications of the following concepts as they apply to the MRSS: Bases for RCS cooldown limits.

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45. 040AK2.01 001/T1G1//SLR VALVES/C/A(2.6/2.5)/B/TP05301/R/MC/EXL

Which ONE of the following conditions would result in closure of MSIVs?

A. High steam flow and high Tavg.

B. Low steam flow and low Tavg.

C. Hi and Hi Hi containment pressure.

D. Low Tavg and low S/G pressure.

Feedback

REFERENCES:

1. 4-EOP-E-0, Reactor Trip or Safety Injection, page 15, rev 02/12/04

DISTRACTORS:

A Incorrect. Requires high steam flow and low Tavg or low steam generator pressure. Does not have low Tavg. Would be a small break with feedwater isolation.

B Requires high steam flow and low Tavg or low steam generator pressure. Does not have high steam flow. A break before the flow sensors. Why.

C Correct. A break inside containment. Hi Hi containment pressure would cause the isolation.

D Incorrect. Requires high steam flow and low Tavg or low steam generator pressure. Does not have high steam flow. A break where the flow sensors do not respond.

K/A CATALOGUE QUESTION DESCRIPTION:

- Steam Line Rupture; Knowledge of the interrelations between the Steam Line Rupture and valves.

46. 045K4.12 001/T2G2//MT/G RUNBACK/C/A(3.3/3.6)/N/TP05301/R/MC/EXL

Unit 3 operators were performing 3-GOP-301, HOT STANDBY TO POWER OPERATION, when the "A" S/G Feedwater Pump tripped on overload. Plant conditions just prior to the pump trip were as follows:

- Both the "A" and "B" S/G Feedwater Pumps were operating
- Reactor Power was 58% and increasing
- First stage pressure was 310 psig and increasing
- S/G Water Level was 68% and increasing

Which ONE of the following describes the plant response based on the indications given?

A. A turbine trip due to trip of the Feedwater Pump breaker.

B. A turbine trip due to S/G water level.

C. A turbine runback due to trip of the Feedwater Pump breaker.

D. A turbine runback due to S/G water level.

Feedback

REFERENCES:

1. 3-ONOP-089, pages 56, 65, 75, rev 10/31/00
2. SD 011/SYS. 071A, pages 48-50, rev 06/16/03
3. SD 063/SYS. 049, 063, rev 04/17/02
4. SD 127/SYS. 089A, pages 8, 9, 20, rev 11/10/99
5. 3-GOP-301 HOT STANDBY TO POWER OPERATION, rev 05/21/03

DISTRACTORS:

A Incorrect. This would cause a turbine runback vice trip.

B Incorrect. This S/G water level results in a S/G High Level Alarm only. A turbine trip would not occur until S/G water level reached 80%.

C Correct. The trip of the Feedwater Pump breaker initiates a turbine runback to 45% turbine power. The SGFP TRIP/TURBINE RUNBACK LOGIC produces a turbine runback signal when either of the steam generator feedwater pump A or B breakers trip AND turbine load is greater than 45% (sensed off turbine first stage pressure; 45% reactor power is approximately 350 Mwe load which corresponds to about 235 psig first stage pressure).

D Incorrect. A turbine runback would occur but not due to S/G level.

K/A CATALOGUE QUESTION DESCRIPTION:

- Main Turbine Generator (MT/G); Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for automatic turbine runback.

47. 055EA2.03 001//T1G1/STA BLACKOUT/M(3.9/4.7)/B/TP05301/S/MC

A loss of all AC power has occurred. The STA reports the status of the CSFs are as follows:

- Subcriticality – RED
- Core Cooling – RED
- Heat Sink – RED
- Integrity – GREEN
- Containment – GREEN
- Inventory - YELLOW

Which ONE of the following procedures should be used FIRST to mitigate these conditions?

A. EOP-FR-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS

B. ✔ EOP-ECA-0.0, LOSS OF ALL AC POWER

C. EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK

D. EOP-FR-C.1, RESPONSE TO INADEQUATE CORE COOLING

Feedback

REFERENCES:

1. EOP-ECA-0.0, LOSS OF ALL AC POWER, page 6, rev 02/22/02

DISTRACTORS:

A Incorrect. FRP's shall NOT be implemented while in ECA-0.0.

B Correct. Note that precedes Step 1 of EOP-ECA-0.0 states that "CSF Status Trees are required to be monitored for information only. FRPs shall NOT be implemented."

C Incorrect. FRP's shall NOT be implemented while in ECA-0.0.

D Incorrect. FRP's shall NOT be implemented while in ECA-0.0.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Offsite and Onsite Power (Station Blackout); Ability to determine or interpret the following as they apply to a Station Blackout: Actions necessary to restore power.

48. 055EK3.02 001/T1G1//BLACKOUT/M(4.3/4.6)/B/TP05301/R/MC/EXL

EOP-ECA-0.0, "Loss of All AC Power," directs the operator to:

- "Depressurize all intact S/G's to 180 psig."
- The NOTE that immediately precedes this step states that this should be accomplished at the MAXIMUM rate

Which ONE of the following correctly describes the BASIS for the step and the NOTE?

A. Minimize secondary coolant loss.

B. Prevent loss of pressurizer level.

C. Prevent voiding in the reactor vessel head area.

D✓ Minimize RCS inventory loss.

Feedback

REFERENCES:
1. EOP-ECA-0.0, "Loss of All AC Power," page 22, rev 02/22/02
2. BD-EOP-ECA-0.0, "Loss of All AC Power," pages 51-55, rev 02/22/02

DISTRACTORS:

A Incorrect. S/Gs cannot be blown down to depressurize AND maintain S/G inventory.

B Incorrect. Reason is counter to that given in note and basis.

C Incorrect. Reason is counter to that given in note and basis.

D Correct. Specified in both note itself and basis.

K/A CATALOGUE QUESTION DESCRIPTION:
- Loss of Offsite and Onsite Power (Station Blackout); Knowledge of the reasons for the actions contained in EOP for loss of offsite and onsite power as they apply to the Station Blackout

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49. 055G2.1.32 001/T2G2//CARS/C/A(3.4/3.8)/B/TP05301/R/MC/EXL

Unit 3 is at 760 MW with condenser vacuum at 28 inches when the main condenser slowly begins losing vacuum. The following is the sequence of events and crew responses to the decreasing condenser vacuum:

- Vacuum is lowering at a rate of ½ inch per minute
- The crew begins a power decrease at a rate of 35 MW per minute
- Vacuum decreases for 10 minutes until the SJAE hogging jets are started.
- Vacuum recovers at a rate of 1/2 inch per minute.
- Power decreases at a constant rate of 35 MW per minute until 2 minutes after the SJAE hogging jets started

Which ONE of the following indicates the approximate generator load when the SJAE hogging jets were started and if any condenser vacuum limitations violated?

	Approximate Generator Load when SJAE hogging jets started?	Violation of operational limit associated with condenser vacuum?
A.	340 MW	NO
B.	340 MW	YES
C.	410 MW	YES
D.	410 MW	NO

Feedback

REFERENCES:

1. ONOP-014, MAIN CONDENSER LOSS OF VACUUM, Enclosure 1,page 7, rev 10/10/00
2. OCI-CO-023, MANUAL REACTOR TRIP GUIDELINES, rev 05/14/04

DISTRACTORS:

A Incorrect. Generator load based on 12 minutes, not 10.

B Incorrect. Generator load based on 12 minutes, not 10.

C Correct. At 10 minutes, MW load is 410 MW and vacuum is 23". This combination violates the requirements of the Enclosure 1 curve and ODI-023..

D Incorrect. At 10 minutes the generator load had dropped 350 MW. The power decrease continued, however the vacuum did not recover before reaching the region where operations is not allowed.

NOTE: PROVIDE ONOP-014, ENCLOSURE 1 CURVE

K/A CATALOGUE QUESTION DESCRIPTION:

- Condenser Air Removal System (CARS); Ability to explain and apply all system limits and precautions.

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50. 056AA2.32 001/T1G1//OFFSITE PWR/C/A(4.3/4.3)/B/TP05301/R/MC/EXL

Unit 3 is operating at 100% power when a Loss Of Off-site Power (LOOP) occurs resulting in a reactor trip and a loss of forced reactor coolant circulation.

- S/G levels are stable
- All other systems have responded as expected
- Valve positions have remained relatively unchanged for the past 15 minutes

Using the following parameters, which ONE of the following combinations of parameter trends indicates that natural circulation is fully established?

	RCS T-Hot	RCS T-Cold	S/G Pressure	RCS Subcooling
A.	increasing	decreasing	increasing	stable
B✔	decreasing	stable	stable	increasing
C.	stable	decreasing	increasing	decreasing
D.	increasing	stable	decreasing	increasing

Feedback

REFERENCES:
1. 3-EOP-ES-0.1, Attachment 1, Natural Circulation Indications

DISTRACTORS:

A Incorrect. Subcooling would not be stable with diverging hot and cold legs.

B Correct. S/G pressure could either be stable or decreasing with the given temperature trends as it would tend to follow Tavg.

C Incorrect. S/G pressure could not be decreasing with the given temperature trends.

D Incorrect. S/G pressure could not be decreasing with the given temperature trends.

K/A CATALOGUE QUESTION DESCRIPTION:
- Loss of Offsite Power; Ability to determine and interpret the transient trend of coolant temperature toward no-load Tavg as it applies to the Loss of Offsite Power.

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51. 056AA2.51 001//T1G1/OFFSITE PWR/C/A(3.3/3.4)/B/TP05301/S/MC

Unit 3 was operating at 100% power when a Loss Of Off-site Power (LOOP) occurred.

Which ONE of the following describes the response of the reactor CORE delta T from the time the LOOP occurred until one hour later in the event?

Delta T _____ as natural circulation is being established, then _____.

A. Lowers; remains constant as heat removal is established with the atmospheric steam dumps.

B. Lowers; rises as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps.

C. Rises; remains constant as heat removal is established with the atmospheric steam dumps.

D. Rises; lowers as decay heat load diminishes and heat removal is controlled by the atmospheric steam dumps.

Feedback

REFERENCES:
1. FSAR

DISTRACTORS:

A Incorrect. Delta T has to become higher to establish a driving head for natural circulation.

B Incorrect. Delta T has to become higher to establish a driving head for natural circulation. Does not take decay heat into account. Distractor provides opposite of actual effect.

C Incorrect. Does not take decay heat into account.

D Correct.

K/A CATALOGUE QUESTION DESCRIPTION:
- Loss of Offsite Power; Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Delta T, (core, heat exchanger, etc.).

52. 056G2.2.22 001/T2G1//COND LCO/M(3.4/4.1)/B/TP05301/R/MC/EXL

Unit 3 is in Mode 2. Unit 4 is in Mode 3 with refueling tests in progress.

Which ONE of the following correctly states the Condensate Storage Tanks System minimum indicated volume required by Technical Specifications and its basis?

A. 420,000 gallons; Provides sufficient volume to cooldown to below 350°F within 23 hours.

B. ✓ 420,000 gallons; Provides sufficient volume to maintain Hot Standby for approximately 23 hours.

C. 210,000 gallons; Provides sufficient volume to cooldown below 350°F within 23 hours.

D. 210,000 gallons; Provides sufficient volume to maintain Hot Standby for approximately 23 hours.

Feedback

REFERENCES:

1. Technical Specifications, 3.7.1.3, CONDENSATE STORAGE TANK, page 3/4 7-6, Amendment Nos. 191&185

DISTRACTORS:

A Incorrect. Reason in incorrect.

B Correct. When in Modes 1,2 or 3, and the opposite Unit in Modes 1,2, or 3, a minimum indicated water volume of 420,000 gallons is required. Maintaining the RCS at Hot Standby for 23 hours is the basis.

C Incorrect. 210,000 gallons would be correct if the opposite unit was in Mode 4,5, or 6. The reason is also incorrect.

D Incorrect. 210,000 gallons would be correct if the opposite unit was in Mode 4,5, or 6.

K/A CATALOGUE QUESTION DESCRIPTION:

- Condensate; Knowledge of limiting conditions for operations and safety limits.

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53. 058AG2.2.25 001//T1G1/DC PWR TS/C/A(2.5/3.7)/N/TP05301/S/MC

Unit 3 is operating at 100% power and Unit 4 is in COLD SHUTDOWN. For the past two hours, Unit 3 operators have been unable to raise float charge voltage above 124 volts on battery bank 3A. Checks of individual cell voltages have confirmed this value.

Based on the above plant conditions, which of the following describes the Technical Specification (TS) requirements and the reason for the requirements?

A. Place Unit 3 in at least HOT STANDBY within 34 hours. This time allows the orderly shutdown of one unit at a time so as not to jeopardize the stability of the electrical grid by imposing a dual unit shutdown.

B. Place Unit 3 in at least HOT STANDBY within 12 hours. This time allows restoring the battery to within limits and not jeopardizing the stability of the electrical grid by imposing a dual unit shutdown.

C. Place Unit 3 in at least HOT STANDBY within 34 hours. This time allows the orderly shutdown of one unit at a time in order to avoid dual unit natural circulation cooldown in the event of a loss of both startup transformers.

D. Place Unit 3 in at least HOT STANDBY within 12 hours. This time allows restoring the battery to within limits and avoiding dual unit natural circulation cooldown in the event of a loss of both startup transformers.

Feedback

REFERENCES:

1. Tech Specs, 3/4.8.2, DC SOURCES, pages 8-13 – 8-16, Amendment Nos. 138 & 133
2. 0-ADM-536, TECH SPEC BASES CONTROL PROGRAM, pages 92-95, rev 05/01/03

PROVIDE REFERENCE: TECH SPEC 3/4.8.2, pages 8-13 thru 8-16.

DISTRACTORS:

A Correct. IAW note (3) of Table 4.8-2, the "allowable value" for float voltage for each connected cell must be = 2.07 or the battery is considered INOPERABLE. IAW ACTION step "b," operators have 2 hours* *(which can be extended to 24 hours with Unit 4 in Mode 5) to correct the problem or have both Units in Mode 3 within the next 12 hours.

B Incorrect. 34 hours would be correct.

C Incorrect. The time is correct but the reason is incorrect.

D Incorrect. The time and reason are incorrect.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of DC Power; Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

54. 059AA1.01 001/T1G2//RAD WASTE RE/M(3.5/3.5)/N/TP05301/R/MC/EXL

Unit 4 is operating at 100% power with a liquid radioactive waste release in progress when the following control room indications are received:

- R-18 WARNING ALARM LIGHT - OFF
- R-18 Fail indicator is ON and its display is failed low

IAW ONOP –067, RADIOACTIVE EFFLUENT RELEASE, which ONE of the following is correct?

A. Stop the release and notify the SM to refer to Tech Specs.

B. Direct field operator to locally re-open RCV-018.

C. Notify I&C of the PRMS failure while continuing the release.

D. Direct the RO to manually close RCV-018 from VPB.

Feedback

REFERENCES:

1. ONOP –067, RADIOACTIVE EFFLUENT RELEASE, pages 9,10,13, foldout, rev 04/11/01

DISTRACTORS:

A Correct. IAW ref 1.

B Incorrect. RCV-18 closes automatically on alarm or failure HI, not instrument failure. Operators would not re-open RCV-18.

C Incorrect. While I&C would be notified, the cause must be determined and corrected before re-commencing another liquid release.

D Incorrect. RCV-18 is operated locally.

K/A CATALOGUE QUESTION DESCRIPTION:

- Accidental Liquid Radwaste Release; Ability to operate and/or monitor the following as they apply to the Accidental Liquid Radwaste Release: Radioactive-liquid monitor.

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55. 059K4.15 001/T2G1//MFW PUMP/C/A(2.2/2.4)/N/TP05301/R/MC/EXL

Unit 3 is operating at 25% power. The 3A Condensate and the 3A Main Feedwater Pumps are running. While continuing to increase power the 3A 4KV bus locks out and the crew observes the following control room indications:

- Annunciator D-5/2, SGFP A LO FLOW, actuates
- Annunciator D-5/5, FEEDWATER PUMP A LUBE OIL LOW PRESS TRIP, actuates
- Feedwater Pump Suction Pressure on PI-1627-A indicates 350 psig following auto-start of the 3B and 3C Condensate pumps

Which ONE of the following describes the action of the 3B Feedwater Pump?

A. It will NOT start automatically or manually.

B. It will start automatically only after suction pressure on PI-1627-A indicates > 400 psig.

C✓ It will start automatically without operator action.

D. It can be started manually regardless of suction pressure after auto start of the 3B and 3C Condensate Pumps.

Feedback

REFERENCES:

1. SD 112/SYS.073,074, CONDENSATE AND FEEDWATER SYSTEM, pages 10,19,29, figs 9&10, rev 04/10/00

DISTRACTORS:

A Incorrect. It will start automatically.

B Incorrect. For these conditions, the 3B Feedwater Pump will automatically start when pump suction pressure exceeds 240 psig.

C Correct. The 3B Feedwater Pump is powered from the 3C 4KV bus and will automatically start at 3psig low lube oil pressure on the running pump once suction pressure is restored by the auto start of the 3B and 3C Condensate Pumps.

D Incorrect. For these conditions, the 3B Feedwater Pump will automatically start when pump suction pressure exceeds 240 psig.

K/A CATALOGUE QUESTION DESCRIPTION:

- Main Feedwater (MFW) System; Knowledge of MFW design feature(s) and/or interlock(s) which provide for automatic starts for MFW pumps.

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6. 061A1.01 001/T2G1//AFW S/G LEVEL/C/A(3.9/4.2)/N/TP05301/R/MC/EXL

Unit 3 is in Mode 5 and Unit 4 is at 100% power with all systems in normal alignment except for the AFW system, which has been realigned as a result of the "A" AFW pump being out of service. The following sequence of events occurs:

- A Loss OF Off-site Power (LOOP) occurs on both Units
- Unit 4 S/Gs were being supplied by AFW with levels steady when Unit 3 instrument air system pressure dropped to 70 psig

Which ONE of the following describes the effect on the plant?

A. ✓ After 2 hours the D/P across Train 1 AFW FCVs supplying Unit 4 will increase and Unit 4 S/G levels will decrease.

B. After 1 hour the D/P across Train 1 AFW FCVs supplying Unit 4 will decrease and Unit 4 S/G levels will increase.

C. After 2 hours the D/P across Train 2 AFW FCVs supplying Unit 4 will increase and Unit 4 S/G levels will decrease.

D. After 1 hour the D/P across Train 2 AFW FCVs supplying Unit 4 will decrease and Unit 4 S/G levels will increase.

Feedback

REFERENCES:

1. SD 117/SYS.018,075, AUXILIARY FEEDWATER SYSTEM, pages 16,18,19, fig 1, rev 02/16/04

DISTRACTORS:

A Correct. Air from Unit 3 instrument air system supplies train 2 feedwater flow control valves (FCVs) on Unit 3 and train 1 FCVs on Unit 4. Instruement air is backed up by nitrogen bottles which are designed to provide 2 hours of operation during a loss of offsite power and instrument air without operator action. The valve will drift closed resulting in a higher D/P across the valve, less flow, and lowering S/G level.

B Incorrect. The limit is 2 hours. See above for D/P and level.

C Incorrect. Unit 4, train 2 AFW FCV's are supplied by Unit 4 instrument air.

D Incorrect. The limit is 2 hours. Unit 4, train 2 AFW FCV's are supplied by Unit 4 instrument air.

K/A CATALOGUE QUESTION DESCRIPTION:

- Auxiliary/Emergency Feedwater (AFW) System; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including S/G level.

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57. 061AK1.01 001/T1G2//ARM SYSTEM/M(2.5/2.9)/N/TP05301/R/MC/EXL

Activity sensed by the Unit 3 Spent Fuel Pit exhaust duct area radiation monitor will (1)_____ because the detector (2)_____

A. (1)not be delayed, (2)is shielded and measures gaseous radiation within the exhaust duct only.

B✔ (1)not be delayed, (2)is unshielded and measures beta/gamma both gaseous and general area radiation.

C. (1)be delayed, (2)is shielded and measures gaseous and particulate radiation trapped on the filter paper.

D. (1)be delayed if condition is due only to particulate, (2)is unshielded and measures general area, gaseous and particulate radiation trapped on the filter paper.

Feedback

REFERENCES:

1. SD 068/SYS.066,067, RADIATION MONITORING AND PROTECTION, pages 8,10,14,16-18,46, rev 02/24/04
2. Lesson Plan 6902168, SD-068/(SYS.066,067), RADIATION MONITORING AND PROTECTION, pages 26,30-33, rev 07/02/02

DISTRACTORS:

A Incorrect. Detector is an unshielded ion chamber measuring general area radiation.

B Correct. Detector is an unshielded ion chamber measuring general area radiation.

C Incorrect. Detection will not be delayed, detector is an unshielded ion chamber measuring general area radiation.

D Incorrect. Detection will not be delayed, detector is an unshielded ion chamber measuring general area radiation.

K/A CATALOGUE QUESTION DESCRIPTION:

- Area Radiation Monitoring (ARM) System Alarms; Knowledge of the operational implications of detector limitations as they apply to Area Radiation Monitoring (ARM) System Alarms.

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58. 062K2.01 001/T2G1//AC ELEC DIST/M(3.3/3.4)/M/TP05301/R/MC/EXL

Unit 3 is operating at 65% reactor power when a failure of the "C" Bus Transformer occurs.

Which ONE of the following occurs IMMEDIATELY after the failure of the "C" Bus transformer?

A. Turbine Runback.

B. Loss of all CVCS makeup capability.

C. Loss of all feedwater flow.

D. Loss of all Circulating Water System flow.

Feedback

REFERENCES:

1. ONOP-004.4, LOSS OF 3C 4KV BUS, page 3, rev 03/20/03
2. ONOP-089, TURINE RUNBACK, pages 4,5, rev 10/31/00

DISTRACTORS:

A Correct. A turbine runback will automatically occur upon a SGFP breaker trip with first stage pressure greater than 45% load until first stage pressure is at 45% load.

B Incorrect. While Unit 3 PW capability is lost, the Unit 3 PW system is cross connected to Unit 4. Additionally, the boric acid addition system is unaffected.

C Incorrect. Only lost the 3B SGFP and "A" SBSGFP. 3A SGFP and "B" SBSGFP still available.

D Incorrect. The CWP discharge MOVs would fail as is in this instance vice failing shut.

K/A CATALOGUE QUESTION DESCRIPTION:

- AC Electrical Distribution; Knowledge of bus power supplies to major system loads.

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59. 063A4.01 001/T2G1//DC ELEC DIST/M(2.8/3.1)/N/TP05301/R/MC/EXL

Unit 3 is operating at 100% power when the following events occur:

- The Unit 3 reactor trips
- All Unit 3 Annunciators except X Panel go dark
- Unit 3 MSIVs go closed
- 3C S/G AFW Steam Supply, MOV-3-1405, lights go out
- All Unit 3 S/G Feed Reg Valves go Closed

Which ONE of the following identifies the event that initiated these occurrences?

A. Loss of 120V AC Bus 3P08

B. Loss of 125V DC Bus 3D23

C. Loss of 120V AC Bus 3P07

D. Loss of 125V DC Bus 3D01

Feedback

REFERENCES:

1. 3-ONOP-003.4, Loss of DC Bus 3D01 and 3D01A (3A), Section 3.0
2. 3-ONOP-003.5, Loss of DC Bus 3D23 and 3D23A (3B), Section 3.0
3. 3-ONOP-003.7, Loss of 120V Vital Instrument Panel 3P07, Encl. 1
4. 3-ONOP-003.8, Loss of 120V Vital Instrument Panel 3P08, Encl. 1

DISTRACTORS:

A Incorrect. Loss of 3P08 affects the AFW system but it disables Train 2, not Train 1. It will also affect some feed reg valves but will not cause the other symptoms listed.

B Incorrect. The reactor trips and MSIVs close on a loss of 3D23, but the annunciators remain powered and Train 1 AFW are unaffected and feed reg valves do not immediately go closed.

C Incorrect. Loss of 3P07 will cause a loss of Train 1 AFW and will affect some feed reg valves but will not cause the other symptoms listed.

D Correct. Per ONOP-003.4. Section 3.0.

K/A CATALOGUE QUESTION DESCRIPTION:

- DC Electrical Distribution System; Ability to manually operate and/or monitor in the control room: Major breakers and control power fuses.

60. 063K2.01 001/T2G1//DC ELEC DIST/M(2.9/3.1)/M/TP05301/R/MC/EXL

Unit 3 is in Mode 1 operating at 100% power when DC bus 3D23 is lost.

Which ONE of the following describes how EDGs are affected?

A. The 3B EDG can start but can not load.

B. The 3A EDG can start but can not load.

C. The 3B EDG can not start.

D. The 3A EDG can not start.

Feedback

REFERENCES:

1. SD 137/SYS.022,023, UNIT 3 EDG AND AUXILIARIES, page 37, rev 05/06/04
2. ONOP-003.4, LOSS OF DC BUS 3D01 AND 3D01A (3A), pages 4,5, rev 01/21/99

DISTRACTORS:

A Incorrect. The 3B EDG cannot be started.

B Incorrect. The 3A EDG will remain fully operable.

C Correct. The 3B EDG is disabled because all DC control circuits associated with the 3B EDG are deenergized.

D Incorrect. The 3A EDG will remain fully operable.

K/A CATALOGUE QUESTION DESCRIPTION:

- DC Electrical Distribution; Knowledge of the physical connections and/or cause-effect relationships between the DC electrical system and major DC loads.

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61. 064A2.06 001//T2G1/EDG/C/A(2.9/3.3)/N/TP05301/S/MC

You are the SRO on Unit 4. Following recovery from a Loss Of Off-site Power (LOOP), the 4A 4KV Bus has been transferred to the SU Transformer. 4A EDG is running unloaded at 900 RPM.

Which ONE of the following describes a procedural requirement regarding subsequent operation of the 4A EDG and consequences of failing to adhere to that requirement?

A. Perform a Normal Stop of the EDG within 4.5 hours. Running the EDG unloaded beyond 4.5 hours can result in overheating the EDG due to a lack of air flow across the radiator cooling fins.

B. Perform a Normal Stop of the EDG within 4.5 hours. Running the EDG unloaded beyond 4.5 hours can result in an accumulation of oil in the exhaust which can lead to a fire.

C. Perform an Emergency Stop of the EDG within 4.5 hours. Running the EDG unloaded beyond 4.5 hours can result in overheating the EDG due to a lack of air flow across the radiator cooling fins.

D. Perform an Emergency Stop of the EDG within 4.5 hours. Running the EDG unloaded beyond 4.5 hours can result in an accumulation of oil in the exhaust which can lead to a fire.

Feedback

REFERENCES:

1. 4-OP-023, EMERGENCY DIESEL GENERATOR, step 4.3, rev 09/19/03
2. 4-ONOP-004.1, step 9, rev 02/26/99

DISTRACTORS:

A Incorrect. Normal Stop is the correct method of EDG shutdown. Reason stated is a potential low speed operation concern on Unit 3 but not on Unit 4 which has electric auxiliary cooling fans.

B Correct. Correct per ONOP-004.1 and 4-OP-023.

C Incorrect. Normal Stop is the correct method of EDG shutdown. Reason stated is a potential low speed operation concern on Unit 3 but not on Unit 4 which has electric auxiliary cooling fans.

D Incorrect. Normal Stop is the correct method of EDG shutdown.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Diesel Generator (EDG) System; Ability to (a) predict the impacts of the following malfunctions or operations on the EDG system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Operating unloaded, lightly loaded, and highly loaded time limit.

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62. 064K6.08 001/T2G1//EDG FUEL OIL/C/A(3.2/3.3)/N/TP05301/R/MC/EXL

A Loss Of Off-site Power (LOOP) has occurred. Site conditions are as follows:

- Unit 4 EDGs are running at full load
- Due to problems with the fuel oil transfer system, operators are unable to replenish the 4A EDG Day Tank

Assuming the 4A EDG Day Tank is full and the 4A EDG continues to run at full load, which ONE of the following represents the time until the 4A EDG will run out of fuel?

A. 1-1/2 hours

B. 3 hours

C. 11 hours

D. 7 days

Feedback

REFERENCES:

1. SD 137/SYS.022,023, UNIT 3 EDG AND AUXILIARIES, pages 12,22,24,75, fig 23, rev 05/06/04
2. SD 167/SYS.022,023, UNIT 4 EDG AND AUXILIARIES, pages 30,31,100, rev 05/05/04
3. EPIP-20106, NATURAL EMERGENCIES, pages 44,45, rev 11/04/01

DISTRACTORS:

A Incorrect. See B. Answer is plausible in that an applicant might confuse the 3 hours each as 3 hours TOTAL run time.

B Correct. IAW ref 1, page 30, the capacity of Diesel Oil Day Tank (650 gallons) provides adequate fuel oil for the diesel to run for three hours at rated full load. One DODT is provided for each Unit 4 EDG and each EDG burns 202 gallons per hour at rated load. The last automatic fill of the DODT would, by design, stop filling at 92% full (598 gallons). An answer of 3 hours can be derived or can be taken directly from ref 1. With all the transfer pumps inoperative, fuel oil in either plant's fuel oil stowage tank will be inaccessible.

C Incorrect. Each Unit 3 EDG has a 4000 gal day tank and a 275 gal skid tank. This capacity allows each Unit 3 EDG to run for a little over 11 hrs.

D Incorrect. This answer is plausible for the following: Per ref 1, 168 hours (or 7 days) is based on the rate of fuel consumption at the 2950 KW emergency load rating (base continuous loading is 2500 KW) and a Tech Spec minimum Fuel Oil Storage Tank level of 38,000 gallons. The answer can be derived from memory or by working through the numbers.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Diesel Generator (ED/G) System; Knowledge of the effect of a loss or malfunction of the fuel oil storage tanks will have on the ED/G system.

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63. 065AA2.06 001//T1G1/INST AIR/C/A(3.6/4.2)/M/TP05301/S/MC

Units 3 and 4 are both operating at 100% power when the following occurs on both Units:

- The Lag CM starts followed shortly by startup of both CD air compressors.
- Annunciator I-6/1, INSTR AIR HI TEMP/LO PRESS, actuates
- Annunciator G-1/2, CHARGING PUMP HIGH SPEED, actuates
- Annunciators C-1/1 – 1/3, SG A,B,C, LO/LO-LO LEVEL ALARMS, actuate
- SG levels are 25% and decreasing
- Unit 3 instrument air pressure is 56 psig
- Unit 4 instrument air pressure is 64 psig

Which ONE of the following describes the correct operator response?

A. Trip Unit 3 IAW ONOP-013, LOSS OF INSTRUMENT AIR, and perform a Fast Load Reduction on Unit 4 IAW ONOP-100, FAST LOAD REDUCTION.

B. Trip both Units and enter EOP-E-0, REACTOR TRIP OR SAFETY INJECTION on both Units.

C. Perform a Fast Load Reduction on both Units IAW ONOP-100, FAST LOAD REDUCTION and establish AFW flow.

D. Allow both Units to trip and enter EOP-E-0, REACTOR TRIP OR SAFETY INJECTION.

Feedback

REFERENCES:

1. ONOP-013, LOSS OF INSTRUMENT AIR, page 6 & Foldout, rev 12/23/02

DISTRACTORS:

A Incorrect. Both Units are either below or at the trip criterion.

B Correct. IA to trip the Unit when its instrument air pressure drops below 65 psig. Both Units are either below or at the trip criterion.

C Incorrect. IA to trip the Unit when its instrument air pressure drops to 65 psig.

D Incorrect. IA to trip the Unit when its instrument air pressure drops to 65 psig.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Instrument Air; Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip reactor if instrument air pressure is decreasing.

64. 065AK3.03 001/T1G1//INST AIR/C/A(2.9/3.4)/N/TP05301/R/MC/EXL

Units 3 and 4 had been operating at 100% power when Instrument Air pressure was lost.

- Units 3 and 4 were both manually tripped
- 3-40-339, Auxiliary Building and Control Room Header Isolation Valve, was subsequently closed to isolate the leak in the Instrument Air header
- Pressure has returned to normal in the unaffected portions of the Instrument Air system

With the Instrument Air header in its current condition, which ONE of the following is correct?

A. Charging Pump Suction will automatically align to the RWST.

B. Charging flow will increase.

C. RCP seal bypass flow will increase.

D. NRHX outlet temperature (RCS side) will increase.

Feedback

REFERENCES:

1. ONOP-013, Loss of Instrument Air, Step 13 and Foldout, rev 01/28/03
2. SD 155/SYS. 013, 101, Plant Air Systems, fig 1, rev 11/24/03
3. SD 013/SYS. 046,047, Chemical and Volume Control System, pages 19, 37, fig 1, rev 06/21/04
4. SD 008/SYS.041B, Reactor Coolant Pumps, page 44, rev 02/23/04

DISTRACTORS:

A Incorrect. This action must be performed locally.

B Correct. Charging pump(s) will fail in high speed.

C Incorrect. RCP Seal Bypass Valve, 307, fails closed.

D Incorrect. CCW Out of NRHX, TCV-144, fails open.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Instrument Air; Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Knowing effects on plant operation of isolating certain equipment from instrument air.

65. 071A2.07 001/T2G2//WGDS MET TWR/M(2.5/2.9)/N/TP05301/R/MC/EXL

Unit 4 experienced a Large Break LOCA outside containment. Emergency Off-site Dose Calculations are being made IAW EPIP-20126, OFF-SITE DOSE CALCULATIONS, when all data being supplied via both Met Towers is lost.

Which ONE of the following describes the consequences of and operator response to the loss of the Met Towers?

A. ERDADS will automatically display predetermined default values. Operators will be required to use the displayed values.

B. ERDADS will display the last valid values obtained. Operators will be required to use data obtained from Homestead Air Reserve Base.

C. Related data on ERDADS will be displayed in blue. Operators will be required to use the displayed values.

D. Related data on ERDADS will be displayed in blue. Operators will be required to use data obtained from the National Weather Service.

Feedback

REFERENCES:

1. EPIP-20126, OFF-SITE DOSE CALCULATIONS, pages 11,22,26,28,32, rev 06/01/00
2. SD 071/SYS.095, ERDADS/QSPDS, pages 8,9,14,17, figs 1,1a,1b, rev 09/24/03
3. LP 3202004, REDIOLOGICAL ASSESSMENT/PROTECTIVE ACTION RECOMMENDATIONS, pages8-10, rev 11/01/00

DISTRACTORS:

A Incorrect. National Weather Service meteolological observations are preferred over default values.

B Incorrect. ERDADS will display lost values in blue. National Weather Service meteolological observations are preferred over default values.

C Incorrect. Operators should use data obtained from the NWS and method 2 IAW ref 1, Attachment 1, Part B.

D Correct.

K/A CATALOGUE QUESTION DESCRIPTION:

- Waste Gas Disposal System (WGDS); Ability to (a) predict the impacts of the following malfunctions or operations on the Waste Gas Disposal System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of meteorological tower.

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66. 073A4.02 001/T2G1//PRM/C/A(3.7/3.7)/M/TP05301/R/MC/EXL

Unit 3 has experienced a large break LOCA resulting in fuel damage.

- Radiation levels have increased in the auxiliary building resulting in high airborne activity levels
- Process Radiation monitor R-14, Plant Vent Gas Monitor, has been steadily increasing and was reading 1M CPM when it experienced an instrument failure

Which ONE of the following describes how radiation levels commensurate to those measured by R-14 can be determined as radiation levels increase?

A valid backup reading is available on _____.

A. Containment Air Gaseous Monitor, R-3-12.

B. Plant Vent Gaseous Monitor, R-14 on Unit 4.

C✔ Plant Vent Sping-4, RAD-6304.

D. DAM-1 monitor, RAD-6426.

Feedback

REFERENCES:

1. SD 068/SYS.066,067, RADIATION MONITORING AND PROTECTION, pages 8,9,28,32-34,41, fig 9,11,12, rev 02/24/04
2. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 404, rev 07/23/02

DISTRACTORS:

A Incorrect. R-3-12 is the containment gaseous monitor but it is not a valid substitute for R-14.

B Incorrect. There is only one R-14 channel for both plants and it is located on Unit 3 PRM.

C Correct. This channel acts as a backup for the PRM channel R-14.

D Incorrect. DAM-1 monitors main steam line activity and is not considered an equivalent backup for R-14.

K/A CATALOGUE QUESTION DESCRIPTION:

- Process Radiation Monitoring (PRM) System; Ability to manually operate and/or monitor in the control room: Radiation monitoring system control panel.

67. 076A1.02 001/T2G1//SWS/C/A(2.6/2.6)/N/TP05301/R/MC/EXL

Unit 4 is operating at 100% power with 4A and 4B ICW pumps running. 4C ICW pump is OOS for a shaft replacement. The following occurs:

- I 4/3, ICWP A/B/C/ MOTOR BRG HI TEMP, actuates
- 4A ICW pump upper bearing temperature is 195°F and slowly rising
- 4A ICW pump motor current is 50 amps and slowly rising

Operators enter 4-ONOP-019, INTAKE COOLING WATER MALFUNCTION, and stop the 4A ICW pump. Total ICW flow is 20,500 gpm after the 4A ICW pump stops.

Which ONE of the following statements is correct?

A. Operators should throttle shut on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause an increase in TPCW outlet temperature. Operators should reduce Unit Load if unable to reduce total ICW flow.

B. Operators should throttle open on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause a decrease in TPCW outlet temperature. Operators should reduce Unit Load if unable to increase total ICW flow.

C. Operators should throttle shut on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause an increase in TPCW outlet temperature. Operators should manually trip the reactor and turbine if unable to reduce total ICW flow.

D. Operators should throttle open on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause a decrease in TPCW outlet temperature. Operators should manually trip the reactor and turbine if unable to increase total ICW flow.

Feedback

REFERENCES:

1. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, pages 471-474, rev 04/11/04
2. ONOP-019, INTAKE COOLING WATER MALFUNCTION, page 7, rev 10/24/02

DISTRACTORS:

A Correct. IAW ref 2.

B Incorrect. Total ICW flow is too high (> 19,000 gpm). Operators should throttle shut on the TPCW HX Outlet causing an increase in TPCW outlet temperature.

C Incorrect. Operators should reduce Unit Load, not trip.

D Incorrect. Operators should throttle the valve shut and should not trip the Unit.

K/A CATALOGUE QUESTION DESCRIPTION:

- Service Water System (SWS); Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including reactor and turbine building closed cooling water temperatures.

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68. 076GG2.4.49 001//T2G1/SWS/M(4.0/4.0)/N/TP05301/S/MC

Unit 3 is operating at 100% power when the following occurs:

- I-4/1, ICWP A/B/C MOTOR OVERLOAD, actuates
- H-8/5, CCW HX OUTLET HI TEMP, actuates
- I-5/4, TPCW HI TEMP/LO PRESS, actuates
- E-9/4, GEN EXCITER AIR HI TEMP, actuates
- TE-3414 (det #31) cold air (fan discharge) as read on R-347 Pts 5 and 6 is 60°C
- TE-3416 (det #33) hot air (exciter armature outlet) as read on R-347 Pts 7 and 8 is 87°C
- Reactive generator load = 150 MVAR in the Lag

Which ONE of the following describes the correct operator responses?

A. Start standby ICW pump then stop affected ICW pump, reduce reactive load on the generator.

B. Start standby ICW pump then stop affected ICW pump, initiate fast load reduction.

C. Stop affected ICW pump then start standby ICW pump, initiate fast load reduction.

D. Stop affected ICW pump then start standby ICW pump, reduce reactive load on the generator.

Feedback

REFERENCES:

1. ONOP-019, INTAKE COOLING WATER MALFUNCTION, pages 5,12 rev 10/24/02C

DISTRACTORS:

A Correct. Actions IAW ref 1.

B Incorrect. Reduce reactive load vice FAST LOAD REDUCTION.

C Incorrect. Start standby ICW pump THEN stop affected ICW pump. Reduce reactive load vice FAST LOAD REDUCTION.

D Incorrect. Start standby ICW pump THEN stop affected ICW pump.

K/A CATALOGUE QUESTION DESCRIPTION:

- Service Water System (SWS); Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

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69. 078A3.01 001/T2G1//IAS PRESSURE/C/A(3.1/3.2)/N/TP05301/R/MC/EXL

Units 3 and 4 are in Mode 1. The instrument air systems are in normal lineups with Unit 3 motor driven compressor (3CM) in LEAD.

- Unit 3 air receiver air pressure has been cycling between 99 psig and 110 psig for the last two hours
- Unit 3 motor driven compressor (3CM) has been running loaded continuously for the same period

Which ONE of the following statements is correct regarding the operation of the instrument air system during this two-hour time period?

A. Unit 4 instrument air header isolation valve, CV-4-1605, has been cycling.

B. Unit 4 motor driven compressor (4CM) is cycling on load.

C. The LAG diesel driven compressor is cycling on load.

D. Unit 3 instrument air header isolation valve, CV-3-1605, has been cycling.

Feedback

REFERENCES:
1. SD 155/SYS.013,101, pages 9,12,13,19,figs 1&15, rev 05/06/04

DISTRACTORS:

A Incorrect. Both Units 3 and 4 motor driven compressors have run. CV-4-1605 has been full open.

B Correct. Normally, one electric compressor (3[4]CM) is in operation (LEAD mode) supplying both units. The other electric compressor is in LAG mode, available to automatically start on low system pressure. One diesel compressor (3[4]CD) is in LAG mode, and the other is in STANDBY mode, available to back up the electric compressors.

C Incorrect. Pressure has not dropped low enough (96 psig) to cause the LAG diesel to start.

D Incorrect. Both Units 3 and 4 motor driven compressors have run. CV-3-1605 has been full open.

K/A CATALOGUE QUESTION DESCRIPTION:
- Instrument Air System (IAS); Ability to monitor automatic operation of the IAS, including air pressure.

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70. 086A1.03 001/T2G2//FPS FIRE DR/C/A(2.7/3.2)/N/TP05301/R/MC/EXL

Earlier during your shift a fire broke out in the Auxiliary Building Fan Room (Fire Zone 28) where contractors were working.

- The Fire Door (D028) from the Auxiliary Building Fan Room to the Auxiliary Building Hallway was opened and closed a number of times as Contractor personnel evacuated.
- Alarm Point 39 (Fire Zone 58 - Aux Building Hallway adjacent ot Fire Zone 28) on Fire Dectection Panel C39A alarmed.
- After inspecting the entire area, the Fire Brigade reported that the fire was out with no equipment damage but a lot of smoke had entered the Auxiliary Building Hallway (Fire Zone 58) as a result of the opening and closing of the fire door.
- Emergency ventilation of the Auxiliary Building has been delayed because the Auxiliary Building Supply Fan 3B-V11 will not start.

Based on the information given, which ONE of the following statements explains why the fan will not start?

A. The keylock switch (HS3-V11 - Supply Fan 3B Normal / Isolate) located on 3D MCC, had been repositioned from "Normal" to "Isolate."

B. The fire alarm started an Auxiliary Building Exhaust fan which must be stopped before the supply fan can be strarted.

C. The Contractors left Fire Door D028 partially open after passing through which prevented the Auxiliary Building Supply Fan 3B-V11 closing contact from engaging.

D. Use of Fire Door D028 allowed smoke to enter the Auxiliary Building area causing Alarm Point 39 (Fire Zone 58 - Aux Building Hallway adjacent to Fire Zone 28) alarm to activate.

Feedback

REFERENCES:

1. SD 153/SYS. 016, 017, 091, page 49, rev 06/09/03
2. 0-OP-060, Auxiliary Building HVAC, page 31

DISTRACTORS:

A Incorrect. Repositioning the switch from "Normal" to "Isolate" would have allowed the fan to start.

B Incorrect. Aux building supply fans cannot be started until at least one aux building exhaust fan is running.

C Incorrect. The door has no closing contact associated with fan operation.

D Correct. An interlock from the Fire Protection Control Panel prevents starting Auxiliary Building Supply Fan 3B if the Fire Detection System enveloping the Auxiliary Building areas is activated with the keylock switch in "Normal" and locked (its normal position). Opening and closing the fire door allowed smoke to exfiltrate from the Auxiliary Building Fan area (Fire Area 28) into the Auxiliary Building area (Fire Area 58) causing the Fire Detection System enveloping the Auxiliary Building areas to activate, causing undesired operation of the interlock. The keylock switch located on 3D MCC, Breaker 30804 must then be taken to the "Isolate" position in order to bypass the interlock and start the fan.

K/A CATALOGUE QUESTION DESCRIPTION:

- Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Fire Protection System operating the controls including: Fire doors

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71. 103G2.1.14 001/T2G1//CONTAINMENT/M(2.5/3.3)/N/TP05301/R/MC/EXL

Unit 3 is in Mode 6 with refueling operations in progress. The manipulator crane is latched to an irradiated fuel assembly inside containment. As the assembly is being moved, the following alarm and plant conditions are observed:

- Annunciator G 9/5, CNTMT SUMP HI LEVEL actuates
- Annunciator I 4/6, CNTMT SUMP HI LEVEL actuates
- Containment Radiation Monitor R-3-12 shows an increase in level but is below its alarm set point

Which ONE of the following is the FIRST action to be taken by the Control Room Operator in accordance with 3-ONOP-033.2, "Refueling Cavity Seal Failure?"

A. Direct HP to monitor radiation levels in the containment area.

B. Manually initiate Containment Isolation Phase A.

C. If RCS level is low, restore level immediately using ONOP-041.9, REDUCED INVENTORY OPERATION.

D. Sound the containment evacuation alarm.

Feedback

REFERENCES:

1. ONOP-033.2, REFUELING CAVITY SEAL FAILURE, pages 4,5,7, rev 09/10/97
2. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, page 491, rev 07/23/02

DISTRACTORS:

A Incorrect. This is a subsequent action.

B Incorrect. This is a subsequent action.

C Incorrect. This is a subsequent action.

D Correct. Immediate action as per ONOP-033.2.

K/A CATALOGUE QUESTION DESCRIPTION:

- Containment System; Knowledge of system status criteria which require the notification of plant personnel.

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72. G2.1.14 001//T3/OPS/M(2.5/3.3)/N/TP05301/S/MC

Unit 3 has been in Mode 3 for three days to facilitate the performance of maintenance. Prior to this, Unit 3 had been operating at 100% power for an extended period of time. Following completion of the work the unit will be returned to full power operation.

Which ONE of the following identifies two plant personnel that are required to be notified to review the requirements of 0-ADM-529, UNIT RESTART READINESS, prior to entering Mode 2 and again prior to entering Mode 1?

A.	Site Vice President	Plant General Manager
B.	Reactor Engineering	Work Control Center Supervisor
C.	Chemistry Department	Security Department
D.	Health Physics	Shift Manager

Feedback

REFERENCES:

1. GOP-301, HOT STANDBY TO POWER OPERATION, pages 16,19,62, rev 04/22/04

DISTRACTORS:

A Correct. IAW GOP-301, sections 3.1.19 & 3.2.17 the following personnel are to be notified prior to entry into Modes 1 & 2: Site VP, Plant GM, and Operations Shift Manager.

B Incorrect. See A.

C Incorrect. See A.

D Incorrect. See A.

K/A CATALOGUE QUESTION DESCRIPTION:

- Knowledge of system status criteria which require the notification of plant personnel.

73. G2.1.16 001/T3//OPS COMMS/C/A(2.9/2.8)/N/TP05301/R/MC/EXL

A fire in the Control Room necessitated implementing 0-ONOP-105, "Control Room Evacuation." As part of his Immediate Actions, the Third RO depresses the Plant PA Page Boost push button.

Which ONE of the following describes an action initiated by pressing this Page Boost push button?

A. Actuates high intensity blue strobe lights located in designated high noise areas in the plant.

B. Resets any PA emergency alarms in progress at that time (site evacuation, containment evacuation or fire alarms).

C. Expands PA coverage to include Unit 4 EDG building and plant areas south of the NAB.

D. Activates ambient noise monitors to automatically adjust speaker volume in Charging Pump and Pipe and Valve rooms.

Feedback

REFERENCES:

1. SD 152/SYS. (001), Communication System Network, pages 8 and 9, rev 09/11/02
2. 0-ONOP-105, Control Room Evacuation, Attachment 5, step 1, rev 10/15/04

DISTRACTORS:

A Correct. IAW SD-152, pages 8 and 9.

B Incorrect. Per SD-152, Communications System design automatically prioritizes alarms/page functions. System Alarms are higher priority than Page Boost.

C Incorrect. A plant modification previously expanded coverage as described. Page Boost not needed to expand this coverage.

D Incorrect. Ambient noise monitors are always activated in the Charging Pump and Pipe and Valve rooms.

K/A CATALOGUE QUESTION DESCRIPTION:

- Conduct of Operations; Ability to operate plant phone, paging system, and two-way radio.

74. G2.1.23 001/T3//PROCEDURES/M(3.9/4.0)/M/TP05301/R/MC/EXL

You are the Field Operator assigned to perform 0-OP-074.1, Startup of the Standby Steam Generator Feedwater System. The system had been drained for maintenance. You are on Step 5.1.2.4 which reads as follows:

> IF maintenance has been performed on the Standby Steam Generator Feedwater system (system drained), **THEN** open the following valves until a solid stream of water emits **AND** then close the valve:
>
> a. SSGFP Disch Header Vent DWDS-148
> b. SSGFP Disch Header Vent DWDS-150
> c. SSGFP Disch Header Vent DWDS-152

Per the procedure, you perform and observe the following conditions:

- You open DWDS-148, get a solid stream of water, and shut DWDS-148
- After several attempts, you find you are unable to open DWDS-150 but you do observe water dripping from the valve's outlet.

For this situation, which ONE of the following is correct?

A. It is permissible to complete the remaining substep.

B. Stop the procedure, have a qualified SRO evaluate and N/A the step, and continue with the next substep.

C. Annotate that the valve was stuck shut and continue the procedure.

D. Stop the procedure, place the system in a safe condition, and notify the Shift Manager.

Feedback

REFERENCES:

1. 0-ADM-201, Sect 5.3.2.5.b(4), page 28, rev 06/16/04
2. 0-OP-074.1, Startup of the Standby Steam Generator Feedwater System, Sect 3.0, page 12, rev 02/06/02

TP Exam Bank, Administrative Procedures, Question #1.1.23.3.3.10,M

DISTRACTORS:

A Incorrect. Since step "b" cannot be performed, the procedure must be stopped. Lettered substeps must be performed in order, substeps indexed with bullets can be performed in any order.

B Incorrect. This would be correct if two SRO's evaluate the procedure and it relates to Demonstrating Operability IAW Sect 5.2.8.7 of ref 1.

C Incorrect. While Sect 5.2.10 of ref 1 states "if a step requires an action to be performed and no action is necessary because the condition required by the step already exists . . . then the step may be signed off provided that it is reported to the NPS."

D Correct. In accordance with Sect. 5.2.15 of ref 1, if a procedure step cannot be completed as written, conduct of the procedure shall be stopped, the system placed in a safe condition and the Nuclear Plant Supervisor shall be notified.

K/A CATALOGUE QUESTION DESCRIPTION:

- Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation

75. G2.1.3 001/T3//SHIFT TURNOVR/M(3.0/3.4)/N/TP05301/R/MC/EXL

The Third RO announces to the Control Room that he is leaving to perform administrative duties associated with Units 3 and 4. The Unit 4 SRO acknowledges his announcement. Although he makes no mention of it, he anticipates being out of the Control Room just under two hours. He returns two hours and 15 minutes later.

In this situation, which ONE of the following statements is correct?

A. The Third RO has not violated procedure because he received proper acknowledgement to his accouncement.

B. The Third RO has violated procedure because he did not receive proper acknowledgements to his announcement.

C. The Third RO has not violated procedure because he did not anticipate being away more than two hours.

D. The Third RO has violated procedure because he was away more than two hours.

Feedback

REFERENCES:

1. 0-ADM-202, page 12, sect 5.2.4 and 5.2.6, rev 2/22/01
2. Lesson Plan 6902022, Shift Relief and Turnover, page 12, rev 10/08/02

DISTRACTORS:

A Incorrect. He violated procedure because he must receive acknowledgements from both Unit RO's.

B Correct. He must receive acknowledgements from both Unit RCO's.

C Incorrect. He violated procedure because he did not receive acknowledgements from both Unit RO's.

D Incorrect. He violated procedure because he did not receive acknowledgements from both Unit RO's.

K/A CATALOGUE QUESTION DESCRIPTION:

- Conduct of Operations, knowledge of shift turnover practices.

76. G2.1.33 001//T3/OPS/C/A(3.4/4.0)/N/TP05301/S/MC

Plant conditions for Unit 4 are as follows:

- Mode 2
- Low Power Physics testing is in progress
- All shutdown bank rods are fully withdrawn

Which ONE of the following will require Unit 4 to enter a Technical Specification Action Condition?

A. K_{eff} = .99 and MTC = -3.0 x 10^{-4} delta k/k/^{o}F Lowest T_{avg} = 611^{o}F

B. K_{eff} = 1 and MTC = -3.0 x 10^{-4} delta k/k/^{o}F Highest T_{avg} = 610^{o}F

C. K_{eff} = .99 and MTC = +5.5 x 10^{-5} delta k/k/^{o}F Lowest T_{avg} = 531^{o}F

D. K_{eff} = 1 and MTC = +5.5 x 10^{-5} delta k/k/^{o}F Highest T_{avg} = 530^{o}F

Feedback

REFERENCES PROVIDED:

1. TS 3.1.1.3 pages 1-5 & 1-6
2. TS 3.10.3 page 10-3
3. TS 2.1.2 pages 2-1 & 2-2

REFERENCES:

1. Tech Spec 3.1.1.3, MODERATOR TEMPERATURE COEFFICIENT, pages 1-5 & 1-6, Amendment Nos. 137 & 132
2. Tech Spec 3.10.3, PHYSICS TESTS, page 10-3, Amendment Nos. 137 & 132
3. Tech Spec 2.1.2, SAFETY LIMITS – REACTOR CORE, pages 2-1 & 2-2, Amendment Nos. 137 & 132

DISTRACTORS:

A Incorrect. Applicable at EOL, not BOL.

B Incorrect. Applicable at EOL, not BOL.

C Incorrect. Applicable only with K_{eff} greater than or equal to 1.

D Correct. IAW TS 3.10.3.c given the other plant conditions, action step "b" applies.

K/A CATALOGUE QUESTION DESCRIPTION:

– Conduct of Operations; Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

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77. G2.2.1 001/T3//EQUIP CONT/C/A(3.7/3.6)/B/TP05301/R/MC/EXL

The following conditions exist on Unit 3:

- MODE 3 at normal operating temperature and pressure, preparing for Reactor Startup.
- The RCS has been diluted to the ECC Startup Boron concentration.
- Non-Regenerative Heat Exchanger Temperature Control Valve, TCV-144, is in MANUAL.
- All other controls are in AUTOMATIC and functioning NORMALLY.
- The Unit 3 RO REDUCES letdown flow from 120 gpm to 60 gpm.

Assuming NO other manipulations, over the next hour, Source Range counts will?

A. INCREASE due to warmer RCS water exiting the non-regenerative heat exchanger.

B. INCREASE due to cooler RCS water exiting the non-regenerative heat exchanger.

C. DECREASE due to warmer RCS water exiting the non-regenerative heat exchanger.

D. DECREASE due to cooler RCS water exiting the non-regenerative heat exchanger.

Feedback

REFERENCES:

1. SD 013/SYS. 046, 047, pages 22,23,63, rev 06/21/04

DISTRACTORS:

A Incorrect. Reducing RCS letdown flow will result in more heat being removed by CCW in the non-regenerative heat exchanger. Letdown outlet temperature will drop.

B Correct. A decrease in letdown temperature will result in a reduction in boron concentration at the demineralizer outlet due to increased boron ion exchange by the anion resin at lower temperatures. Positive reactivity would be added due to reduced RCS boron concentration. In November of 1996, reactor power increased .3% over a 30 minute period as a result of lowering non-regenerative heat exchanger outlet temperature.

C Incorrect. RCS letdown flow exiting the regenerative heat exchanger will become cooler.

D Incorrect. Counts would increase because RCS boron concentration would decrease. See B above.

K/A CATALOGUE QUESTION DESCRIPTION:

- Equipment Control; Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

78. G2.2.20 001//T3/EQUIP CONT/M(2.2/3.3)/B/TP05301/S/MC

Unit 4 is at 100% power. Mechanical Maintenance is planning to erect a scaffold over redundant safety related equipment to perform trouble shooting activities.

Which ONE of the following identifies the highest level of approval required for the erection of this scaffolding?

A. Work Control Manager

B. Unit Supervisor

C. Shift Manager

D. Assistant Operations Manager

Feedback

REFERENCES:
1. ADM-012, step 3.3.2

DISTRACTORS:

A Incorrect.

B Incorrect.

C Incorrect.

D Correct.

K/A CATALOGUE QUESTION DESCRIPTION:
- Equipment Control; Knowledge of the process for managing troubleshooting activities.

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79. G2.2.23 001/T3//EQUIP LCO/C/A(2.6/3.8)/B/TP05301/R/MC/EXL

Unit 3 is in Mode 5 and Unit 4 is in Mode 3.

- At 0800 on February 3rd, the 3A2 battery charger was taken OOS for maintenance and disassembled
- At 1400 on February 3rd, the 3A1 battery charger failed due to an electrical fault

Using the attached Technical Specification pages, determine which ONE of the following is the correct action to be taken.

A. Restore at least one charger to operable status by 1600 on February 3rd.

B. No action required, adequate DC electrical sources are still operable.

C. Restore at least one charger to operable status by 1400 on February 6th.

D. Restore at least one charger to operable status by 1400 on February 4th.

Feedback

REFERENCES:

1. Tech Specs, Sect 3.8.2.1 and 3.8.2.2, Amendment Nos. 138 and 133
2. SD 144/(SYS.003), Figure 1, rev 7:10/14/97
3. 0-ADM-536, Bases, pages 92,93,101-106, rev 05/01/03
4. LP-6900528, Tech Specs Electrical Power Systems, Enabling Objective 3, page 4, rev 09/24/01

PROVIDE REFERENCE: TECHNICAL SPECIFICATIONS 3.8.2.1 & 3.8.2.2

DISTRACTORS:

A Incorrect. Applicant may select this answer (from Action statement "b") if fails to observe footnote allowing time to be extended to 24 hours.

B Incorrect. "TS 3.8.2.2, Applicable when in modes 5* and 6*." Since the affected chargers are associated with Unit 3 and Unit 3 is in Mode 5, the applicant may select this answer if looking at the action statement but then fails to check the "*" footnote which states "caution – if the opposite unit is in Modes 1,2,3 or 4, see the corresponding LCO 3.8.2.1."

C Incorrect. Applicant may select this answer if Action statement "a" incorrectly applied.

D Correct. TS 3.8.2.1, Action statement "b" states that with none of the full-capacity chargers associated with a battery bank OPERABLE, restore all battery banks to OPERABLE status and at least one charger associated with each battery bank to OPERABLE status within two hours* or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously. The "*" directs the operator to a footnote that says "can be extended to 24 hours if the opposite unit is in MODE 5." Since both chargers supply Battery Bank 3A and since Unit 3 is already in Mode 5, the footnote applies.

K/A CATALOGUE QUESTION DESCRIPTION:

- Equipment Control; Ability to track limiting conditions for operations.

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80. G2.2.30 001/T3//COMMS/M(3.5/3.3)/B/TP05301/R/MC/EXL

The operating crew is performing OP-038.1, PREPARATION FOR REFUELING ACTIVITIES.

Which one of the following describes an activity that requires communications to be established with the Control Room?

A. Transferring a new fuel element to a New Fuel Room rack.

B. Performing Insert shuffle in the SFP.

C. Detensioning the reactor vessel head.

D. Lowering the Containment upender with an irradiated element.

Feedback

REFERENCES:

1. 3-OP-038.1, Fuel Transfer System Operation, Sect. 4.14, page 9, rev 10/26/04
2. 3-OP-040.3, Refueling Preshuffle in the Spent Fuel Pit, Sect. 4.8, page 7, rev 07/29/04
3. 0_op-040.3, Handling New Fuel Shipping Containers and New Fuel Assemblies, rev 09/06/01

DISTRACTORS:

A Incorrect. Not required.

B Incorrect. Not required.

C Incorrect. Not required.

D Correct. Ref. 1, Sect. 4.14.3 requires the control room and the containment upender to be in direct communications.

K/A CATALOGUE QUESTION DESCRIPTION:

- Equipment Control: Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

81. G2.2.32 001//T3/EQUIP CONT/C/A(2.3/3.3)/B/TP05301/S/MC

Reactor engineering had designed a core loading pattern that will be performed during the next refueling outage. The CHANGE will result in placing the "twice-burned" fuel assemblies more toward the periphery and the new fuel assemblies more toward the center of the core. Based on engineering calculations, it has been determined that Kexcess will be the same at the beginning of both fuel cycles.

Based on the above information, which ONE of the following describe the affect the new loading pattern will have on the unit?

A. The expected full power loop delta-T value should be significantly LOWER for this fuel cycle when compared to the value of full power loop delta-T for the previous fuel cycle.

B. The expected full power loop delta-T value should be significantly HIGHER for this fuel cycle when compared to the value of full power loop delta-T for the previous fuel cycle.

C. If PR NI channel gains are NOT changed during the outage, the PR NIs would read significantly BELOW actual power when the 1st calorimetric is performed after the refueling outage.

D. If PR NI channel gains are NOT changed during the outage, the PR NIs would read significantly ABOVE actual power when the 1st calorimetric is performed after the refueling outage.

Feedback

DISTRACTORS:

A Incorrect.

B Incorrect.

C Correct.

D Incorrect.

K/A CATALOGUE QUESTION DESCRIPTION:
– Equipment Control; Knowledge of the effects of alterations on core configuration.

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92. G2.3.1 001/T3//RADCON 10 CFR/M(2.5/2.9)/B/TP05301/R/MC/EXL

Which ONE of the following dose components are combined to determine a Radiation Worker's Occupational Annual Dose Limit?

A. Total Effective Dose Equivalent and Committed Dose Equivalent.

B. Deep Dose Equivalent and Committed Dose Equivalent.

C. Total Effective Dose Equivalent and Planned Special Exposures.

D. Committed Dose Equivalent and Planned Special Exposures, only.

Feedback

REFERENCES:
1. 10 CFR: 20.1201

DISTRACTORS:

A Incorrect. The components that make up a Radiation Worker's Occupational Dose is DDE and CDE. DDE + CDE = TEDE

B Correct. DDE and CDE.

C Incorrect. The components that make up a Radiation Worker's Occupational Dose is DDE and CDE.

D Incorrect. The components that make up a Radiation Worker's Occupational Dose is DDE and CDE.

K/A CATALOGUE QUESTION DESCRIPTION:
- Radiation Control; Knowledge of 10 CFR: 20 and related facility radiation control requirements

83. G2.3.2 001/T3//RAD ALARA/C/A(2.5/2.9)/B/TP05301/R/MC/EXL

Operations has a task to be performed in the Auxiliary Building near a 20 foot pipe that reads 300 mr/hr at 2 feet. Two options exist to complete the assignment:

Option 1: Operator A can perform the assignment in 1 hour, working at a distance of 4 feet from the line source.

Option 2: Operators B and C can perform the same task, using special extension tooling, in 1.5 hours working at a distance of 9 feet from the source.

Which ONE of the following options should be selected according to the facility ALARA plan?

A. Option 1 with a total dose of 150 mrem.

B. Option 1 with a total dose of 75 mrem.

C. Option 2 with a total dose of 45 mrem.

D. Option 2 with a total dose of 200 mrem.

Feedback

REFERENCES:

1. ADM-602, ALARA Program, page 13, rev 06/30/04

DISTRACTORS:

A Correct. This is the correct option and dose as determined by the line source method.

B Incorrect. This is the correct option, however the dose was determined by the point source method.

C Incorrect. This is not the correct method, and the dose was calculated using the point source method.

D Incorrect. This is not the correct option, but is the correct dose figured by the line source method.

K/A CATALOGUE QUESTION DESCRIPTION:

- Radiation Control; Knowledge of facility ALARA program.

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84. G2.3.6 001//T3/RAD CONTROL/C/A(2.1/3.1)/M/TP05301/S/MC

The following is a time-line of activities associated with Waste Monitoring:

- 1430: Waste Monitoring Tank (WMT) "A" is placed on mini-flow recirc for sampling
- 1620: Chemistry completes sampling of WMT "A." Result = 5.5×10^{-5} µCi/ml
- 1730: Chemistry submits a Radiological Liquid Waste Discharge Permit for WMT "A"
- 1735: The Shift Manager authorizes the release of the Radiological Liquid Waste Permit without the approval of the Radiochemist or Health Physics Supervisor
- 1745: Operators align WMT "A" for discharge and start the release
- 1746: R-18, Waste Disposal System Liquid Effluent Monitor, fails low. The release is terminated and WMT "A" is restored to a normal lineup
- 1930: The R-18 monitor is repaired and restored to service
- 1935: The Shift Manager re-authorizes the release of WMT "A" on the same Radiological Liquid Waste Permit
- 1940: Operators re-align WMT "A" for discharge and start the release

Based on the above information, which ONE of the following represents the problem associated with these actions?

A. The sample taken for the Radiological Liquid Waste Permit may not be representative of the contents of WMT "A" now being released.

B. A Radiological Liquid Waste Permit approved for one shift may NOT be used for initiation of a release on the next shift.

C. The discharge required the approval of the Health Physics Supervisor in addition to the Shift Manager.

D. The contents of WMT "A" must first be transferred to the Waste Holdup Tanks for further processing prior to release.

Feedback

REFERENCES:

1. SD 049/SYS.061A, pages 27-29, rev 02/01/02
2. OP-061.11, CONTROLLED LIQUIED RELEASE TO THE CIRCULATING WATER
3. NCOP-003, PREPARATION OF LIQUID RELEASE PERMIT

DISTRACTORS:

A Correct. IAW NCOP-003, PREPARATION OF LIQUID RELEASE PERMIT, Attachments 1 & 6.

B Incorrect. Not required.

C Incorrect. As long as the specific activity of the tank contents is less than or equal to 1×10^{-4} Ci/ml, only the SM's approval is required.

D Incorrect. Not required.

K/A CATALOGUE QUESTION DESCRIPTION:

- Radiation Control; Knowledge of the requirements for reviewing and approving release permits.

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85. G2.4.22 001/T3//EOP TREES/C/A(3.0/4.0)/B/TP05301/R/MC/EXL

Unit 3 has experienced a large break LOCA. The crew has transitioned from EOP-E-0, "Reactor Trip or Safety Injection" to EOP-E-1, "Loss of Reactor or Secondary Coolant." The following conditions exist:

- "A" S/G N/R level is 38%, AFW flow is 120 gpm, pressure is 1050 psig
- "B" S/G N/R level is 42%, AFW flow is 110 gpm, pressure is 1025 psig
- "C" S/G N/R level is 58%, AFW flow is 0 gpm, pressure is 1135 psig
- RCS pressure is 35 psig and decreasing
- CET Subcooling is 0°F
- Core exit thermocouples are 690°F
- RVLMS Plenum level is 0%
- Containment pressure is 37 psig

Which ONE of the following is the correct procedure to use for these conditions?

A. EOP-FR-I.2, "Response to Low Pressurizer Level".

B. EOP-FR-C.2, "Response to Degraded Core Cooling".

C. EOP-FR-Z.1, "Response to High Containment Pressure".

D. EOP-FR-H.2, "Response to Steam Generator Overpressure".

Feedback

REFERENCES:

1. EOP-F-0, "Critical Safety Function Status Trees," pages 7-14, rev 04/15/99

DISTRACTORS:

A Incorrect. Lower priority. Also lower (Yellow) path.

B Incorrect. Path is Yellow and has a lower priority than C.

C Correct. Orange Path. IAW Attachment 1 of the reference, status trees shall be monitored in the following order of priority; core cooling, heat sink, containment, inventory. If an Orange Path is diagnosed, then the status of all remaining critical safety functions is checked, the procedure in effect is stopped, and function is initiated to restore the highest priority Orange Path.".

D Incorrect. Lower priority and lower (Yellow) path.

NOTE:
Although the question does not appear to directly test for the knowledge of the bases, the knowledge is tested in that the applicant would be unable to answer the question correctly without that knowledge.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Procedures /Plan; Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

86. G2.4.34 001//T3/E PRO/PLAN/M(3.8/3.6)/N/TP05301/S/MC

Turkey Point has experienced a fire in the North/South Breezeway.

- The Fire Suppression System in the N-S Breezeway has activated
- Operators are in the process of carrying out the actions of ONOP-105, CONTROL ROOM EVACUATION

IAW ONOP-105, which ONE of the following correctly describes an action a particular operator is required to take given existing plant conditions?

A. From the Unit 3 480 Volt Load Center Room the Unit 3 RO will verify LC 3D Supply to LC 3H Breaker 30402 – CLOSED; and verify 3B Load Center Supply Breaker 30210 - CLOSED.

B. From the Unit 4 480 Volt Load Center Room the Unit 4 RO will OPEN LC 4D Supply to LC 4H Breaker 40402; and verify 4B Load Center Supply Breaker 40210 - CLOSED.

C. From the Unit 3 480 Volt Load Center Room the Third RO will verify LC 3D Supply to LC 3H Breaker 30402 – CLOSED; and verify 3B Load Center Supply Breaker 30210 - CLOSED.

D. From the Unit 4 480 Volt Load Center Room the Third RO will OPEN LC 4D Supply to LC 4H Breaker 40402; and verify 4B Load Center Supply Breaker 40210 - CLOSED.

Feedback

REFERENCES:

1. ONOP-105, CONTROL ROOM EVACUATION, pages 93,94, rev 10/15/04

DISTRACTORS:

A Incorrect. The Third RO would take this action, NOT the Unit RO and it would be taken only if the fire was NOT in the N-S Breezeway.

B Incorrect. This is the action taken by the Third RO, NOT the Unit RO.

C Incorrect. This is the action the Third RO would take if there was NO fire in the N-S Breezeway.

D Correct. IAW ref 1, this action is to be taken by the Third RO in the event of a fire in the N-S Breezeway.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Procedures/Plan; Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications.

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87. G2.4.49 001/T3//EOP IA/C/A(4.0/4.0)/B/TP05301/R/MC/EXL

Given the following conditions:

- Reactor Power is stable at 88%
- Generator output is 660 MWe and steady
- Control Rods are in automatic
- Tave is less than Tref by 1.5°F
- Charging flow is 45 gpm and steady
- Pzr pressure is 2235 psig
- Control Bank D begins to insert

Which ONE of the following describes the correct immediate operator response to these conditions?

A. Verify quadrant power tilt and axial flux difference within limits.

B. Place Rod Motion Control Selector switch to the MAN position.

C. Trip the Reactor and Turbine and go to EOP-E-0.

D. Verify IRPI operating properly.

Feedback

REFERENCES:
1. ONOP-028, "Reactor Control System Malfunction," page 9, rev 11/11/04

DISTRACTORS:

A Incorrect. The initial response is to place Rod Motion Control Selector switch in MAN.

B Correct. IAW ref 1, sect 4.3, this is the immediate action.

C Incorrect. This would not be performed until Rod Motion Control Selector switch was placed to MAN and rod motion had stopped.

D Incorrect. Ref. 1 directs placing Rod Motion Control Selector switch to MAN as an immediate action.

K/A CATALOGUE QUESTION DESCRIPTION:
- Emergence Procedures /Plan; Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

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88. G2.4.6 001//T3/E PRO/PLAN/M(3.1/4.0)/B/TP05301/S/MC

Given the following information:

- An event has occurred in the plant that has resulted in a radioactive release in the containment
- The Safety Parameter Display System (SPDS) indicates Critical Safety Function Status Tree display of YELLOW priority for Containment
- FR-Z.3, RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL, has been entered

Which ONE of the following indicates the mitigation strategy for operator actions directed by FR-Z.3?

A. Allow a controlled release through the containment filtration system prior to exceeding design pressure limits on the containment.

B. Verify containment ventilation isolation and attempt to reduce activity by containment filtration.

C. Reduce containment activity levels with dilution flow using the Containment Purge System.

D. Verify containment isolation Phase "A" and place all containment coolers in slow speed.

Feedback

REFERENCES:

1. WOG, FR-Z.3, page 2, rev 1C
2. EOP-F-O, CRITICAL SAFETY FUNCTION STATUS TREES, page 11, rev 04/15/99C

DISTRACTORS:

A Incorrect. See B.

B Correct. IAW WOG.

C Incorrect. See B.

D Incorrect. See B.

K/A CATALOGUE QUESTION DESCRIPTION:

- Emergency Procedures/Plan; Knowledge of symptom based EOP mitigation strategies.

89. WE01EA2.2 001//T1G2/REDIAGNOSIS/M(3.3/3.9)/N/TP05301/S/MC

Following a plant event, operators entered the EOP network. The control room crew transitioned to EOP-ES-0.0, REDIAGNOSIS.

Which ONE of the following describes the plant conditions that allowed use of EOP-ES-0.0?

Operators were performing:

A. EOP-E-1 steps to maximize charging flow when the transition to ES-0.0 was made.

B. EOP-FR-H.1 to establish Bleed and Feed when the transition to ES-0.0 was made.

C. EOP-E-0 prompt actions when the transition to ES-0.0 was made.

D. EOP-E-0 diagnostic steps when the transition to ES-0.0 was made.

Feedback

REFERENCES:

1. EOP-ES-0.0, REDIAGNOSIS, pages 3,5, rev 12/14/02

DISTRACTORS:

A Correct. ES-0.0, REDIAGNOSIS, should only be used if operators have transitioned from E-0, SI is in service or is required, and no FRPs are in progress. Transitioning from E-1 meets all of these criteria.

B Incorrect. Operators may not transition from a FRP to use ES-0.0.

C Incorrect. Operators must have completed E-0 to use ES-0.0.

D Incorrect. Operators must have completed E-0 to use ES-0.0.

K/A CATALOGUE QUESTION DESCRIPTION:

- Rediagnosis; Ability to determine and interpret the following as they apply to the (Reactor Trip or Safety Injection Rediagnosis): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

90. WE02EA2.2 001/T1G1//SI TERMINATION/C/A(3.5/4.0)/B/TP05301/R/MC/EXL

Unit 3 has had a reactor trip and SI due to a main steam line break in containment.

- "B" S/G WR indication is zero%
- "A" S/G narrow range level is 4% and slowly rising
- "C" S/G narrow range level is 5% and slowly rising
- Total AFW flow is 300 gpm
- PZR level is 4% and rising
- Containment temperature is 178°F and slowly lowering
- RCS CET subcooling is stable at 88°F
- RCS pressure is 1800 psig and slowly rising

Which ONE of the following sets of conditions will allow the crew to transition from EOP-E-1 to EOP-ES-1.1, SI TERMINATION?

A. One intact S/G level is increased above 17% and PZR level is increased above 6%.

B. PZR level is increased above 17% and total AFW flow is increased above 345 gpm.

C. One intact S/G level is increased above 17% and total AFW flow is increased above 345 gpm.

D. RCS CET Subcooling is increased above 100°F and PZR level is increased above 6%.

Feedback

REFERENCES:

1. EOP-E-1, LOSS OF REACTOR OR SECONDARY COOLANT, pages 12, foldout, rev 01/07/04

DISTRACTORS:

A Incorrect. S/G level must be > 6% and PZR level must be > 17%.

B Correct. Both parameters are correct.

C Incorrect. While both parameters meet the conditions, the minimum PZR level condition has not been met.

D Incorrect. While CET subcooling meets the conditions, PZR level is < 17% and the minimum S/G level OR total AFW flow condition has not been met.

K/A CATALOGUE QUESTION DESCRIPTION:

- SI Termination; Ability to determine and interpret the following as they apply to the (SI Termination): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

91. WE03EA2.2 001//T1G2/LOCA C/D/C/A(3.5/4.1)/N/TP05301/S/MC

Following a LOCA with a concurrent Loss Of Offsite Power (LOOP), Unit 3 entered E-1, LOSS OF REACTOR OR SECONDARY COOLANT. Currently, the following plant conditions exist:

- T_{avg} is 345°F
- RCS pressure is 350 psig
- Containment temperature is 178°F
- RWST level = 255,000 gallons
- A mechanical failure of one train of SI has just occurred

Which ONE of the following describes the required operator actions in accordance with E-1?

A. Transition to ES-1.1, SI TERMINATION. Stop the running HHSI and RHR pumps and place in standby.

B✔ Transition to ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION. Stop the running RHR pump and place in standby.

C. Transition to ES-1.3, TRANSITION TO COLD LEG RECIRCULATION. Align RHR suction to containment recirc sump.

D. Transition to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION. Establish makeup to the Unit 3 RWST.

Feedback

REFERENCES:

1. E-1, LOSS OF REACTOR OR SECONDARY COOLANT, pages 18,21, rev 04/03/02
2. BD-E-1, LOSS OF REACTOR OR SECONDARY COOLANT, page 35, rev 04/03/02
3. TECHNICAL SPECIFICATION, 3.5.3, page 3/4 5-9, Amendment Nos. 138 & 133
4. 0-ADM-536, TECH SPEC BASES CONTROL PROGRAM, page 72, rev 05/01/03
5. ES-1.2, POST LOCA COOLDOWN & DEPRESSURIZATION, pgs 3,6,12, rev 04/03/02
6. BD ES-1.2, POST LOCA COOLDOWN AND DEPRESS, page 8, rev 04/03/02
7. TECHNICAL SPECIFICATION, 3.5.4, page 3/4 5-10, Amendment Nos. 138 & 133

DISTRACTORS:

A Incorrect. The transition is not correct. The stated action would be correct if the transition were made to ES-1.1.

B Correct. IAW E-1, Step 19, if RCS pressure is > 250 psig, go to ES-1.2, step 1 which directs stopping RHR pumps.

C Incorrect. While this is a valid transition from E-1, it occurs when RWST drops below 155,000 gallons so this transition would be incorrect.

D Incorrect. While this is a valid transition from E-1, it occurs if <u>neither</u> RHR pump is available to support cold leg recirculation so this transition would be incorrect.

K/A CATALOGUE QUESTION DESCRIPTION:

- LOCA Cooldown and Depressurization; Ability to determine and interpret the following as they apply to the (LOCA Cooldown and Depressurization): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

92. WE04EG2.1.32 001/T1G1//LOCA OUTSIDE/C/A(3.4/3.8)/N/TP05301/R/MC/EXL

Unit 4 has experienced a LOCA outside containment. The crew has taken the actions of ECA-1.2, LOCA OUTSIDE CONTAINMENT.

- RCS pressure is increasing

The crew transitions to E-1, LOSS OF REACTOR OR SECONDARY COOLANT. Which ONE of the following identifies the basis for the transition to E-1?

A. To prevent excessive depletion of RCS inventory to prevent further, if any, head void formation.

B. To establish conditions for SI termination.

C. To establish conditions for RHR system operation for subsequent plant cooldown.

D. To establish conditions for utilizing the water inventory in the sump.

Feedback

REFERENCES:

1. ECA-1.2, "LOCA Outside Containment," page 6, rev 04/15/99
2. BD-ECA-1.2, "LOCA Outside Containment," page 10, rev 04/15/99
3. BD-E-1, "Loss of Reactor or Secondary Coolant,", page 22, rev 04/30/02

DISTRACTORS:

A Incorrect. Action is correct but reason is not listed in ECA-1.2.

B Correct. IAW ref 2, basis for step 3 of ref 1.

C Incorrect. If RCS pressure was decreasing, this action would be correct because there would be no inventory in the sump.

D Incorrect. If RCS pressure was decreasing, this action would be correct for the reason stated.

K/A CATALOGUE QUESTION DESCRIPTION:

- LOCA Outside Containment; Ability to explain and apply all system limits and precautions.

93. WE05EA1.2 001/T1G1//HEAT SINK/C/A(3.7/4.0)/N/TP05301/R/MC/EXL

Unit 3 operators have entered EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK. The following plant conditions exist:

- All S/G's WR levels < 6%
- S/G feed is unavailable
- Normal charging and letdown are unavailable
- The plant had been at 100% power for 30 days prior to tripping
- All RCP's have been tripped
- SI and Containment Isolation Phase A have been actuated
- HH SI pumps have been verified running
- Both PZR PORV Block valves are open and both PZR PORV's have been opened

Which ONE of the following describes how the plant will respond based on existing plant conditions?

A. PZR level will decrease, Loop B hot leg temperature will decrease, Core Exit Thermocouple temperature will decrease.

B. ✓ PZR level will increase, Loop B hot leg temperature will increase, RCS Subcooling will decrease.

C. PZR level will decrease, RCS pressure will decrease, RCS Subcooling will increase.

D. RCS pressure will decrease, Loop B hot leg temperature will decrease, RCS Subcooling will decrease.

Feedback

REFERENCES:

1. EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, pages 7,15,16, rev 04/30/02
2. BD-EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, page 32 rev 04/30/02

DISTRACTORS:

A Incorrect. PZR level would increase due to steam space LOCA, Loop B hot leg temperature would increase due to movement of water from core to surge line, CET's would increase since RCS pressure > HH SI pump shutoff head preventing injection of cooler water into the core.

B Correct. PZR level and Loop B hot leg temperature would increase for reasons given above, Subcooling would decrease for the same reason CET's would increase.

C Incorrect. PZR level would increase for reason mentioned above, RCS pressure might increase or decrease dependent on how much decay heat is produced vs. pressure bleedoff via the PZR PORV's, Subcooling would decrease for reason mentioned above.

D Incorrect. For same reasons mentioned above.

NOTE: PZR level decrease is plausible since mass is being removed from RCS.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Secondary Heat Sink; Ability to operate and/or monitor the operating behavior characteristics of the facility as they apply to the Loss of Secondary Heat Sink.

94. WE05EA2.2 001//T1G1/HEAT SINK/C/A(3.7/4.3)/B/TP05301/S/MC

Operators are performing EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, and have successfully initiated Bleed and Feed by initiating SI and Phase A and opening both pressurizer PORVs.

The BOP subsequently announces secondary heat sink is restored using "A" Standby SG Feed Pump.

Which ONE of the following describes the correct operator response?

A. Return to procedure and step in effect when feed flow is verified to be > 345 gpm.

B. Continue performing FR-H.1 to completion.

C. Return to procedure and step in effect when narrow range level in any S/G is > 6%[32%].

D. Return to procedure and step in effect only when narrow range levels in all S/Gs are > 6%[32%].

Feedback

REFERENCES:

1. FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, steps 7,27, rev 04/30/02

DISTRACTORS:

A Incorrect. After Step 12, restoration of secondary heat sink is not enough to transition from FR-H.1. Plausible because 345 gpm is a normal indicator of adequate heat sink.

B Correct. After Bleed and Feed is established, FR-H.1 must be completed to ensure SI reduction/termination and PORV closure are completed. Restoration of secondary heat sink is not enough to transition from FR-H. beyond Step 12 of the procedure.

C Incorrect. After Step 12, restoration of secondary heat sink is not enough to transition from FR-H.1. Plausible because 6% in any S/G is a normal indicator of adequate heat sink.

D Incorrect. After Step 12, restoration of secondary heat sink is not enough to transition from FR-H.1. Plausible because >6% in all S/Gs is a goal of the procedure.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Secondary Heat Sink; Ability to determine and interpret the following as they apply to the (Loss of Secondary Heat Sink): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

95. WE06EG2.4.4 001/T1G1//CORE COOLING/C/A(4.0/4.3)/B/TP05301/R/MC/EXL

A LOCA has occurred on Unit 4 and the crew is currently in EOP-E-1, LOSS OF REACTOR OR SECONDARY COOLANT. The following plant conditions exist:

- All RCPs are secured
- Both Source Range channels have failed
- Containment pressure is 43 psig and increasing
- Core Exit Thermocouples are 783°F and increasing
- RCS CET Subcooling is 0°F
- S/G pressure in the "A" S/G is 1095 psig and increasing
- Lowest and highest S/G levels are 28% and 33% NR
- PZR level is 13% and decreasing
- Gamma-Metrics is 3% and decreasing

Based on the current plant conditions, which ONE of the following situations should the crew immediately address?

A. Low Pressurizer Level.

B. High Containment Pressure.

C. Loss of Core Shutdown.

D. Degraded Core Cooling.

Feedback

REFERENCES:

1. EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES, pages 7-12, rev 08/03/01

DISTRACTORS:

A Incorrect. This would be correct if degraded core cooling were not more significant.

B Incorrect. This would be correct if degraded core cooling were not more significant.

C Incorrect. This would be correct if degraded core cooling were not more significant.

D Correct. Entry condition IAW ref 1.

K/A CATALOGUE QUESTION DESCRIPTION:

- Degraded Core Cooling; Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

96. WE08EG2.4.4 001//T1G2/PTS/M(4.0/4.3)/B/TP05301/S/MC

Which ONE of the following conditions would require entering FR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION, on an orange or red path?

A. Cooldown of cold leg GREATER THAN 100°F in 60 minutes, cold leg = 325°F, RCS pressure = 450 psig

B. ✓ Cooldown of cold leg GREATER THAN 100°F in 60 minutes, cold leg = 280°F, RCS pressure = 460 psig

C. Cooldown of cold leg LESS THAN 100°F in 60 minutes, Tavg = 280°F, RCS pressure = 460 psig

D. Cooldown of cold leg LESS THAN 100°F in 60 minutes, Tavg = 270°F, RCS pressure = 450 psig

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Feedback

REFERENCES:

1. EOP-F-0, CRITICAL SAFETY SYSTEM STATUS TREES, page 10, rev 08/03/01

DISTRACTORS:

A Incorrect. Cold leg temperature is NOT less than 320°F, but is less than 350°F, returning a Yellow path. Pressure is of no consequence.

B Correct. Cold leg temperature is less than 290°F, returning a red path.

C Incorrect. Tavg is NOT less than 275°F, returning a green path.

D Incorrect. Tavg is NOT less than 275°F and pressure is NOT greater than 460 psig.

K/A CATALOGUE QUESTION DESCRIPTION:

- Pressurized Thermal Shock; Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

97. WE09EK1.1 001/T1G2//NATURAL CIRC/C/A(3.0/3.4)/N/TP05301/R/MC/EXL

Unit 3 operators have entered EOP-ES-0.2, NATURAL CIRCULATION COOLDOWN, as a result of a Loss Of Off-site Power (LOOP).

- The Shift Manager has determined RCS degassing is required
- The crew has just determined that they must exceed the maximum natural circulation cooldown rate of 25°F/hr stated in EOP-ES-0.2

IAW BD-EOP-ES-0.2, the major factor which would require a more rapid cooldown and depressurization than procedure EOP-ES-0.2 allows is _____.

A. to maximize RCS delta T to enhance natural circulation

B. when RCS inventory is being lost through the RCP seals

C. to reduce SG pressure to increase AFW flow

D. when condensate storage is limited

Feedback

REFERENCES:

1. EOP-ES-0.2, NATURAL CIRCULATION COOLDOWN, page 12, rev 02/14/02
2. BD-EOP-ES-0.2, NATURAL CIRCULATION COOLDOWN, pages 23,33, rev 08/03/01

DISTRACTORS:

A Incorrect. Neither of these is correct.

B Incorrect. The reason is incorrect, the method is correct.

C Incorrect. The reason is correct, the method is incorrect.

D Correct. The cooldown rate of 25°F/hr would be exceeded for this reason IAW ref 2, page 33. Dumping steam to the condenser is preferred to dumping steam to the atmosphere IAW ref 2, page 23.

K/A CATALOGUE QUESTION DESCRIPTION:

- Natural Circulation Operations; Knowledge of the operational implications of the components, capacity, and functions of emergency systems as they apply to Natural Circulation Operations.

98. WE11EK1.3 001/T1G1//EMER RECIRC/C/A(3.6/4.0)/N/TP05301/R/MC/EXL

A LOCA occurred on Unit 3. The crew transitioned to EOP-ES-1.3, TRANSFER TO COLD LEG RECIRCULATION. The operators have progressed in EOP-ES-1.3 to the point where RHR suction has been aligned to the Containment Recirc. Sump and one RHR pump has been started when the following indications are noted:

- The running RHR pump amps are oscillating
- RHR flow is abnormally low and oscillating
- Annunciator H-6/2, RHR HX HI/LO FLOW

Which ONE of the following indicates the operational implications and the initial actions the crew should take?

A. The Recirculation Sumps are blocked. Place both RHR pumps in Pull-to-Lock and continue performing the remaining steps of ES-1.3.

B. The running RHR pump shaft has sheared. Start the standby RHR pump and continue performing the remaining steps of ES-1.3.

C. The running RHR pump shaft has sheared. Transition to 3-EOP-ECA-1.1, "Loss of Emergency Coolant Recirculation," and start the standby RHR pump.

D. The Recirculation Sumps are blocked. Transition to 3-EOP-ECA-1.1, "Loss of Emergency Coolant Recirculation," and add makeup to the RWST.

Feedback

REFERENCES:

1. EOP-ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 17, rev 01/07/04
2. EOP-ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 3, rev 01/07/04

DISTRACTORS:

A Incorrect. The recirc sumps are blocked and the RHR pumps should be stopped. The operators should not remain in ES-1.3 but should transition to ECA-1.1.

B Incorrect. While a sheared shaft results in low amps and low flow, oscillating amps and flow indicate sump blockage and operators should not remain in ES-1.3 but should transition to ECA-1.1.

C Incorrect. It is correct to transition to ECA-1.1 but while a sheared shaft results in low amps and low flow, oscillating amps and flow indicate sump blockage and operators should not start the standby RHR pump.

D Correct. This is the action required by Step 17 of ES-1.3 and Step 3 of ECA-1.1.

K/A CATALOGUE QUESTION DESCRIPTION:

- Loss of Emergency Coolant Recirculation; Knowledge of the operational implications of annunciators and conditions indicating signals, and remedial actions associated with the (Loss of Emergency Coolant Recirculation).

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99. WE13EK3.1 001/T1G2//S/G OVERPRESS/C/A(2.9/3.2)/B/TP05301/R/MC/EXL

The following conditions apply to Unit 4.

- The plant has tripped late in core life from 100% RTP
- Condenser steam dumps, steam dump to atmosphere valves, and main steam safety valves have failed to automatically respond causing 4A S/G pressure to reach 1130 psig
- The crew has entered EOP-FR-H.2, RESPONSE TO STEAM GENERATOR OVERPRESSURE
- The 4A S/G NR level is observed to increase off-scale high

Which ONE of the following describes the next action to take and the basis for that action?

A. Transition to 3-EOP-FR-H.3, RESPONSE TO STEAM GENERATOR HIGH LEVEL, since steam should not be released from the affected steam generator.

B. Attempt to manually dump steam using the 4A steam dump to atmoshpere valve to mitigate the overpressure condition.

C. Stop any running Axiliary Feedwater Pump(s) to preclude adding additional inventory to the affected steam generator.

D. Initiate RCS Bleed and Feed in order to establish a heat removal path from the reactor core.

Feedback

REFERENCES:

1. EOP-FR-H.2, RESPONSE TO STEAM GENERATOR OVERPRESSURE, page 5, rev 04/15/99
2. BD-EOP-FR-H.2, RESPONSE TO STEAM GENERATOR OVERPRESSURE, pages 10,11, rev 04/15/99

DISTRACTORS:

A Correct. See EOP-FR-H.2, step 3 and BD-EOP-FR-H.2, page 10.

B Incorrect. Dumping steam from S/G with NR level > 90% is not allowed by procedure.

C Incorrect. EOP-FR-H.2, step 6 does say to isolate AFW to the affected S/G but does not direct securing AFW pumps.

D Incorrect. This is the strategy for heat sink restoration in 3-EOP-FR-H.1, not for FR-H.2.

K/A CATALOGUE QUESTION DESCRIPTION:

- Steam Generator Overpressure; Knowledge of the reasons for the following responses as they apply to the (Steam Generator Overpressure): Facility operating characteristics during transient conditions, including coolant chemistry and the effect of temperature, pressure, and reactivity changes and operating limitation and reasons for these operating characteristics.

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100. WE16EA2.1 001//T1G2/HIGH RAD/M(2.9/3.3)/B/TP05301/S/MC

Which ONE of the following describes an entry criteria for FR-Z.3, RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL?

A. Greater than 2.6 E 3 on R-11/12.

B. Greater than 6.1 E 5 on R-11/12.

C✓ Greater than 1.3 E 4 on CHRRMS.

D. Greater than 1.3 E 3 on CHRRMS.

Feedback

REFERENCES:

1. FR-Z.3, RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL, page 3, rev 04/15/99
2. EOP-F-0, CRITICAL SAFETY FUNCTION STATUS TREES, page 11, rev 04/15/99C
3. ARP-097.CR, CONTROL ROOM ANNUNCIATOR RESPONSE, page 424, rev 07/23/02

DISTRACTORS:

A Incorrect. FR-Z.3 is not entered based on this reading.

B Incorrect. FR-Z.3 is not entered based on this reading.

C Correct. This is the value that will initiate entry into FR-Z.3.

D Incorrect. FR-Z.3 is not entered based on this reading.

K/A CATALOGUE QUESTION DESCRIPTION:

- High Containment Radiation; Ability to determine and interpret the following as they apply to the (High Containment Radiation): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.