

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 1

This is the Final Master Exam
Key (As given) 10/4/01

Given the following:

- Unit 1 was operating at 100% power when offsite power was lost.
- Control room personnel have just transitioned to 0POP05-EO-ES02, "Natural Circulation Cooldown".

WHICH ONE (1) of the following actions should be taken to establish natural circulation cooldown if a reactor coolant pump cannot be restarted?

- A. Dump steam from all intact steam generators using SG PORVs.
- B. Place steam dump controls in MANUAL and dump steam to the condenser.
- C. Start one Reactor Cavity and Supports Vent Supply Fan and Exhaust Fan.
- D. Depressurize the RCS using auxiliary spray.

Answer: A Lesson Plan LOT 504.25, p. 8-9

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | W/E 09K1.01 | |
| Importance Rating | 3.0 | 3.4 |
| Tier # | | 1 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 2

As the Unit 1 operator, you have been instructed to establish Emergency Boration from the RWST per OPOP04-CV-0003, Emergency Boration. What is the MINIMUM flow rate required, as observed on FI-205A, for this task.

- A. >50 gpm
- B. >90 gpm
- C. >150 gpm
- D. >190 gpm

Answer: D Lesson Plan (As available)

Reference: OPOP04-CV-0003, Emergency Boration, P&ID 5R179F05007

Question Source: Bank # _____
Modified Bank # X
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | | |
|-------------------|-------------|------------|---|
| Level | <u>RO</u> | <u>SRO</u> | |
| K/A # | 000024A1.13 | | |
| Importance Rating | 3.2 | 3.0 | |
| Tier # | | 1 | 1 |
| Group # | 1 | 1 | |
| 10 CFR 55.43(b) | | | |

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Question # 3

Given the following:

- Unit 1 is at 70% power.
- "MAIN COND VACUUM LO" alarm is lit.
- "LP TURB EXH HOOD TEMP HI" alarm is lit.
- Condenser vacuum is 21 inches Hg and DECREASING slowly.

WHICH ONE (1) of the following actions should be taken?

- A. Commence an orderly shutdown of the Main Turbine.
- B. Trip the Reactor, then trip the Main Turbine.
- C. Commence RCS boration, and perform additional actions for a Fast Load Reduction.
- D. Increase turbine load 10% to allow increased exhaust hood cooling.

Answer: B Lesson Plan (As available)

Reference: 0POP04-CR-0001 "Loss of Condenser Vacuum: step 7 and CIP

| | | |
|------------------|-----------------|---------|
| Question Source: | Bank # | _____ |
| | Modified Bank # | ___X___ |
| | New | _____ |

| | | |
|---------------------------|---------------------------------|-------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | _____ |
| | Comprehension or Analysis | __X__ |

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000051A2.02 | |
| Importance Rating | 3.9 | 4.1 |
| Tier # | | 11 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 4

The following conditions exist on Unit 1:

- Chemistry reports RCS Iodine-131 activity is 0.11 microCuries/gram (Normal RCS Iodine-131 activity is 0.001 microCuries/gram)
- In-service Mixed bed demineralizer decontamination factor is NOT adequate
- RT-8039, Failed Fuel Monitor, reads normal

In addition to maximizing charging and letdown, which ONE of the following corrective actions should be taken in accordance with OPOP04-RC-0001, High Reactor Coolant System Activity?

- A. Increase sampling frequency to every 4 hours until activity returns to normal.
- B. Commence a rapid plant shutdown and reduce Tavg to < 500 °F.
- C. Place the Cation bed demineralizer in service.
- D. Place the alternate Mixed bed demineralizer in service.

Answer: D Lesson Plan (As available)

Reference: OPOP04-RC-0001, Section 4.1.2

Question Source: Bank # X
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000076K3.06 | |
| Importance Rating | 3.2 | 3.8 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

| | | | | |
|-------------------|---|-------------|---|------------|
| Level | | <u>RO</u> | | <u>SRO</u> |
| K/A # | | 000003A2.03 | | |
| Importance Rating | | 3.6 | | 3.8 |
| Tier # | | 1 | | 1 |
| Group # | 2 | | 1 | |
| 10 CFR 55.43(b) | | | | |

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Question # 6

WHICH ONE (1) of the following is a potential indication that the PRT Rupture Disc has ruptured following a pressurizer PORV failing full OPEN?

- A. PRT temperature is decreasing.
- B. PORV relief line temperature is increasing.
- C. PRT level decreases to its normal value.
- D. Pressurizer level is decreasing.

Answer: A Lesson Plan (As available)

Reference: LP No. LOT201.04, "Pressurizer, Pressure Relief Tank RCDT"

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge

 X

Comprehension or Analysis

Examination Outline Cross-reference:

| | | | | |
|-------------------|---|-------------|---|------------|
| Level | | <u>RO</u> | | <u>SRO</u> |
| K/A # | | 000008A1.08 | | |
| Importance Rating | | 3.8 | | 3.8 |
| Tier # | | 1 | | 1 |
| Group # | 2 | | 2 | |
| 10 CFR 55.43(b) | | | | |

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Question # 7

Given the following conditions:

- Reactor trip with SI occurred at 0100
- Operators were directed by OPOP05-EO-EO10, Loss of Reactor or Secondary Coolant, to enter OPOP05-EO-EC11, Loss of Emergency Coolant Recirculation at 15:30.

- At 1700:

- RCS subcooling based on core exit TCs: 82 degrees F
- Circulation conditions: natural circulation
- RVWL indication: Plenum level 15%

WHICH ONE (1) of the following is the MINIMUM SI Flow rate that must be maintained (at 17:00 hours) per OPOP05-EO-EC11, "Loss of Emergency Coolant Recirculation"? (Attached Figure 1 may be used)

- A. Approximately 60 gpm.
- B. Approximately 150 gpm.
- C. Approximately 270 gpm.
- D. Approximately 775 gpm.

Answer: B Lesson Plan (As available)

Reference: OPOP05-EO-EC11, "Loss of Emergency Coolant Recirculation"

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | W/E11K1.02 | |
| Importance Rating | 3.6 | 4.1 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

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Question # 8

WHICH ONE (1) of the following operator actions will result in Pressurized Thermal Shock (PTS) conditions following a Steam Generator Tube Rupture (SGTR) concurrent with a loss of offsite power (LOOP)?

- A. Overcooling the RCS when using the Steam Dump valves to cooldown the RCS to establish subcooling.
- B. Allowing the Safety Injection Accumulators to inject while cooling down and depressurizing.
- C. Delaying the termination of SI after the SI termination criteria are met.
- D. Allowing the ruptured SG pressure to INCREASE while cooling down the RCS to establish subcooling.

Answer: C Lesson Plan LP No. LOT LOT502.07

Resource:

Question Source: Bank # ___X___
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis ___X___

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | W/E 02A2.01 | |
| Importance Rating | 3.3 | 4.2 |
| Tier # | 1 | 1 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 9

When establishing bleed and feed cooling per 0POP05-EO-FRH1, "Response to Loss of Secondary Heat Sink," both PORVs are opened.

WHICH ONE of the following is the reason for manually opening the PORVs rather than allowing them to open and close automatically.

- A. RCP damage may occur due to inadequate seal injection with RCS pressure at the PORV setpoint.
- B. Depressurizing a SG for condensate feed with RCS pressure at the PORV setpoint will exceed U-tube delta-P limits.
- C. A water solid RCS at NOP/NOT has a high potential to challenge the RCS pressure safety limit.
- D. Maintaining both PORVs fully open is necessary to provide adequate core cooling flow.

Answer: D Lesson Plan LOT 504.33.LP, Rev. 4, pg. 11

Resources: 0POP05-EOFRH1, Rev. 3, pg. 9

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge

 X
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Comprehension or Analysis

Examination Outline Cross-reference:

| Level | <u>RO</u> | <u>SRO</u> |
|-------------------|-------------|------------|
| K/A # | 000054K3.05 | |
| Importance Rating | 4.6 | 4.7 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

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Question # 10

WHICH ONE (1) of the following describes the AUTOMATIC response of the Fuel Handling Building HVAC System upon receipt of an exhaust air HIGH RADIATION alarm on RT-8035?

- A. All Main Exhaust and Main Exhaust Booster Fans START and the Exhaust System Dampers shift to align two filtering unit trains.
- B. All Main Exhaust and Main Exhaust Booster Fans STOP and the Exhaust System Dampers CLOSE.
- C. All Main Supply Fans START and the Exhaust System Dampers shift to align two filtering unit trains.
- D. ALL Main Supply Fans STOP and the Exhaust System Dampers CLOSE.

Answer: A Lesson Plan LP No. LOT202.38.L, Objective 4, p. 3
LP No. LOT202.38.HO.01, pp. 3-9

Question Source: Bank # ___X___
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge

X___

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000060K2.02 | |
| Importance Rating | 2.7 | 3.1 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

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Question # 11

Which ONE of the following includes ONLY events for which area radiation monitors could be useful in identification?

- A. LOCA inside RCB, steam generator tube rupture, fuel handling accident in FHB, high radiation at Solid Waste Processing.
- B. LOCA inside RCB, gas storage tank rupture or rupture of charcoal beds, fuel handling accident in FHB, RCS leakage at incore instrumentation seal table.
- C. LOCA inside RCB, main steam line break, RCS to CCWS leak, fuel handling accident in FHB.
- D. Steam generator tube rupture, main steam line break, high radiation at Solid Waste Processing, high radiation in the primary sample room or post accident sample room.

Answer: B Lesson Plan LOT202.42.LP, Revision 3, Section 3.2

Question Source: Bank # X
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge

 X

Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000061G.2.4.31 | |
| Importance Rating | 3.3 | 3.4 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

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Question # 12

Which one of the following will prevent control rod motion in automatic or manual control?

- A. Failure of the following logic cabinet power supplies:
one +100 VDC power supply, one +16.5 VDC power supply, and one -16.5 VDC power supply.
- B. Failure of the following power cabinet power supplies:
one +24 VDC power supply and one -24 VDC power supply.
- C. Control Interlock C-5.
- D. Simultaneous zero current order to stationary and movable gripper coils.

Answer: D Lesson Plan LP.NO.:LOT201.18.L p. 35-40

Question Source: Bank # ___X___
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge

 Comprehension or Analysis _____

X_

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 001K4.07 | |
| Importance Rating | 3.7 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

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Question # 13

During a plant cooldown certain automatic SI actuation signals are blocked to prevent an unnecessary SI actuation. Which of the below lists the signals that get blocked?

- A. Low RCS pressure and low steamline pressure
- B. Low RCS pressure and high steamline pressure rate
- C. Low steamline pressure and high RCB pressure
- D. High RCB pressure and high steamline pressure rate

Answer: A Lesson Plan

| | | |
|------------------|-----------------|--------------------|
| Question Source: | Bank # | _____ |
| | Modified Bank # | |
| | New | <u> X </u> |

| | | |
|---------------------------|---------------------------------|--------------------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | <u> X </u> |
| | Comprehension or Analysis | _____ |

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 013K5.02 | |
| Importance Rating | 2.9 | 3.3 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 14

The following conditions exist at Unit 1:

- Natural Circulation cooldown in accordance with 0POP05-EO-ES02, Natural Circulation Cooldown.
- RCS temperature by core thermocouples is 510 deg. F.
- RCS pressure is 1900 psig
- ALL CRDM cooling fans have tripped and cannot be restarted

Which of the following conditions are the CRDM cooling fans analyzed to mitigate during a Natural Circulation cooldown in accordance with 0POP05-EO-ES02?

- A. Damage to the CRDM coils resulting from overheating.
- B. Damage to the ex-core NIS resulting from overheating.
- C. Brittle Fracture to the reactor vessel head flange welds resulting from exceeding nil ductility temperature limits.
- D. Formation of a reactor vessel steam bubble which degrades RCS cooldown capability.

Answer: D Lesson Plan LOT504.25.LP

Resources: STPEGS POP05-EO-ES02 step 5.1
WOG ERG "Natural Circulation Cooldown" p.26

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge

$$\overline{x}$$

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 022K4.04 | |
| Importance Rating | 2.8 | 3.1 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 15

WHICH ONE (1) of the following will cause an automatic trip of a Feedwater Booster pump?

- A. Lube oil temperature greater than 185 degrees F
- B. Lube oil pressure drops to 18 psig
- C. Deaerator Storage Tank #2 level drops to 4%
- D. Loss of two Condensate pumps

Answer: C Lesson Plan LP No. LOT202.13.LP, Objective 5, p. 4
LP No. LOT202.13.LP, p. 17

Question Source: Bank # _____ X _____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge

$$\overline{x}$$

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 059000K4.16 | |
| Importance Rating | 3.1 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

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Question # 16

Unit 1 is at 60% power when the RCP 1B trips resulting in a reactor trip. When plant conditions are STABLE, after the trip, SG 1B STEAM FLOW and PRESSURE will indicate as follows (with respect to the other three SGs): Assume MSIVs are open

Select ONE of the following:

| | SG 1B STEAM FLOW | SG 1B STEAM PRESSURE |
|----|------------------|----------------------|
| A. | HIGHER | LOWER |
| B. | LOWER | HIGHER |
| C. | HIGHER | SAME |
| D. | LOWER | SAME |

Answer: D Lesson Plan (As available)

Question Source: Bank # ____X____
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis ____X____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 003K3.02 | |
| Importance Rating | 3.5 | 3.8 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 17

Each of the Process and Effluent radiation monitors below are to automatically secure radioactive releases to the environment.

Per 0POP04-RA-0001, Radiation Monitoring System Alarms Response, which ONE of the following correctly matches a radiation monitor with its automatic action?

| | Monitor | Automatic Action |
|----|------------------------------------|--|
| A. | RT-8038 LWPS Monitor | Waste Monitor Tank Pump stops. |
| B. | RT-8041 TGB Drain Monitor | TGB Sump Number 1 Sump Pumps stop. |
| C. | RT-8042 Condensate Polisher System | 1(2)-FV-5804 TDS Waste Discharge to Neutralization Basin Valve shifts to RECIRC. |
| D. | RT-8043 SG Blowdown System Monitor | 1(2)-SB-FV-5019 SG Blowdown Isolation to Neutralization Basin Valve shifts to RECIRC |

Answer: B Lesson Plan (As available)

Resource:

Question Source: Bank # X
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 068K4.01 | |
| Importance Rating | 3.4 | 4.1 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 18

To comply with Technical Specification requirements, which ONE of the following Area Radiation Monitors would require that the unit be shut down if the monitor were out of service for greater than 7 days?

- A. RT-8050, RCB High Range Area Monitor
- B. RT-8090, SFP Area Monitor
- C. RT-8059, Waste Gas Area Monitor
- D. RT-8096, Emergency Operations Facility Area Monitor

Answer: A Lesson Plan (As available)

Resource: LOT202.42 Rev 3; Technical Specification Table 3.3-10 Amendment No. 77/66

Question Source: Bank # X
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 072A2.02 | |
| Importance Rating | 2.8 | 2.9 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 19

Given the following conditions:

- Unit 1 is in Mode 4.
- RCS temperature is 300°F.
- Pressurizer level is 25%.
- Charging flow control valve, FCV-205, is in manual.
- RHR Train 1A is in service supplying low pressure letdown.
- PCV-0135, Letdown Backpressure Control Valve, is in Automatic.

Assuming no operator action, which ONE of the following will occur if PT-0135 fails high?

- A. RHR pump discharge relief will lift.
- B. Running Charging pump will cavitate.
- C. RCS pressure begins to increase.
- D. RCS pressure begins to decrease.

Answer: D Lesson Plan (As available)

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 004A3.10 | |
| Importance Rating | 3.9 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

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Question # 20

The following plant conditions exist:

- Unit 1 Reactor power is 80%.
- Rod Control is in MANUAL.
- All other controls in AUTO.
- Turbine Control is in IMP IN

An Emergency Boration is performed for TWO (2) minutes with no resulting reactor trip.

Considering steady-state to steady-state conditions and NO operator actions, the parameter that will return to its original value is:

- A. RCS Tavg.
B. PZR Level.
C. SG Pressure.
D. Reactor Power.

Answer: D Lesson Plan

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 004K5.20 | |
| Importance Rating | 3.6 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

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Question # 21

Reactor power is being maintained at approximately 6% as the Main Turbine is being placed on-line. Power Range channel N-42 instrument power is lost. Which of the following actions must be taken in response to this failure?

- A. Take manual control of any Low Power Feed Regulating valves being used to feed steam generators.
- B. Perform a calorimetric to verify operability of unaffected Power Range instrumentation
- C. Contact Reactor Engineering to perform a flux map to verify QPTR within 12 hours.
- D. Restore the inoperable channel prior to exceeding 10% of Rated Thermal Power.

Answer: A Lesson Plan (As available)

Reference: OPOP04-NI-0001, Rev 6, Step 1 RNO

Question Source: Bank # ____X____
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge

X_

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 015A2.01 | |
| Importance Rating | 3.5 | 3.9 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 22

Given the following Unit 1 conditions:

- Reactor power is 99%.
- Pressurizer level is 55%.
- Letdown flow is 120 gpm (One Orifice).
- A charging line leak develops near the charging line containment penetration that diverts ALL charging flow from the line.
- Normal seal injection is maintained.
- Assume NO operator action is taken.

WHICH ONE (1) of the following statements describes the pressurizer response?

- A. Decreasing pressurizer level to 17%, letdown isolates and pressurizer level increases leading to high level trip.
- B. Pressurizer pressure increases to the high pressure trip setpoint following loss of pressurizer spray and the auto start of pressurizer backup heaters due to level deviation.
- C. Pressurizer level stabilizes at a lower level, but >17% based on seal injection and letdown flowrates.
- D. Pressurizer pressure stabilizes at a higher pressure due to heating of the water in the pressurizer, a result of losing the cooling effect of charging flow.

Answer: A

Lesson Plan LOT201.14

Question Source:

Bank #

___X___

Modified Bank #

New

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

___X___

Examination Outline Cross-reference:

Level

RO-ONLY

SRO

K/A #

011A1.2

Importance Rating

3.3

Tier #

2

Group #

2

10 CFR 55.43(b)

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Question # 23

WHICH ONE (1) of the following bus losses will result in the loss of Containment Spray Pump 1C?

- A. Class IE 4.16 KV Bus E1C
- B. Non-Class IE 4.16 KV Bus 1D1
- C. Class IE 480 V Bus E1C1
- D. Non-Class IE 480 V Bus LC 1L2

Answer: A Lesson Plan LP No. LOT201.11.L

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge

$$\overline{x}$$

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 0026K2.02 | |
| Importance Rating | 2.7 | 2.9 |
| Tier # | 2 | 2 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

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Question # 24

Given the following:

- Plant is at 100% power steady state operation.
- Preparations for performing a supplementary containment purge are in progress.
- Noble gas concentration inside the RCB is 5.2E-04 uCi/cc.

WHICH ONE (1) of the following actions should be taken to prevent the actuation of an ESF Containment Ventilation Isolation (CVI) during the supplementary purge?

- A. Increase the High alarm setpoint of RT-8012 & 8013 (RCB Purge Monitors).
- B. Ensure that RT-8011 (Containment atmosphere radiation monitor) output is blocked.
- C. Increase the High alarm setpoint on RT-8011 (Containment atmosphere radiation monitor).
- D. Remove power from CVI relays in the ESF actuation panel.

Answer: A 0POP02-HC-0003 - "Supplementary Containment Purge"

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 029A2.03 | |
| Importance Rating | 2.7 | |
| Tier # | 2 | |
| Group # | 2 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 25

WHICH ONE (1) of the following can supply power to the Positive Displacement Charging pump in the event of a loss of offsite power?

- A. Standby Diesel Generator #11.
- B. Standby Diesel Generator #12.
- C. Lighting Diesel Generator.
- D. TSC Diesel Generator.

Answer: D Lesson Plan LOT201.06

References: Dwg 480V MCC 1G8

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge

$$\overline{X}$$

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 062A1.01 | |
| Importance Rating | 3.4 | 3.8 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 26

Which of the following conditions on RT-8032, Gaseous Waste Processing System (GWPS) Discharge monitor, would result in automatic closure of FV-4671, GWPS Discharge Valve?

- A. Alert or High alarm (yellow or red)
- B. High alarm (red) or system operate failure condition (dark blue)
- C. Alert alarm (yellow) or system operate failure condition (dark blue)
- D. Alert alarm only (yellow)

Answer: B

Lesson Plan LOT202.41.LP

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | <u>RO</u> | <u>SRO</u> |
|-------------------|-----------|------------|
| K/A # | 073A2.02 | |
| Importance Rating | 2.7 | 3.2 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 27

Given the following:

- Unit 1 is in Mode 6.
- A loss of power occurs on 4160v Bus E1C.

WHICH ONE (1) of the following describes the effect on the Residual Heat Removal (RHR) Inlet Isolation valves (MOV-0060A, B, C and MOV-0061 A, B, C) to this failure?

- A. BOTH valves in ONE (1) train DE-ENERGIZE.
- B. ONE (1) valve in EACH of the THREE (3) trains DE-ENERGIZE.
- C. BOTH valves in TWO (2) trains DE-ENERGIZE.
- D. ONE (1) valve in each of TWO (2) trains DE-ENERGIZE.

Answer: D Lesson Plan LP NO. LOT201.09

References: DWG: 9-Z-42182

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 005K2.03 | |
| Importance Rating | 2.7 | 3.8 |
| Tier # | 2 | 2 |
| Group # | 3 | 3 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 28

Given the following:

- Unit 1 is in MODE 4.
- RCS temperature is 325 degrees.
- RCS pressure is 340 psig.
- RHR is in service.
- An unisolable leak in the Instrument Air (IA) system has occurred.
- IA system pressure is 60 psig and decreasing.

WHICH ONE (1) of the following describes how the RHR system will respond?

- A. RHR heat exchanger bypass valves FCV-851/852/853 will fail OPEN and cause RCS temperature to DECREASE.
- B. RHR heat exchanger bypass valves FCV-851/852/853 will fail CLOSED and cause RCS temperature to INCREASE.
- C. RHR heat exchanger flow control valves HCV-864/865/866 will fail OPEN and cause RCS temperature to DECREASE.
- D. RHR heat exchanger flow control valves HCV-864/865/866 will fail CLOSED and cause RCS temperature to INCREASE.

Answer: C

Lesson Plan LOT201.09, p. 11, LO #5.
LOT504.02, LO #8.
LOT202.26.TP.17

Question Source: Bank # _____X_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis _____X_____

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 078K3.02 | |
| Importance Rating | 3.4 | |
| Tier # | 2 | |
| Group # | 3 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 29

Unit 1 is operating at 100% power with all systems aligned normally. A tube leak of approximately 25 gpm develops in the operating ECW/CCW Heat Exchanger.

Which ONE of the following describes the FIRST indication the operator would have of this leak?

- A. 2M03/F5 CCW SURGE TK LVL HI alarm
- B. 2M03/F6 CCW SURGE TK LVL LO alarm
- C. CCW Chemistry results
- D. Increased cycling of the CCW Surge Tank Makeup Valve

Answer: D Lesson Plan (As available)

References:

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 008K1.01 | |
| Importance Rating | 3.1 | 3.1 |
| Tier # | 2 | 2 |
| Group # | 3 | 3 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 30

Given the following plant conditions:

- Safety Injection Actuated
- PZR pressure 1800 psig, slowly decreasing
- RCS temperature 560°F, stable
- SG NR levels 21%, slowly increasing
- SG pressure 1115 psig, stable
- PZR level 48%, increasing
- RCB temperature 140°F, slowly increasing
- RCB pressure 3.5 psig
- RCB humidity Increasing
- RT-8011 Activity Increasing

Which ONE of the following could be a cause of the above conditions?

- A. Steam line break inside the RCB
- B. Feed line break inside the RCB
- C. RCS leak
- D. Pressurizer steam space break

Answer: D Lesson Plan (As available)

Question Source: Bank # _____
Modified Bank # ____X____
New

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis _____ x _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.1.7 | |
| Importance Rating | 3.7 | 4.4 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 31

0POP01-ZA-0018, Emergency Operating Procedures User's Guide, allows certain actions to be taken outside the guidance of the EOPs.

Which ONE of the following actions can be taken?

- A. Isolating AFW to a ruptured SG and closing the Main Steam Isolation Valve from the ruptured SG during the performance of 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- B. Cross-connecting AFW to supply all four SGs, at 300 gpm per SG, with one AFW pump during the performance of 0POP05-EO-FRS1, Response to Nuclear Power Generation ATWS.
- C. Resetting Phase A Isolation and restoring Instrument Air to Containment during the performance of 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- D. Securing HHSI Pumps to prevent the pressurizer from going solid during the performance of 0POP05-EO-EO00, Reactor Trip or Safety Injection.

Answer: C Lesson Plan (As available)

Resources: 0POP01-ZA-0018, Rev 12, section 4.25

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.1.1 | |
| Importance Rating | 3.7 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 32

Given the following:

- A Reactor Startup is being performed following a mid-cycle outage.
- Reactor Power has been stabilized at 1E-8 amps
- RCS temperature is at the no-load value
- Critical data has been taken.
- Prior to any additional control rod movement, a single SG Safety Valve on SG 1D fails opens and remains open.
- RCS Tavg decreases 9°F and reactor power starts to increase.

Which ONE of the following states the correct action, required to satisfy Technical Specification LCO(s)?

- A. Reduce power range high flux high trip setpoint to 87% rated thermal power.
- B. Restore SG safety valve to operable status prior to entering Mode 1.
- C. Restore RCS Tavg within 15 minutes or be in Mode 3 within the next 15 minutes.
- D. Immediately initiate boration to restore Shutdown Margin.

Answer: C Lesson Plan (As available)

Reference: T.S. LCOs 3.1.1.1; 3.1.1.4; 3.7.1.1

Question Source: Bank # ___X___
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
 Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.11 | |
| Importance Rating | 3.0 | 3.8 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 33

Given the following conditions on Unit 1:

- Fuel movement operations are in progress in the Spent Fuel Pool (SFP)
- The Fuel Handling Machine is located over a SFP storage location
- A fuel assembly is latched on the long handling tool
- The fuel assembly is visually clear of the storage cell
- The hoist is NOT in its full up position but hoist motion has stopped

Under these conditions, which ONE of the following indicates the limitations on the operation of the Fuel Handling Machine?

- A. The bridge and the trolley are interlocked to prevent movement in any direction.
- B. Bridge is restricted to slow speed mode but the trolley may be moved normally.
- C. The bridge may be moved normally but the trolley is restricted to slow speed mode.
- D. The bridge speed and the trolley speed are restricted to slow speed mode.

Answer: B Lesson Plan (As available)

Resources: OPOP08-FH-0002, Rev 16

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | G2.1.28 | |
| Importance Rating | 3.2 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 34

Which ONE of the following clearance situations would be ALLOWED by 0PGP03-ZO-EC01, Equipment Clearance Orders?

- A. Using a Danger Tag as an administrative lock in place of a mechanical locking device to meet the requirements of 0POP01-ZA-0001, Plant Operations Administrative guidelines.
- B. Moving Electrical Grounding Devices to other parts of de-energized equipment using Test Tags only.
- C. Sequencing an Equipment Clearance Order so that a pump is mechanically isolated prior to disabling the motive force.
- D. Hanging a Danger Tag on a switchgear cubicle door with a position of "RACKED OUT", then placing the breaker in the TEST position.

Answer: B Lesson Plan (As available)

Resource: 0PGP03-ZO-EC01

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.2.13 | |
| Importance Rating | 3.6 | 3.8 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 35

Unit 2 is operating at 50% power when the CVCS Failed Fuel Rad Monitor, ALARMS. Chemistry has reported the following confirmed sample results:

Dose Equivalent I-131 = .5 microCuries/gram
Gross Activity = 30 microCuries/gram
E-bar = 2.65 Mev

Which ONE of the following statements applies for the given conditions?

- A. Plant may remain at this power level indefinitely.
- B. Perform isotopic analysis for Iodine once per 4 hours.
- C. Be in HOT STANDBY with Tave < 500°F within 6 hours.
- D. Within 1 hour initiate action to place the unit in HOT STANDBY within the next 6 hours.

Answer: A Lesson Plan (As available)

Resource: Tech Spec 3.4.8

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.2.22 | |
| Importance Rating | 3.4 | 4.1 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 36

Which of the below are aspects of the ALARA Program at STP?

- A. NRC approval of station ALARA goals, ALARA Review Committee
- B. ALARA Review Committee, ALARA Job Holds
- C. ALARA representatives in each Department, ALARA Job Holds
- D. ALARA representatives in each Department, NRC approval of station ALARA goals

Answer: B Lesson Plan (As available)

Resource: OPGP03-ZR-0052, Rev 3

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | G2.3.2 | |
| Importance Rating | 2.5 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 37

A mechanic has the following exposure history:

- Current Year to date:

150 mrem TEDE from offsite occupational exposure at another nuclear facility
750 mrem TEDE from onsite occupational exposure at STP

In the week following the above reported information, the mechanic records the following exposure on a job in Unit 2:

Gamma - 55 mrem

Which one of the following correctly lists the dose margin (TEDE) to the STP Administrative Action Level for this individual, if NO Personnel Dose Extension Authorization has been granted?

- A. 970 mrem
- B. 1045 mrem
- C. 1120 mrem
- D. 1195 mrem

Answer: D Lesson Plan (As available)

Resource: OPGP03-ZR-0050, Rev 4, Section 5.5.2

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.3.4 | |
| Importance Rating | 2.5 | 3.1 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 38

Given the following conditions:

- The plant is operating at full power
- CCW Pump 'A' trips

The alarm response procedure will direct the operator to:

- A. Place CCW Pump 'A' in PTL and close CCW Train 'A' common header isolation valves.
- B. Close CCW Train 'A' common header isolation valves and secure the 'A' Train ECW Pump.
- C. Place CCW Pump 'A' in PTL and ensure cooling flow is available to the in-service Centrifugal Charging Pump.
- D. Ensure cooling flow is available to the in-service Centrifugal Charging Pump and secure the 'A' Train ECW Pump.

Answer: C Lesson Plan (As available)

Resource: Annunciator response

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.4.24 | |
| Importance Rating | 3.3 | 3.7 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 39

Given the following conditions on Unit 1:

- Reactor power is being maintained at 30%
- SGFPs 11 and 12 are in service
- All controls are in automatic

SGFP 12 trips due to a loss of lube oil and 0POP04-FW-0002, Steam Generator Feedpump Trip is entered.

Which ONE of the following describes the immediate operator actions that should be taken?

- A. 1) Check SGFPs - Required number running.
 2) Check SGFP Master Controller - OPERABLE.
- B. 1) Start a standby FW Booster Pump.
 2) Check SG Feedwater Regulating Valves responding in AUTOMATIC.
- C. 1) Check SGFP Master Controller - OPERABLE.
 2) Check SG Feedwater Regulating Valves responding in AUTOMATIC.
- D. 1) Place Low Power Feedwater Regulating Valves in MANUAL.
 2) Check SGFPs - Required number running.

Answer: A Lesson Plan (As available)

Resource: 0POP04-FW-0002 Rev 6, Steps 1-2

Question Source: Bank # ___X___
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis ___X___

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | G2.4.49 | |
| Importance Rating | 4.0 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 40

Given the following conditions:

- Unit 1 is operating at 75%
- Condensate pump #12 is out of service for maintenance
- Power is being increased at 10% per hour

Condensate pump #11 trips from UNKNOWN causes.

Which ONE of the following is the appropriate action per the COND PMP TRIP annunciator response?

- A. Stop the power increase and stabilize the Deaerator level at the present power level.
- B. Continue the power increase while attempting to start an additional Condensate Pump.
- C. Commence a power decrease to less than 50% at 5% per minute.
- D. Immediately trip the turbine and stabilize the Deaerator level at no load conditions

Answer: C Lesson Plan (As available)

Reference: OPOP09-AN-09M1, window A-1

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 056G2.1.27 | |
| Importance Rating | 2.8 | 2.9 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 41

The reactor operator is making a blended addition to the Volume Control Tank and sets up the controls as follows:

- TOT M/U BATCH integrator set at 400 gallons
- BA BATCH integrator set at 70 gallons
- RC M/U CONT selector switch set to MAN
- All blender valves in AUTO
- RC M/U CONT is taken to START and the blending operation begins

Due to a malfunction, the TOT M/U BATCH integrator stops counting the gallons added part way through the operation.

Assuming the malfunction goes unnoticed by the operator, which ONE of the following describes the effect of the malfunction?

- A. Boric acid will continue to inject until stopped by the operator, causing a boration of the RCS.
- B. Reactor Makeup Water will continue to inject until stopped by the operator, causing a dilution of the RCS.
- C. Boric acid and Reactor Makeup Water will both continue to inject at their present flowrates until stopped by the operator causing the Volume Control Tank to fill with properly blended flow.
- D. Boric Acid and Reactor Makeup Water will both stop injecting immediately and operator action will be required to continue blending.

Answer: B

Lesson Plan: LOT201.07 Rev 7 Student Handout

Question Source:

Bank # X
Modified Bank #
New

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 004K6.13 | |
| Importance Rating | 3.1 | 3.3 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 42

Which of the below meets the Technical Specification Fire Brigade staffing requirements?

| | # of Fire Brigade Members | When Required |
|----|---------------------------|----------------|
| A. | 4 | Modes 1-4 only |
| B. | 4 | At all times |
| C. | 5 | Modes 1-4 only |
| D. | 5 | At all times |

Answer: D

Lesson Plan:

Reference: Tech Spec 6.2.2.e

Question Source:

Bank # _____
Modified Bank # _____
New X

Question Cognitive Level:

Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 086G2.4.25 | |
| Importance Rating | 2.9 | 3.4 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 43

Unit 1 is operating at 100% power when Instrument Air pressure begins to decrease. The BOP operator reports that Instrument Air pressure is 95 psig and slowly lowering.

Which ONE of the following actions should have already occurred?

- A. 1-IA-PV-8561, Instrument Air Dryer Bypass Valve is OPEN
- B. 1-CV-FV-0011, Letdown Orifice Header Isolation Valve is CLOSED
- C. 1-IA-PV-8559, Service and Instrument Air Crossover Valve is OPEN
- D. 1-IA-PV-8568, Instrument Air to Yard Isolation Valve is CLOSED

Answer: C Lesson Plan: LOT202.26

Reference: 0POP04-IA-0001, Rev 7; 0POP02-IA-0001, Rev 11, Section 5.0; 0POP09-AN-08M3-F-3, Rev 9.

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 079K4.01 | |
| Importance Rating | 2.9 | |
| Tier # | 2 | |
| Group # | 2 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 44

The following conditions exist on Unit1:

- At 0400 hours, a fire in the 60' EAB (outside the Control Room Envelope) was reported to the control room
- Fire brigade has been dispatched
- Control Room staff is performing 0POP04-ZO-0008, Fire/Explosion
- At 0445 hours, the Fire Brigade Leader reports that the fire is NOT extinguished

Under these conditions, which ONE of the following actions should be taken LOCALLY?

- A. Place Train "C" EAB HVAC in the Smoke Purge mode of operation.
- B. Place Train "C" Control Room Envelope HVAC in the Smoke Purge mode of operation.
- C. Isolate EAB HVAC Train "C" using the train actuation handswitch in the stairwell.
- D. Actuate the deluge valves for the Control Room Envelope Train "C" filters

Answer: C Lesson Plan: LOT505.01

Reference: 0POP04-ZO-0008 Rev 4, step 4.28

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|---------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000067G2.4.25 | |
| Importance Rating | 2.9 | 3.4 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 45

Tropical storm Barry has made landfall at Galveston and spawned a series of strong tornados in the area. One of these tornados has caused structural damage to the switchyard equipment, which has caused a Loss of Offsite Power (LOOP).

Which ONE of the statements below correctly describes the emergency diesel for Train A actuation/operation under these conditions?

- A. Auto DG start signal, SDG breaker auto closes within 10 seconds, all trips blocked (except for emergency trips), ESF Load Sequencer in Mode II, recovery to preferred source of power is done manually.
- B. Auto DG start signal, SDG breaker auto closes within 6 seconds, all trips blocked (except for emergency trips), ESF Load Sequencer in Mode II, recovery to preferred source of power is done manually.
- C. Auto DG start signal, SDG breaker auto closes within 6 seconds, all trips blocked (except for emergency trips), ESF Load Sequencer in Mode III, recovery to preferred source of power is done manually.
- D. Auto DG start signal, SDG breaker auto closes within 10 seconds, all trips blocked (except for emergency trips), ESF Load Sequencer in Mode III, recovery to preferred source of power is done manually.

Answer: A Lesson Plan: LOT201.41, LOT201.39

Reference: TS 3/4 3.8.1.1; UFSAR 8.3; PSP03-DG-0007, 8, 9

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|-------------|-----|
| K/A # | 000055A1.06 | |
| Importance Rating | 4.1 | 4.5 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 46

An event has occurred on Unit 2 and operators are conducting 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant", when the following parameters are observed:

- All S/G pressures---800 psig and stable
- All S/G levels---being controlled at 40%
- PZR level---off-scale low
- Containment pressure---16 psig
- RWST Lo-Lo level alarm is illuminated
- RCS pressure---180 psig and stable

Based on these conditions, which ONE of the following procedures would the operators enter next to mitigate the event in progress?

- A. 0POP05-EO-ES12, "Post LOCA Cooldown and Depressurization"
- B. 0POP05-EO-ES11, "SI Termination"
- C. 0POP05-EO-ES13, "Transfer to Cold Leg Recirculation"
- D. 0POP05-EO-EC11, "Loss of Emergency Coolant Recirculation"

Answer: C Lesson Plan:

Reference: 0POP05-EO-ES13, 0POP05-EO-EO10

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | G2.4.1 | |
| Importance Rating | 4.3 | 4.6 |
| Tier # | 3 | 3 |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 47

Which ONE of the following control room indications would be the most useful immediately following an event to discriminate between a large steamline break in containment and a large break LOCA inside containment?

- A. Containment sump levels
- B. Pressurizer level
- C. Containment radiation levels
- D. Power range NIS

Answer: C Lesson Plan:

Reference:

Question Source: Bank # _____
Modified Bank # ___X___
New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000011A2.13 | |
| Importance Rating | 3.7 | 3.7 |
| Tier # | 1 | 1 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 48

Given the following conditions:

- Unit 1 is operating at full power
- Reactor Water Makeup is aligned for normal automatic operation
- Power is lost to 120 VAC Panel DP 1204 resulting in a loss of VCT level transmitter LT-112

This failure would result in which of the following?

- A. High level diversion of letdown flow to the Recycle Holdup Tank ultimately causing VCT suction to shift to the RWST.
- B. Auto makeup to the VCT resulting in a high level diversion of letdown flow to the Recycle Holdup Tank.
- C. High level diversion of letdown flow to the Recycle Holdup Tank until VCT level reaches 28 % as measured by LT 113.
- D. Auto makeup to the VCT until VCT level reaches 48 % as measured by LT 113.

Answer: B

Lesson Plan:

Reference:

Question Source:

Bank # _____
Modified Bank # _____
New X

Question Cognitive Level:

Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 000057A2.13 | |
| Importance Rating | 3.0 | 3.4 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 49

- Unit is at 100% power
- A Control Rod located near the outside of the core drops fully into the core.
- The unit is stabilized at 93% power

Assuming no other changes in plant status, which ONE of the following correctly indicates the most affected power distribution parameter AND at what time after the rod drop that core parameter is expected to be closest to its associated Technical Specification limit?

| | Power Distribution Parameter | Time Following Rod Drop |
|---|------------------------------|-------------------------|
| A | Axial Flux Difference | Immediately |
| B | QPTR | Immediately |
| C | Axial Flux Difference | 6-8 hours |
| D | QPTR | 6-8 hours |

Answer: D

Lesson Plan:

Reference:

Question Source:

Bank #

Modified Bank #

New

X

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

—

Examination Outline Cross-reference:

Level

K/A #

Importance Rating

Tier #

Group #

10 CFR 55.43(b)

RO

000005K1.03

3.2

1

1

SRO

3.6

1

1

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 50

0POP02-RC-0004, Operation of Reactor Coolant Pumps, permits two successive starts of a RCP (provided the motor coasts to a complete stop).

Which ONE of the statements below describes the bases for RCP starting duties?

Limiting the number of RCP starts in a short period of time prevents damage to the:

- A. RCP motor stator windings.
- B. RCP breaker protection relays.
- C. RCP breaker junction terminals.
- D. RCP motor armature insulation.

Answer: A Lesson Plan:

Reference: RC-04, RCP, basis

Question Source: Bank # 753_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|---------------|---------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 015/17G2.1.28 | 015/17G2.1.28 |
| Importance Rating | 3.2 | 3.3 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 51

Given the following conditions:

- Unit 1 is in Mode 5
- CCW Trains A and C are in service
- CCW Train B is selected to STANDBY
- ALL ECW Trains are in service

CCW Pump A trips causing common header pressure to decrease to 70 psig. What is the effect on CCW Pump B?

CCW Pump B will:

- A. start ONLY if the mode selector switch is placed in run.
- B. NOT start because ECW Trains A and C are still in service.
- C. start because the common header pressure is less than the low-pressure setpoint.
- D. NOT start because the common header pressure did not decrease to the low-pressure setpoint.

Answer: C

Lesson Plan:

Reference: LOT 201.12.LP Rev 7 section 4.3.3.C

Question Source: Bank # _____
Modified Bank # _X-124_
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _X_
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 026AK3.04 | 026AK3.04 |
| Importance Rating | 3.5 | 3.7 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 52

The plant is in Mode 3 at normal operating temperature and pressure, Train A COMS has inadvertently been left ARMED for Cold Overpressure Protection.

The selected pressurizer pressure channel, PT-455, subsequently fails high.

With no operator actions, which ONE of the following states the expected plant response?

- A. PORV 655A initially opens, then closes when actual PZR pressure decreases to <2185 psig.
- B. PORV 655A stays closed initially, but will function as required for COMS.
- C. PORV 655A initially opens, and stays open when actual PZR pressure decreases to <2185 psig.
- D. PORV 655A stays closed initially, and PORV BLOCK VALVE (MOV-001A) closes when actual PZR pressure decreases to <2185 psig.

Answer: A Lesson Plan: LOT201.14

Reference: OPOP04-RP-0005

Question Source: Bank # _____
Modified Bank # ___X-901___
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis ___X___

Examination Outline Cross-reference:

| | | |
|-------------------|--------------|--------------|
| Level | RO | SRO |
| K/A # | APE027AA2.11 | APE027AA2.11 |
| Importance Rating | 4.0 | 4.1 |
| Tier # | 1 | 1 |
| Group # | 1 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 53

An event has occurred on Unit 2 and the Integrity Critical Safety Function is Orange. Assuming all plant systems functioned as designed, what event is the most likely cause for the Orange Path condition and what parameter(s) are used to assess this condition?

- A. LOCA on the cold leg and an increase in RCS hot leg temperature.
- B. Uncontrolled depressurization of all steam generators and an increase in containment pressure.
- C. LOCA on the cold leg and an increase in containment pressure.
- D. Uncontrolled depressurization of all steam generators and a decrease in RCS cold leg temperatures.

Answer: D Lesson Plan:

Reference: Procedure OPOP05-EO-F004, "Integrity Critical Safety Function Status Tree"

Question Source: Bank # _____
Modified Bank # 31 _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|---------------|---------------|
| K/A # | APE040G2.4.21 | APE040G2.4.21 |
| Importance Rating | 3.7 | 4.3 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 54

Procedure 0POP05-EO-FRP1, "Response to Imminent Pressurized Thermal Shock Condition," has a step to terminate safety injection flow. However, if the safety injection termination criteria are not satisfied, a reactor coolant pump should be started. What is the basis for starting an RCP in this condition?

- A. Establishes forced flow to collapse voids and regain pressure control.
- B. Allows RCS depressurization via the pressurizer spray nozzle.
- C. Equalizes steam generator pressures to allow cooldown of all 4 loops.
- D. Mixes the incoming SI water and the RCS water to raise the temperature of the water entering the downcomer.

Answer: D Lesson Plan:

Reference: WOG Emergency Response Guidelines Background Document, " Response to Imminent Pressurized Thermal Shock Condition.

Question Source: Bank # _____
Modified Bank # X _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|------------|------------|
| K/A # | W/E08EK2.2 | W/E08EK2.2 |
| Importance Rating | 3.6 | 4.0 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 55

Given the following:

- Unit 2 has suffered a Large Break LOCA.
- Operators have performed all actions of 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- While transitioning from EO00, a Red path was identified for Core Cooling and 0POP05-EO-FRC1, Response to Inadequate Core Cooling was entered.

Based on 0POP05-EO-FRC1, what is the correct SEQUENCE of major actions to address the inadequate core cooling? Assume that as each action is taken, it is unsuccessful.

- A. • Establish safety injection flow to the RCS
 • Start RCPs and open all RCS vent paths to containment
 • Rapidly depressurize the SGs to depressurize the RCS.
- B. • Establish safety injection flow to the RCS
 • Rapidly depressurize the SGs to depressurize the RCS
 • Start RCPs and open all RCS vent paths to containment.
- C. • Start RCPs and open all RCS vent paths to containment
 • Establish safety injection flow to the RCS
 • Rapidly depressurize the SGs to depressurize the RCS.
- D. • Start RCPs and open all RCS vent paths to containment.
 • Rapidly depressurize the SGs to depressurize the RCS
 • Establish safety injection flow to the RCS

Answer: B Lesson Plan:

Reference: Procedure 0POP05-EO-FRC1, "Response to Inadequate Core Cooling" and
 WOG "Response to Inadequate Core Cooling"

Question Source: Bank # _____

 Modified Bank # _____

 New __X__

Question Cognitive Level: Memory or Fundamental Knowledge

__X__
__

Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|--------------|--------------|
| Level | RO | SRO |
| K/A # | EPE074EK2.04 | EPE074EK2.04 |
| Importance Rating | 3.9 | 4.1 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 56

Operators are performing a startup on Unit 1. The reactor is critical and currently at 1.0E-8 amps. The reactor startup is being performed in accordance with Procedure 0POP03-ZG-0004, "Reactor Startup."

Currently, the operators have completed all procedure steps up to and including stabilizing reactor power at 1.0E-8 amps. As the crew prepares for shift turnover, a rod control circuit fails and initiates a continuous rod withdrawal event.

With no operator action, which of the below reactor trips will terminate the power increase?

- A. Intermediate Range high flux trip at 20% power.
- B. Source Range high flux trip at 1.0E5 cps.
- C. Power Range Flux Low setpoint trip at 25% power.
- D. R & S Logic Train urgent failure alarms

Answer: C Lesson Plan:

Reference: LOT201.20HO.02, "SSPS Study Guide"

Question Source: Bank # _____
Modified Bank # X
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|--------------|--------------|
| K/A # | APE001AA1.05 | APE001AA1.05 |
| Importance Rating | 4.3 | 4.2 |
| Tier # | 1 | 1 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 57

Given the following:

- The reactor has tripped from 100% power due to a loss of offsite power.
- All systems have responded normally.
- The Unit Supervisor has just asked the Primary RO if "RCS temperature is STABLE or TRENDING to 567°F."

Which ONE of the following indications should the Operator use when reporting RCS temperature status in accordance with 0POP05-EO-ES01, Reactor Trip Response?

- A. T_{AVG}
- B. T_{HOT}
- C. T_{COLD}
- D. Core Exit Thermocouples (CETs)

Answer: C Lesson Plan:

Reference: Procedure 0POP05-EO-ES01, "Reactor Trip Response," Step 1

Question Source: Bank # 805
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|--------------|--------------|
| K/A # | EPE007EA1.03 | EPE007EA1.03 |
| Importance Rating | 4.2 | 4.1 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 58

During normal operation, RT-8027, Condenser Air Removal Rad Monitor alarms. A steam generator tube leak is suspected. Given the following information:

- Charging Flow: 120 gpm
- Letdown Flow: 75 gpm
- Pressurizer Level: 58% STEADY
- Tavg: 588.9 °F and STABLE
- Seal Injection Flow: 8 gpm per pump
- Seal Leakoff Flow: 3 gpm per pump

Which ONE of the following is the approximate steam generator leakrate?

- A. 65 gpm
- B. 55 gpm
- C. 75 gpm
- D. 43 gpm

Answer: A

Lesson Plan:

Reference:

Question Source:

Bank # _____
Modified Bank # __991__
New _____

Question Cognitive Level:

Memory or Fundamental Knowledge _____
Comprehension or Analysis __X__

Examination Outline Cross-reference:

| | | |
|-------------------|---------------|---------------|
| Level | RO | SRO |
| K/A # | EPE037G2.4.46 | EPE037G2.4.46 |
| Importance Rating | 3.5 | 3.6 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 59

Procedure 0POP05-EO-EO30, "Steam Generator Tube Rupture," is being performed in response to a tube rupture on SG B in Unit 2. The cooldown has just been completed but the target temperature value selected by the Unit Supervisor was HIGHER than that stipulated in the procedure.

This error could result in which ONE of the following conditions?

- A. Loss of RCS subcooling before RCS and ruptured SG pressures are equalized.
- B. Increasing pressure in the ruptured SG with resultant lifting of a SG B Safety Valve.
- C. Decreasing time for termination of the primary to secondary leakage.
- D. Filling the pressurizer solid during the subsequent depressurization.

Answer: A Lesson Plan:

Reference: Procedure 0POP05-EO-EO30, "Steam Generator Tube Rupture," and WOG ERG E-3, "Steam Generator Tube Rupture," Step 14

Question Source: Bank # 226
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|--------------|--------------|
| K/A # | EPE038EA1.36 | EPE038EA1.36 |
| Importance Rating | 4.3 | 4.5 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 60

Unit 1 is at 100% power when a leak develops in the reference leg on the controlling Pressurizer level channel. Which one of the following is an indication that this failure has occurred? Assume no operator action.

- A. Pressurizer pressure begins to rise and spray valves open to modulate pressure
Backup heaters come on
and PRZR LEVEL DEV HI alarm actuates.
- B. Pressurizer pressure begins to decrease
Charging flow control valve goes to minimum flow
and PRZR LEVEL DEV HI alarm actuates.
- C. Pressurizer pressure begins to rise and spray valves open to modulate pressure
Backup and control group heater de-energize
and, PRZR LEVEL DEV LO alarm actuates.
- D. Pressurizer pressure begins to decrease
Backup and control group heater de-energize
and, Charging flow control valve goes to minimum flow

Answer: B Lesson Plan:

Reference: LOT201.14.01 and LOT201.14

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|--------------|--------------|
| Level | RO | SRO |
| K/A # | APE028AK1.01 | APE028AK1.01 |
| Importance Rating | 2.8 | 3.1 |
| Tier # | 1 | 1 |
| Group # | 3 | 3 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 61

Due to an electrical fault, MOV-0032B, SEAL INJ ISOL, fails shut and isolates the corresponding Reactor Coolant Pump Seal Injection. Which statement below describes the conditions and actions that will occur due to this event.

- A. "RCP 1B(2B) THERM BAR CCW FLOW/TEMP/TRBL" Annunciation when the CCW flow rate increases to greater than 60 gpm the thermal barrier heat exchanger, and MOV-0374 closes to isolate the CCW from thermal barrier due to the high flow.
- B. "RCP 1B(2B) THERM BAR CCW FLOW/TEMP/TRBL" Annunciation when the CCW thermal barrier temperature increase above 187°F, and MOV-0374 closes to isolate the CCW from thermal barrier due to the high temperature
- C. "RCP 1B(2B) SEAL WTR INJ FLOW LO" Annunciator, while the CCW thermal barrier temperature increases.
- D. "RCP 1B(2B) SEAL WTR INJ FLOW LO" Annunciator, while the CCW thermal barrier flow rate decreases.

Answer: C Lesson Plan: LOT201.05.ho

Reference: OPOP09-AN-05M2, OPOP09-AN-04M7

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|-------------|-----|
| K/A # | 000022K3.06 | |
| Importance Rating | 3.2 | 3.3 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 62

Unit 1 has the following conditions:

- Reactor is in Mode 5
- Mid-Loop Operations in effect
- Annunciator "RC MID LOOP LVL LO-LO" has been received
- RCS NR Hot Leg Level is at -3 inches decreasing
- RHR pumps 1A, and 1B are exhibiting erratic current and discharge flow indication

Which ONE of the following statements indicate the correct actions to be INITIALLY taken in accordance with 0POP04-RH-0001, Loss of Residual Heat Removal?

- A Start RHR Pump 1C. If RHR pump 1C cannot be started, then initiate containment closure and evacuation of non-essential personnel.
- B Stop all RHR Pumps, isolate Letdown and known drain paths and initiate containment closure and evacuation of non-essential personnel.
- C Start RHR Pump 1C. Increase RCS level using a CCP or gravity feed from the RWST via the Cold Leg Injection Valves (MOV-31 A, B, C).
- D Stop all RHR Pumps, isolate Letdown and known drain paths and initiate RCS refill using a HHSI Pump.

Answer: B Lesson Plan: LOT201.09HO.01, rev 8

Reference: 0POP04-RH-0001 "Loss of Residual Heat Removal"
0POP09-AN-01M2 Annunciator Response Instruction

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|-----|
| Level | RO | SRO |
| K/A # | 000025K3.03 | |
| Importance Rating | 3.9 | 4.1 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 63

Which ONE of the following statements is correct concerning the Class 1E 125 VDC electrical power?

- A. The loss of all battery chargers for any single Train will cause that corresponding battery to supply the DC Bus loads for a minimum of 12 hours.
- B. The loss of a single battery charger for any single Train will cause the standby charger to automatically connect to the corresponding bus to supply the DC Bus loads.
- C. On a loss of all offsite AC, the battery chargers fail and the DC Buses are supplied by their battery until the battery chargers are manually returned to service following start of the ESF DGs.
- D. On a loss of all offsite AC, battery chargers lose power, the ESF DGs start and the 1E load centers sequence on, then the chargers resume powering the DC buses.

Answer: D Lesson Plan: LOT201.37.HO.1, rev 6

Reference: 0POP02-EE-0001, "ESF DC Distribution System"

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|-----|
| Level | RO | SRO |
| K/A # | 000058K1.01 | |
| Importance Rating | 2.8 | 3.1 |
| Tier # | 1 | 1 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 64

The following conditions exist on Unit 1:

- SI initiation just occurred
- Undervoltage on all ESF 4.16kV buses
- EDG 11: Voltage= 4200 V, Speed= 600 rpm, Lube oil pressure= 35
- EDG 12: Voltage= 3700 V, Speed= 570 rpm, Lube oil pressure= 32

Which ONE of the following statements correctly states the current plant conditions?

- A. ESF Load Sequencer in Mode II; HHSI pump 1A, LHSI pump 1A, Containment spray pump 1A loaded to the Train A Bus.
- B. ESF Load Sequencer in Mode III; CCW pump 1A, Aux Feed Water pump 11, Containment spray pump 1A are NOT loaded to the Train A Bus
- C. ESF Load Sequencer in Mode II; HHSI pump 1B, LHSI pump 1B, Containment spray pump 1B loaded to the Train B Bus.
- D. ESF Sequencer in Mode III; CCW pump 1B, Aux Feed Water pump 12, Containment spray pump 1B are NOT loaded to the Train B Bus

Answer: D Lesson Plan: LOT201.41HO.1, Rev.5

Reference: OPSP03-DG-0001, "Standby Diesel 11(21) Operability test

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 064K3.01 | |
| Importance Rating | 3.8 | 4.1 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 65

It is desired to transfer 125 VDC Bus E1A11 to it's standby charger. Which of the below correctly describes how this will be done?

- A. The operating charger will first have to be removed from service then the standby charger placed in service to prevent unwanted parallel operation.
- B. The standby charger is placed in service in parallel with the operating charger & the operating charger is then removed from service to prevent discharging the battery.
- C. Simultaneously, the output breaker of the standby charger is closed and the operating charger is opened thereby preventing unwanted parallel operations.
- D. The operator selects the STANDBY CHARGER on the E1A11 Bus MODE SELECT Switch causing the standby charger to connect to the bus and removes the operating charger.

Answer: A Lesson Plan:

Reference: 0POP02-EE-0001

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 063K4.02 | |
| Importance Rating | 2.9 | 3.2 |
| Tier # | 2 | 2 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 66

The following conditions exist on Unit 2 following a refueling outage:

- Start up in progress, Reactor at 22% power, RCS pressure at 2235 psig, RCS temp at 572.0°F
- Three control rods drop into the core
- Power decreases to 15% on one power range monitor, 19% on the other three channels

Which ONE of the following statements is correct concerning the actions that will occur or be required given the Unit 2 conditions?

- A.
 - Manually trip the reactor
 - Automatic trip of the turbine
 - Remove heat through steam dumps to bring RCS temperature to 567°F
- B.
 - Automatic reactor trip
 - Automatic trip of the turbine
 - Remove heat through the steam dumps to bring RCS temperature to 567°F
- C.
 - Manually trip the reactor
 - The turbine does not trip
 - Remove RCS heat through the turbine and condenser to 567°F.
- D.
 - Automatic reactor trip
 - Do NOT trip the turbine
 - Remove RCS heat through the turbine and condenser to 567°F.

Answer: A Lesson Plan: LOT201.20.HO.01, Rev. 13, LOT201.20.HO, Rev. 13
LOT202.09.LP Rev. 11

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X _____

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 045K5.18 | |
| Importance Rating | 2.7 | 3.2 |
| Tier # | 2 | 2 |
| Group # | 3 | 3 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 67

The following conditions exist on Unit 1:

- Reactor power at 25% and decreasing, RCS Temp is 573.25°F and Press is 2235 psig
- Control rods in MANUAL
- Steam dump system is in Tavg Mode

While in this condition the turbine trips off line.

Concerning the steam dump system, which one of the following statements correctly describes the system response and subsequent operator actions under these conditions?

- A.
- C-7 Load Reject signal is received which allows the Load Reject Controller to control the steam dumps
 - Transfer to Steam Pressure Mode as per 0POP04-TM-003, "Turbine Trip Below P-9"
 - Maintain RCS temperature within 3°F of Program Tavg.
- B.
- C-8 Turbine Trip signal received which allows the Turbine Trip Controller to control the steam dumps
 - Transfer to Steam Pressure Mode as per 0POP04-TM-003, "Turbine Trip Below P-9"
 - Maintain RCS temperature within 3°F of Program Tavg.
- C.
- C-8 Turbine Trip signal received which allows the Turbine Trip Controller to control the steam dumps
 - RCS temperature will be decreased to the No-Load setpoint of 567°F
 - Transfer to Steam Pressure Mode as per 0POP04-TM-003, "Turbine Trip Below P-9"
 - Maintain RCS temperature at 567°F.
- D.
- C-7 Load Reject signal is received which allow the Load Reject Controller to control the steam dumps
 - RCS temperature will be decreased according to the difference in Tref and Tavg
 - Transfer to Steam Pressure Mode as per 0POP04-TM-003, "Turbine Trip Below P-9"
 - Maintain RCS temperature at 567°F.

Answer: B Lesson Plan: 202.09.HO.01 Rev. 11, pg 16; 202.09. Rev. 11, pg 26-31

Reference: 0POP04-TM-0003, "Turbine trip below P-9", Rev 10

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Comprehension or Analysis X

Examination Outline Cross-reference:

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 68

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 041K4.16 | |
| Importance Rating | 2.6 | |
| Tier # | 2 | |
| Group # | 3 | |
| 10 CFR 55.43(b) | | |

Which ONE of the following sets of conditions satisfies Technical Specification requirements during core alterations?

| | Reactor Cavity Boron Concentration | OPERABLE RHR Trains | Reactor Cavity level (feet above vessel flange) |
|----|---------------------------------------|------------------------|---|
| A. | 2850 ppm | 2 | 22 |
| B. | 2750 ppm | 1 | 24 |
| C. | 2750 ppm | 2 | 22 |
| D. | 2850 ppm | 1 | 24 |

Answer: D Lesson Plan:

Reference: Tech spec section 3/4.9

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis _____

 X

Examination Outline Cross-reference:

| | | |
|-------------------|------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | 034G2.2.22 | |
| Importance Rating | 3.4 | 4.1 |
| Tier # | 2 | 2 |
| Group # | 3 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 69

Unit 1 is operating at 100% with no LCOs. An inadvertent Main Steam Isolation occurs resulting in a reactor trip.

Which ONE of the following correctly describes the steam generator response, ASSUMING NO OPERATOR ACTION?

- A. Rapid pressure increase causes steam generator levels to increase, steam generator PORVs and Safety Valves lift relieving the pressure, steam generator levels decrease and Main feed water level control increases feed to regain level.
- B. Rapid pressure increase causes steam generator levels to increase, steam generator PORVs lift relieving the pressure, steam generator levels decrease and Aux. feed water will feed to regain level.
- C. Rapid pressure increase causes steam generator levels to decrease, steam generator PORVs and Safety Valves lift to relieve the pressure, steam generator levels decrease and Aux. feed water will feed to regain level.
- D. Rapid pressure increase causes steam generator levels to decrease, steam generator PORVs lift relieving the pressure, steam generator levels decrease and Main feed water level control increases feed to regain level.

Answer: C Lesson Plan:

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 035K6.01 | |
| Importance Rating | 3.2 | 3.6 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 70

Unit 1 is operating at 43% power. The controlling level transmitter on one steam generator failed low.

Which one of the following correctly describes the action that will occur ASSUMING NO OPERATOR ACTION.

- A. The "level error output" will dominate the "flow error output" causing the MFRV to open, level will increase and cause the P-14 setpoint to be exceeded, feedwater isolation, main turbine trip and reactor trip will occur.
- B. The "flow error output" will dominate the "level error output" causing the MFRV to close, level will decrease and cause a reactor trip once level falls below 33%, start signal sent to auxiliary feedwater pumps, and main turbine will trip.
- C. The "level error output" will dominate the "flow error output" causing the MFRV to open, level will increase and cause the P-14 setpoint to be exceeded, feedwater isolation and main turbine trip will occur.
- D. The "flow error output" will dominate the "level error output" causing the MFRV to open, level will increase and cause the P-14 setpoint to be exceeded, feedwater isolation, main turbine trip and reactor trip will occur.

Answer: C Lesson Plan: LOT202.15.HO. Rev. 7, pg. 3,4,7,8

Reference: LOT201.20.HO.01 Rev. 13, pg. 40, 49
LOT202.13.HO.01 Rev. 7, pg. 27-28

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 035K1.12 | |
| Importance Rating | 3.7 | 3.9 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 71

The following has occurred on Unit 1:

- A complete loss of load from 100% power.
- The main turbine did not trip (a direct reactor trip was not generated).
- The reactor tripped on high pressurizer pressure.
- Pressure in the PRT is at 35 psig

Which ONE of the following would be the approximate temperature of the Pressurizer PORV tailpipe following this transient?

- A. 228 °F
- B. 281 °F
- C. 655 °F
- D. 659 °F

Answer: B Lesson Plan: LOT201.04.HO.01, Rev 7 and Steam Tables

Reference:

Question Source: Bank # _____
Modified Bank # X
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 010K5.02 | |
| Importance Rating | 2.6 | 3.0 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 72

The following conditions exist on Unit 2:

- Reactor at 75% power
- In a 14-day LCO for T.S. 3.8.1.1.b—ESF Diesel Generator 22 inoperable and under an ECO
- "SG 2A LVL LO-LO ALERT" annunciator has actuated
- 13.8/4.16 KV ESF transformers E2B and E2C have failed

Given the above conditions, which one of the following statements correctly states the resulting condition of the unit?

- A. The motor-driven AFW pump #23 will NOT start and the corresponding S/G will not receive water.
- B. The motor-driven AFW pump #22 will NOT start and the corresponding S/G will not receive water.
- C. The motor-driven AFW pump #21 will NOT start and the corresponding S/G will not receive water.
- D. All motor driven AFW pumps will start, and all corresponding S/Gs will receive water.

Answer: B Lesson Plan: LOT202.28.HO.01 Rev. 8, pg 7
LOT201.36.HO.01 Rev. 4, pg 2-8

Reference: DWG: 0-E-AAAA-01, "Single line diagram, Main one line diagram, Unit 1&2"
0POP09-AN-06M3, Rev. 14, pg. 33,34,41,42

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 061K2.02 | |
| Importance Rating | 3.7 | 3.7 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 73

Given the following:

- A spent fuel assembly is being raised from its position in the storage pool for return to the reactor.
- Gas bubbles are coming to the surface of the pool.
- Radiation levels in the Spent Fuel Pool area are increasing.

Which ONE of the following actions is required per OPOP04-FH-0001, Fuel Handling Accident?

- A. Notify the control room to sound the Containment Evacuation Alarm.
- B. Immediately evacuate all personnel from the Fuel Handling Building.
- C. Secure ALL trains of FHB HVAC.
- D. Move the fuel assembly into the RCB and notify the control room to initiate containment isolation.

Answer: B

Lesson Plan: STP: OPOP04-FH-0001, p. 2, 6.
STP: LOT504.02, LO# 3.

Reference:

Question Source:

Bank # X
Modified Bank #
New

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | | | |
|-------------------|---|------------|---|-----|
| Level | | RO | | SRO |
| K/A # | | 000036K202 | | |
| Importance Rating | | 3.4 | | 3.9 |
| Tier # | | 1 | | 1 |
| Group # | 3 | | 3 | |
| 10 CFR 55.43(b) | | | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 74

Unit 1 is operating at 100% power. The following conditions exist:

- Xenon is at equilibrium.
- Control Bank D rod position is 225 steps.
- Rods are in manual.

A downpower to 50% is commenced. Boration is in progress and T avg. remains in accordance with program. With NO ROD MOTION, which one of the following is the expected response of Axial Flux Difference (AFD) to the downpower?

- A. Becomes more positive.
- B. Becomes more negative.
- C. Does not change.
- D. Deviates between channels.

Answer: A

Lesson Plan:

Reference:

Question Source:

Bank # X
Modified Bank #
New

Question Cognitive Level:

Memory or Fundamental Knowledge

 X

Comprehension or Analysis

—

Examination Outline Cross-reference:

| | | | | |
|-------------------|---|-----------|---|------------|
| Level | | <u>RO</u> | | <u>SRO</u> |
| K/A # | | 001A3.03 | | |
| Importance Rating | | 3.6 | | 3.8 |
| Tier # | | 2 | | 2 |
| Group # | 1 | | 1 | |
| 10 CFR 55.43(b) | | | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 75

During a reactor startup in accordance with OPOP03-ZG-0004, Reactor Startup, which ONE of the following describes the method used to check that startup conditions agree with those expected based on the Estimated Critical Condition (ECC)?

- A. The count rate is monitored following each rod withdrawal.
- B. The startup rate is maintained GREATER THAN 0.5 dpm when pulling rods.
- C. The RCS temperature is monitored every 30 minutes to be GREATER THAN 561 degrees F until criticality is achieved.
- D. All control bank positions are monitored during control bank movement to ensure that the step counters and DRPI agree within a MAXIMUM of 6 steps.

Answer: A

Lesson Plan: LOT506.01
LOT506.03

Reference:

Question Source:

Bank # _____
Modified Bank # _____
New X

Question Cognitive Level:

Memory or Fundamental Knowledge

 X

Comprehension or Analysis

—

Examination Outline Cross-reference:

| | | | |
|-------------------|---|----------------|------------|
| Level | | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | | 001A4.10 | |
| Importance Rating | | 3.5 | |
| Tier # | | 2 | |
| Group # | 1 | | |
| 10 CFR 55.43(b) | | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 76

Which ONE of the following provides the power source for the Train B Engineered Safety Features load sequencer?

- A. 120VAC Non-class Vital Instrument bus DP004.
- B. 125VDC Vital switchboard E1B11.
- C. 48VDC master relay power supply.
- D. 120VAC Non-class Vital Instrument bus DP006.

Answer: B

Lesson Plan: LOT201.37 Class 1E 125 vdc

Reference:

Question Source:

Bank # _____
Modified Bank # _____
New X

Question Cognitive Level:

Memory or Fundamental Knowledge

 X

Comprehension or Analysis

—

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO-ONLY | SRO |
| K/A # | 013K2.01 | |
| Importance Rating | 3.6 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 77

Given the following containment history:

| Time | Ctmt Temp. | Ctmt Press | Ctmt. Humidity | Ctmt Radiation |
|------|------------|------------|----------------|-----------------|
| 0815 | 178 Deg F | 2 psig | 90% | 9.0 X 10E2 R/Hr |
| 0830 | 180 Deg F | 4 psig | 100% | 7.3 X 10E3 R/Hr |
| 0845 | 183 Deg F | 6 psig | 100% | 9.5 X 10E4 R/Hr |
| 0900 | 185 Deg F | 10 psig | 100% | 2.0 X 10E5 R/Hr |

Which ONE of the following describes the EARLIEST time at which adverse containment should have been declared?

- A. 0815
- B. 0830
- C. 0845
- D. 0900

Answer: C Lesson Plan:

Reference: OPOP01-ZA-0018, EOP Users Guide

Question Source: Bank # _____
Modified Bank # X
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO-ONLY | SRO |
| K/A # | 022K3.02 | |
| Importance Rating | 3.0 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 78

Under what condition is entry into OPOP05-EO-FRZ2, "Response to Containment Flooding," warranted?

- A. Containment water level is below 69 inches.
- B. Containment Radiation is greater than 2.0 + 03E R/HR.
- C. Containment Critical Safety function tree is in an Orange Condition.
- D. Containment Pressure is greater than 9.5 psig.

Answer: C Lesson Plan:

Reference: OPOP05-EO-FRZ2

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|--------------|-----|
| K/A # | W/E 15 A2.02 | |
| Importance Rating | 2.9 | 3.3 |
| Tier # | 1 | 1 |
| Group # | 3 | 3 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 79

A reactor trip occurs due to loss of offsite power after 100 days of full power operation.

Which ONE of the following is a positive indication that natural circulation heat removal is occurring? Assume thirty minutes have elapsed since the trip.

- A. Core exit thermocouples are decreasing.
- B. Narrow range T HOT temperature is increasing.
- C. Reactor coolant system subcooling is 10 degrees F and decreasing
- D. T SAT for steam pressure is falling faster than primary temperatures.

Answer: A Lesson Plan:

Reference:

| | | |
|------------------|-----------------|---------|
| Question Source: | Bank # | _____ |
| | Modified Bank # | _____ |
| | New | ___X___ |

| | | |
|---------------------------|---------------------------------|---------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | _____ |
| | Comprehension or Analysis | ___X___ |

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO-ONLY | SRO |
| K/A # | 017K3.01 | |
| Importance Rating | 3.5 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 80

The Core Exit Thermocouple (CET) outputs provide input to the QDPS where the signals are processed and are used for:

- A. information display and feedback to the reference T/C junction box.
- B. information display and reference temperature for the COMS.
- C. information display and temperature compensation of RVWL.
- D. information display and calculation of subcooling margin.

Answer: D Lesson Plan: LOT201.17.HO, rev. 2

Reference:

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 017A4.01 | |
| Importance Rating | 3.8 | 4.1 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 81

- Unit 1 is in Mode 6, offloading the core to the Spent Fuel Pool
- A high radiation alarm is received on RT-8035, FHB Exhaust radiation monitor

Per 0POP04-RA-0001, Radiation Monitoring System Alarm Response, the Control Room Operators duty is to ensure the FHB HVAC components have actuated to the Emergency Mode of operation.

Which ONE of the following identifies the correct position for the FHB HVAC components in the Emergency Mode?

| | Supply Fans | Main Exhaust Fans | Exhaust Booster Fans | Relief Supply Dampers |
|----|-------------|-------------------|----------------------|-----------------------|
| A. | Running | Off | Off | Open |
| B. | Off | Off | Off | Closed |
| C. | Running | Running | Running | Closed |
| D. | Off | Running | Running | Open |

Answer: D Lesson Plan:

Reference: 0POP08-FH-0001

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question Cognitive Level:

Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|---------|-----|
| Level | RO-ONLY | SRO |
| K/A # | G2.2.30 | |
| Importance Rating | 3.5 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 82

Which ONE of the following describes the effect on RCP operation if ONLY thermal barrier cooling is lost?

- A. RCP operation may continue indefinitely providing seal injection flow is increased to 15 gpm/pump.
- B. The RCP must be tripped within 1 minute to prevent damage to the thermal barrier.
- C. RCP operation may continue indefinitely providing seal inlet temperature remains below 135°F.
- D. The RCP must be tripped within 3-5 minutes to prevent damage to #1 seal.

Answer: C Lesson Plan:

Reference: 0POP04-RC-0002

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 003K6.02 | |
| Importance Rating | 2.7 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 83

The following conditions exist on Unit 2:

- Reactor power is at 35% at EOL (end of core life)
- All systems in automatic
- Main turbine trips off line, Main condenser is available

The steam dump system initially operates as designed, steam dump valves modulate open to match Tref and Tavg for the power given. Shortly after that all dump valves fail to the full open position.

Which one of the following statements correctly describes what happens to the plant without operator assistance?

- A. Steam generator levels immediately decrease, RCS temperature will initially decrease, reactor power increases due to moderator temperature coefficient, pressurizer level decreases, reactor trips.
- B. Steam generator levels immediately increase, RCS temperature will initially increase, reactor power decreases due to total power defect, pressurizer level decreases, reactor trips.
- C. Steam generator levels immediately increase, RCS temperature will initially decrease, reactor power increases due to moderator temperature coefficient, pressurizer level initially decreases, reactor power stabilizes at approximately 40%.
- D. Steam generator levels immediately decrease, RCS temperature will initially increase, reactor power initially decreases due to total power defect, pressurizer level initially decreases, reactor power stabilizes at approximately 40%.

Answer: C Lesson Plan:

Reference: Total power defect curve (EOL)
Moderator temperature coefficient curve (according to PPM of Boron)

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 039K5.08 | |
| Importance Rating | 3.6 | 3.6 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 84

Given the following Unit 1 conditions:

- A reactor startup is in progress
- Shutdown Bank A is fully withdrawn
- Withdrawing Shutdown Bank B (DRPI indication is 234 steps)

Which ONE of the following correctly identifies the expected condition of the indicated annunciator?

- A. ROD CONT URGENT ALARM window is ILLUMINATED.
- B. PR CHANNEL DEV window is ILLUMINATED.
- C. ROD BOTTOM window is CLEAR.
- D. SR SHUTDN FLUX HI ALM BLKD window is CLEAR.

Answer: D Lesson Plan:

Reference: 0POP03-ZG-0004

Question Source: Bank # X
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| | | |
|-------------------|--------------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | (001)G2.4.46 | |
| Importance Rating | 3.5 | |
| Tier # | 3 | |
| Group # | | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 85

The following conditions exist on Unit 1:

- Reactor at 100%
- NI-0042 is tagged out---LCO 3.3.1 entered
- All systems are in automatic

If power is subsequently lost to the Channel II Class 1E Vital 120 VAC instrumentation bus which of the following describes the plant response?

- A. Automatic Reactor trip due to loss of power to DP 1203, loss of one of the 48 VDC and 15 VDC power supplies for SSPS logic train R.
- B. Automatic Reactor trip due to loss of power to DP 1202, loss of one of the 48 VDC and 15 VDC power supplies for SSPS logic train S.
- C. Reactor does NOT trip due to loss of power to DP 1202, loss of one of the 48 VDC and 15 VDC power supplies for SSPS logic train S.
- D. Reactor does NOT trip due to loss of power to DP 1203, loss of one of the 48 VDC and 15 VDC power supplies for SSPS logic train R.

Answer: C Lesson Plan: LOT201.20.HO.01 Rev 13, pg. 17
 LOT201.20.HO.02 Rev 13, pg. 10
 2POP09-AN-03M2 Rev 10, pg. 16

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 012K2.01 | |
| Importance Rating | 3.3 | |
| Tier # | 2 | |
| Group # | 2 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 86

Given the following conditions:

- Pressurizer (Pzr) level control selector switch is in the L465/467 position
- Pressurizer level control is in automatic.
- The REFERENCE LEG for LT-465 develops a small leak

Which ONE of the following correctly describes the INITIAL instrument and plant response?

| | LI-465 (Pzr level) | LI-467 (Pzr level) |
|----|-----------------------|-----------------------|
| A. | Increasing | Increasing |
| B. | Increasing | Decreasing |
| C. | Decreasing | Increasing |
| D. | Decreasing | Decreasing |

Answer: B Lesson Plan: LOT201.14, obj#04416

Reference: LOT201.14

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 016A3.02 | |
| Importance Rating | 2.9 | 2.9 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 87

Given the following:

- An RCS break has occurred.
- The crew is currently in 0POP05-EO-ES12, Post LOCA Cooldown and Depressurization, attempting to isolate SI Accumulators.
- It is discovered that SI Accumulator 'B' outlet valve, MOV-0039B, will not close.
- All attempts to close the valve electrically have failed.

Which ONE of the following describes how the operators should address the stuck open valve?

- A. Dispatch an operator to close the valve locally.
- B. Continue the cooldown and allow the SI Accumulator to discharge.
- C. Vent the SI Accumulator to the RCB.
- D. Isolate the SI Accumulator by closing the Cold Leg Injection Valve, MOV-0031B

Answer: C Lesson Plan: LOT 504.12, obj. CRO 92172

Reference: 0POP05-EO-ES12, Rev. 8, Step 20d RNO

| | | |
|------------------|-----------------|--------------|
| Question Source: | Bank # | _____ |
| | Modified Bank # | _____ |
| | New | <u> X </u> |

| | | | |
|---------------------------|---------------------------------|-------|--------------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | _____ | <u> X </u> |
| | Comprehension or Analysis | _____ | |

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | W/E 03K2.01 | |
| Importance Rating | 3.6 | |
| Tier # | 1 | |
| Group # | 2 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 88

The Plant is operating at full power with all systems in normal alignment.

- Feedwater Pump Discharge Pressure instrument PT-558 fails off scale high.

Which ONE of the following is the expected INITIAL plant response?

- A. Feedwater pump speed increases.
- B. Feedwater pump speed decreases.
- C. Main Feedwater Regulating Valves open.
- D. Main Feedwater Regulating Valves close.

Answer: B Lesson Plan: LOT505.01, obj# 38635

Reference: LOT202.14, POP04-FW-0002

Question Source: Bank # 650
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 059A1.07 | |
| Importance Rating | 2.5 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 89

Unit 1 is operating at 100% power when a Large Break LOCA occurs. Five minutes later, the Primary Operator notices the following:

- ECW Pump 1B is running
- ECW Train 1B Blowdown Isolation Valve is closed
- ECW Train 1B Screen Wash Booster Pump is running
- ECW Pump 1B Discharge Valve indicates intermediate position (red AND green lights lit)
- ECW Trains A and C are operating normally
- The yard watch reports the ECW Pump 1B Discharge Valve is 20% open

Which ONE of the following is true concerning ECW Train 1B?

- A. Safety Injection actuation has blocked the trip of the pump to allow the train to operate. The pump will continue to run even if the discharge valve is partially closed.
- B. Safety Injection Train B was reset prior to the discharge valve reaching full open. The discharge valve will open fully when the control switch is taken to OPEN.
- C. Safety Injection Train B did not actuate. Manually actuating Safety Injection will open the discharge valve fully.
- D. ECW Pump 1B did not receive a start signal from the sequencer. The pump was running prior to the Large Break LOCA.

Answer: A Lesson Plan: LOT201.13, obj# 91193

Reference: Electrical drawings 9E-EW01-01, 9E-EW04-02

Question Source: Bank # 19
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|-----|
| Level | RO | SRO |
| K/A # | 000062A1.06 | |
| Importance Rating | 2.9 | 2.9 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 90

While performing a liquid waste release, RT-8038, LWPS Monitor, reaches the HIGH alarm setpoint. Which of the following will occur?

- A. LWPS Waste Monitor Tank Pump TRIPS
- B. LWPS Discharge Valve, WL-FV-4077, goes to RECIRC
- C. LWPS Waste Monitor Tank Outlet Valve, WL-FV-5019, goes CLOSED
- D. LWPS Surge Tank Pump TRIPS

Answer: B Lesson Plan: LOT203.11, obj# 92083

Reference: POP04-RA-0001

Question Source: Bank # 532
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|-------------|-----|
| K/A # | 000059A2.04 | |
| Importance Rating | 3.2 | 3.5 |
| Tier # | 1 | 1 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 91

Given the following:

- Unit 1 Reactor power is 90%.
- Steam Flow on each SG is 4.1 E6 lbm/hr.
- RCS Tavg is stable at 589.6°F on all 4 loops
- RCS pressure is stable at 2235 psig
- 1C SG Feed Flow is pegged HIGH
- 1C SG Main FW Reg Valve is full OPEN
- 1C SG pressure is STABLE
- 1C SG level is DECREASING.
- Containment Humidity and Pressure are INCREASING

Which ONE of the following events is in progress?

- A. Steam Line Break INSIDE Containment.
- B. Feed Flow Indicator failed HIGH.
- C. Feed Line Break INSIDE Containment.
- D. Main Feed Pump trip.

Answer: C Lesson Plan: LOT501.16, obj# 501165

Reference: LOT501.16

Question Source: Bank # 786
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 059K1.05 | |
| Importance Rating | 3.1 | 3.2 |
| Tier # | 2 | 2 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 92

OPOP02-AF-0001, Auxiliary Feedwater, requires the following AFW Pump 14 steam supply line drain valves to be OPEN:

- 1(2)-MD-0928, AFPT TO CNDSR 13 (23) ISOL
- 1(2)-MS-0515, MAIN STEAM DRAIN TO CONDENSER FIRST ISOLATION VALVE
- 1(2)-MS-0516, MAIN STEAM DRAIN TO CONDENSER SECOND ISOLATION VALVE

Failure to have these valves in their required position could result in:

- A. A hydraulic transient or AFW turbine overspeed on startup.
- B. An inadequate AFW turbine exhaust path preventing the turbine from reaching rated speed.
- C. Excessive thermal stresses on startup because AFW turbine temperature is not equalized with Main Steam temperature.
- D. Overpressurization of the AFW turbine casing during standby conditions.

Answer: A Lesson Plan: LOT 202.28, obj. CRO 43201

Reference: OPOP02-AF-0001, Auxiliary Feedwater, Note & Precaution 4.8

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 061K1.11 | |
| Importance Rating | 2.7 | |
| Tier # | 2 | |
| Group # | 1 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 93

Which ONE of the following describes the release pathway of a Waste Monitor Tank (WMT) to the reservoir?

Waste Monitor Tank (WMT) to the:

- A. Circulating Water (CW) discharge piping into the outfall structure.
- B. Open Loop Cooling (OC) discharge piping to Circulating Water (CW) discharge piping into the outfall structure.
- C. Floor Drain Tank (FDT) into the outfall structure.
- D. Open Loop Cooling (OC) discharge piping into the outfall structure.

Answer: B Lesson Plan: LOT203.11, obj# 92082

Reference: P&IDs 9F90001, 9F00033, 2F00032 sh 2/5

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____ X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 075K1.02 | |
| Importance Rating | 2.9 | 3.1 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 94

Unit 1 is in Mode 4 with the following conditions:

- RCS Pressure: 600 psig
- Cold Leg Temperatures: 345°F
- Cold Overpressure Protection (COMS): ARMED

Wide Range Cold Leg temperature element TE-414 fails low resulting in the following alarms:

- ◆ 4M08/E-5 PRZR PORV OPEN COMMAND
- ◆ 5M02/B-7 RCS COLD OVERPRESS ALERT – TRN B

Which ONE of the following describes the expected response?

- A. PORV 655A is open
- B. PORV 656A is open
- C. Both PORV 655A and 656A are open
- D. Neither PORV 655A or 656A are open

Answer: B Lesson Plan: LOT201.14, obj# 80409

Reference: POP04-RP-0005

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 006A4.11 | |
| Importance Rating | 4.2 | 4.3 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 95

Given the following:

- A Reactor Trip occurs due to a Loss of Offsite Power
- The ESF Diesel Generators have all started and restored power to their ESF buses
- The Control Room crew has just completed the Immediate Actions of OPOP05-EO-EO00, Reactor Trip or Safety Injection

Which ONE of the following correctly predicts the RCB Temperature trend and the reason for the trend?

- A. Temperature is slowly decreasing (↓) because the RCFCs are running with CCW flowing through the cooling coils.
- B. Temperature is slowly increasing (↑) because the RCFCs are running with NO cooling flow through the cooling coils.
- C. Temperature is slowly decreasing (↓) because the RCFCs are running with Chilled Water flowing through the cooling coils.
- D. Temperature is slowly increasing (↑) because the RCFCs are NOT running.

Answer: B Lesson Plan: LOT202.33, obj# 4967

Reference: Logics 9-Z-42041, 9-Z-42042, 9-Z-41630

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 103A1.01 | |
| Importance Rating | 3.7 | 4.1 |
| Tier # | 2 | 2 |
| Group # | 3 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 96

Given the following:

- The Control Room has been evacuated
- Auxiliary Feed Pump 14 is in service feeding the 'D' SG
- 'D' SG level is being maintained 14-50% in the Narrow Range

Which of the below correctly represents the reason for maintaining level in this band AND the control location used?

| | Reason for maintaining SG level 14 – 50 % NR | Location for control of 'D' SG AFW Reg Valve |
|----|--|--|
| A. | Maintains a heat sink | Locally at the valve |
| B. | Prevents moisture carryover to the Terry Turbine | Aux Shutdown Panel |
| C. | Maintains a heat sink | Aux Shutdown Panel |
| D. | Prevents moisture carryover to the Terry Turbine | Locally at the valve |

Answer: C Lesson Plan: LOT 505.01, obj. CRO 92110

Reference: OPOP04-ZO-0001, Rev. 14, Bases step 26

Question Source: Bank # _____
 Modified Bank # _____
 New X

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|-------------|-----|
| Level | RO | SRO |
| K/A # | 000068K3.07 | |
| Importance Rating | 4.0 | 4.3 |
| Tier # | 1 | 1 |
| Group # | 1 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 97

Given the following:

- Spent Fuel Pool level is decreasing
- Fuel assemblies are beginning to uncover

The FHB HVAC system will automatically:

- A. Go into EMERGENCY MODE if either RT-8090 or RT-8091, FHB 68' Area Monitors, reach the High Alarm setpoint.
- B. Shutdown completely if either RT-8090 or RT-8091, FHB 68' Area Monitors, reach the High Alarm setpoint.
- C. Go into EMERGENCY MODE if either RT-8035 or RT-8036, FHB Exhaust Monitors, reach the High Alarm setpoint.
- D. Shutdown completely if either RT-8035 or RT-8036, FHB Exhaust Monitors, reach the High Alarm setpoint.

Answer: C Lesson Plan: LOT 202.41, obj. CRO 92122

Reference: OPOP04-RA-0001, Rev. 7, Addendum 10

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|-------------------|----------|-----|
| Level | RO | SRO |
| K/A # | 033K3.02 | |
| Importance Rating | 2.8 | 3.2 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 98

Unit 1 is at 15% power and commencing to raise turbine load at 10%/hr. Which ONE of the following describes how the temperature of the components cooled by the Closed Loop Auxiliary Cooling Water (CL-ACW) System will be controlled?

- A. The Open Loop Auxiliary Cooling Water (OL-ACW) System TCV on the outlet of the SW/FW Heat Exchanger will modulate open to maintain CL-ACW temperature.
- B. The Closed Loop Auxiliary Cooling Water (CL-ACW) System TCV on the outlet of the SW/FW Heat Exchanger will modulate open to maintain CL-ACW temperature.
- C. The individual component TCVs will modulate open to maintain component temperature.
- D. The TGB Watch will manually throttle CL-ACW from the SW/FW Heat Exchanger to maintain CL-ACW temperature.

Answer: C Lesson Plan: LOT202.24, obj# T20224

Reference: P&ID 9F00034

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|-------------------|----------------|------------|
| Level | <u>RO-ONLY</u> | <u>SRO</u> |
| K/A # | 076A1.02 | |
| Importance Rating | 2.6 | |
| Tier # | 2 | |
| Group # | 3 | |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 99

Which ONE of the following indications is used to detect "identified RCS leakage?"

- A. Pressurizer relief tank pressure
- B. Reactor coolant drain tank temperature
- C. Containment noble gas activity
- D. Reactor coolant drain tank level

Answer: D Lesson Plan:

Reference: UFSAR 5.2.5.2 "Leak Detection Methods" pg. 5.2-27, 28

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

| Level | RO-ONLY | SRO |
|-------------------|----------|-----|
| K/A # | 002K4.05 | |
| Importance Rating | 3.8 | 4.2 |
| Tier # | 2 | 2 |
| Group # | 2 | 2 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 100

Unit 1 is conducting a reactor startup per OPGP03-ZG-0004, Reactor Startup, with the following conditions:

- Rod Control is selected to MANUAL
- Full Out Position (FOP) is 249 steps
- Bank overlap is 112 steps
- Control Bank "B" is 173 steps withdrawn

Assuming the rod control and position indicating systems are operating properly, which ONE of the following is the expected step counter position for Control Bank "C"?

- A. 23 steps
- B. 36 steps
- C. 49 steps
- D. 62 steps

Answer: B Lesson Plan: LOT201.18, obj# 3160

Reference: LOT201.18

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| Level | RO | SRO |
|-------------------|----------|-----|
| K/A # | 014A4.01 | |
| Importance Rating | 3.3 | 3.1 |
| Tier # | 2 | 2 |
| Group # | 2 | 1 |
| 10 CFR 55.43(b) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 101

The following Unit 2 conditions exist:

- The plant is in Mode 6
- CRDM latching is in progress following core reload
- Steam generator secondary manways are removed for sludge lancing
- Steam generator primary side manways are open, with nozzle dams installed, in preparation for Eddy Current testing
- Refueling cavity level is 24 feet above the reactor vessel flange with two trains of RHR operable
- Both Source Range NIs are operable

Which ONE of the following activities requires a suspension of Core Alterations?

- A. An Extended Range Neutron Flux Monitor fails.
- B. One of the operable trains of RHR cooling is taken out of service to test motor operator valve settings.
- C. Eddy Current testing of the steam generators is commenced.
- D. Steam generator safety valves are removed for bench testing of lift setpoint.

Answer: D Lesson Plan (As available)

TS 3.9.4

Question Source: Bank # #189____
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | | |
|--------------------|----|--------|---|
| Level | RO | SRO | |
| K/A # | | 2.1.12 | |
| Importance Rating | | 4.0 | |
| Tier # | | | 3 |
| Group # | | 1 | |
| 10 CFR 55.43(b)(2) | | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 102

In accordance with the Technical Specifications, which ONE of the following conditions represents a loss of Primary CONTAINMENT INTEGRITY?

- A. While in MODE 1, an operator opens the outer door to enter containment.
- B. While in MODE 3, during an inspection of the equipment hatch, it is determined that the equipment hatch is NOT sealed.
- C. While in MODE 4, Containment internal pressure is found to be 1.6 psig.
- D. While in MODE 5, during performance of the Overall Integrated Containment Leakage Rate Test, containment leakage exceeds the maximum allowable Technical Specification leakage rates.

Answer: B Lesson Plan (As available)

T/S 3.6.1 and the Basis

Question Source: Bank # 740____
Modified Bank # _____
New _____

Question Cognitive Level:

| | |
|---------------------------------|--------|
| Memory or Fundamental Knowledge | X_____ |
| Comprehension or Analysis | _____ |

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.1.33 |
| Importance Rating | | 4.0 |
| Tier # | | 3 |
| Group # | | 1 |
| 10 CFR 55.43(b)(2) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 103

Given the following conditions:

- Troubleshooting under a work package is in progress on Circulating Water Pump 11 to determine why the pump will not start.
- Several leads in the start permissive circuitry for Circulating Water Pump 11 have been lifted and pump start verified during troubleshooting.
- Due to increasing bearing temperature on Circulating Water Pump 14, Plant Management has decided to operate Circulating Water Pump 11 with the lifted leads and secure Circulating Water Pump 14 in order to keep the unit in operation.

Which ONE of the following indicates how Circulating Water Pump 11 would be restored to operation?

- A. Return the pump to operation maintaining the work package open. Continue troubleshooting when the pump can be secured.
- B. Close the existing work package and return the pump to operation. Then write a new work package to continue troubleshooting when the pump can be secured.
- C. Install a temporary modification for the lifted leads, then return the pump to operation.
- D. Return the pump to operation, then approve a design change to incorporate the lifted leads.

Answer: C Lesson Plan (As available)

OPGP03-ZO-0003 Rev 18 step 1.4

Question Source: Bank # 121_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.2.11 |
| Importance Rating | | 3.4 |
| Tier # | | 3 |
| Group # | | 2 |
| 10 CFR 55.43(b)(3) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 104

Assuming a steady state primary-to-secondary steam generator leakage rate of 150 gpd per S/G, what is the basis for limiting the specific activity of the reactor coolant?

- A. Ensures the resulting 2-hour dose at the EXCLUSION AREA will not exceed an appropriately small fraction of the 10 CFR Part 100 dose guideline values following a S/G tube rupture accident.
- B. Ensures the resulting 2-hour dose at the EXCLUSION AREA will not exceed an appropriately small fraction of the 10 CFR Part 20 dose guideline values following a S/G tube rupture accident.
- C. Ensures the resulting 2-hour dose at the SITE BOUNDARY will not exceed an appropriately small fraction of the 10 CFR Part 100 dose guideline values following a S/G tube rupture accident.
- D. Ensures the resulting 2-hour dose at the SITE BOUNDARY will not exceed an appropriately small fraction of the 10 CFR Part 20 dose guideline values following a S/G tube rupture accident..

Answer: C Lesson Plan (As available)

T/S Basis 3.4.8

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level:

| | |
|---------------------------------|----------------|
| Memory or Fundamental Knowledge | X_____ |
| Comprehension or Analysis | _____ _____ |

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.2.25 |
| Importance Rating | | 3.7 |
| Tier # | | 3 |
| Group # | | 2 |
| 10 CFR 55.43(b)(2) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 105

Unit 2 is in the process of core refueling and the conditions are as follows:

- RHR Train 2A is in service maintaining RCS temperature at 97 °F
- RHR Train 2A loop boron concentration was 2870 ppm on the last sample
- Source Range N-31 indicates 4 cps
- Source Range N-32 indicates 3 cps and is selected for audible count rate indication

In accordance with 0POP08-FH-0009, "Core Refueling," which ONE of the following conditions requires suspension of Core Alterations?

- A. BOTH Source Range channel indications unexpectedly increase to 7 cps.
- B. RHR Train 2A inlet temperature unexpectedly increases to 102°F on the next successive reading.
- C. RHR Train 2A boron concentration is 2900 ppm on the next successive sample.
- D. The Core Loading Supervisor delegates his duties and responsibilities to the refueling machine operator who is a qualified Reactor Operator.

Answer: D Lesson Plan (As available)

Procedure 0P0P08-FH-0009, "Core Refueling," Revision 18

Question Source: Bank # _____
Modified Bank # #61 _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X _____
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.2.26 |
| Importance Rating | | 3.7 |
| Tier # | | 3 |
| Group # | | 2 |
| 10 CFR 55.43(b)(7) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 106

Unit 2 was cooling down for a forced outage when a loss of offsite power occurred. All equipment is available for service. The following conditions existed at the time offsite power was lost:

- RCS Temperature: 225 °F
- RCS Pressure: 300 psig
- RHR Trains A and B in service
- SG Pressures: Approximately 5 psig
- SG NR Levels: 55-60%

Which ONE of the following procedures would the crew use to stabilize the unit?

- A. 0POP04-RH-0001, "Loss of Shutdown Cooling"
- B. 0POP03-ZG-0007, "Plant Cooldown"
- C. 0POP02-RH-0001, "Residual Heat Removal System Operation"
- D. 0POP05-EO-EC00, "Loss of All AC Power"

Answer: A Lesson Plan (As available)

Question Source: Bank # 289____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 2.4.9 |
| Importance Rating | | 3.9 |
| Tier # | | 3 |
| Group # | | 4 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 107

Which of the following would satisfy the Emergency Plan "RCS LOSS" column criteria (refer to the attached table)?

- A. Orange Path on Core Cooling
- B. A Steam Generator with a 300 gpm SGTR
- C. RCS leakrate is determined to be 180 gpm.
- D. RCB High Range Radiation Monitor RT-8050 reads 90 rem/hr. RCB High Range Radiation Monitor RT-8051 reads 95 rem/hr.

Answer: A Lesson Plan (As available)

Resource: 0ERP01-ZV-IN01, Emergency Classification

| | | |
|------------------|-----------------|-------------|
| Question Source: | Bank # | _____ |
| | Modified Bank # | _____ |
| | New | _____X_____ |

| | | |
|---------------------------|---------------------------------|--------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | X_____ |
| | Comprehension or Analysis | _____ |

Examination Outline Cross-reference:

| | | |
|-------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.4.41 |
| Importance Rating | | 4.1 |
| Tier # | | 3 |
| Group # | | 4 |
| 10 CFR 55.43(b)5 | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 108

Unit 2 has experienced the following casualty:

- A Steam Line Break inside containment has occurred.
- 0POP05-EO-EO00, "Reactor Trip or Safety Injection" was entered at Step 1, but the reactor failed to trip.
- The crew then implemented 0POP05-EO-FRS1, "Response to Nuclear Power Generation/ATWS."

At Step 16 of FRS1, "Verify Reactor Subcritical", the following conditions exist:

- Extended Range NIs indicate 0%
- Extended Range NIs SUR is + 0.2 dpm

Which ONE of the following actions is required based on the given conditions?

- A. Continue Emergency Boration and perform FRS1 and EO00 concurrently.
- B. Continue Emergency Boration and suspend actions of FRS1 until SUR is zero or negative.
- C. Continue Emergency Boration and return to procedure and step in effect (EO00, Step 1).
- D. Continue Emergency Boration and continue with FRS1 and implement actions of other Optimal Recovery Guidelines (ORPs) which do not cooldown or add positive reactivity.

Answer: D Lesson Plan (As available)

0POP05-EO-FRS1, "Response to Nuclear Generation - ATWS," Rev 9

Question Source: Bank # 735____
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 029EA2.01 |
| Importance Rating | | 4.7 |
| Tier # | | 1 |
| Group # | | 1 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 109

Unit 2 has experienced a loss of all AC power (the Emergency Transformer is available). What procedure would be used to restore power to the vital buses and how would the restoration of electrical power be accomplished?

- A. Procedure 0POP05-EO-EC00, "Loss of all AC Power," directs you in part to verify power is available from the emergency transformer; disconnect the normal power source from the ESF buses; and, connect emergency bus 2L to one ESF bus.
- B. Procedure 0POP05-EO-EC00, "Loss of all AC Power," directs you in part to verify power is available from the emergency transformer; disconnect the normal power source from the ESF buses; and, connect emergency bus 2L to all three ESF buses.
- C. Procedure 0POP05-EO-EC00, "Loss of all AC Power," references Procedure 0POP04-AE-0001, " Loss of any 13.8 KV or 4.16 KV Bus," which directs you in part to verify power is available from the emergency transformer; disconnect the normal power source from the ESF buses; and, connect emergency bus 2L to two ESF buses.
- D. Procedure 0POP05-EO-EC00, "Loss of all AC Power," references Procedure 0POP04-AE-0001, " Loss of any 13.8 KV or 4.16 KV Bus," which directs you in part to verify power is available from the emergency transformer; disconnect the normal power source from the ESF buses; and, connect emergency bus 2L to all three ESF buses.

Answer: A Lesson Plan (As available)

Procedure 0POP05-EO-EC00, "Loss of All AC Power," Rev 11 and Lesson Plan LOT201.36 Obj 92399

Question Source: Bank # _____
 Modified Bank # _____
 New X_____

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | |
|-------------------|----|----------|
| Level | RO | SRO |
| K/A # | | 55EA2.06 |
| Importance Rating | | 4.1 |
| Tier # | | 3 |
| Group # | | 1 |
| 10 CFR 55.43(b)5 | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 110

- Unit 1 is operating at full power
- ECW Trains A and B are in service
- An inadvertent SI occurs
- All equipment functioned as designed
- The crew is currently performing the actions of Addendum 5 of 0POP05-EO-EO00, Reactor Trip or Safety Injection

10 minutes later power is lost to 4160v ESF Bus E1A.

Which of the following describes the expected equipment response AND appropriate procedural guidance?

- A. ESF Train 'A' Sequencer will strip ECW Pump 'A' and restart it per the programmed sequencing once ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should GO TO 0POP04-AE-0001, Loss of Any 13.8 or 4.16 kV Bus, to restart ECW Pump 'A'
- B. ESF Train 'A' Sequencer will strip ECW Pump 'A' but will NOT automatically restart (reload) the pump after ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should GO TO 0POP04-AE-0001, Loss of Any 13.8 or 4.16 kV Bus, to restart ECW Pump 'A'.
- C. ESF Train 'A' Sequencer will strip ECW Pump 'A' and restart it per the programmed sequencing once ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should ensure ECW Pump 'A' is in operation per Addendum 5 of 0POP05-EO-EO00.
- D. ESF Train 'A' Sequencer will strip ECW Pump 'A' but will NOT automatically restart (reload) the pump after ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should ensure ECW Pump 'A' is in operation per Addendum 5 of 0POP05-EO-EO00.

Answer: C Lesson Plan (As available)

References: 9E-EW01-01 Rev 8, 9E-EW04-02 Rev 5, 0POP01-ZA-0018

Question Source: Bank # _____
Modified Bank # 19 _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------------|
| Level | RO | SRO |
| K/A # | | APE062AK3.02 |
| Importance Rating | | 3.9 |
| Tier # | | 1 |
| Group # | | 1 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 111

Unit 2 has experienced a reactor trip and Safety Injection. While performing 0POP05-EO-EO00, "Reactor Trip or Safety Injection," a fire breaks out in CP-004. The Control Room must be evacuated.

Which ONE of the following must be performed when the Control Room personnel arrive at the Aux Shutdown Panel?

- A. 0POP05-EO-EO00 should be continued where left off, and 0POP04-ZO-0001, "Control Room Evacuation" initiated when 0POP05-EO-EO00 is completed.
- B. 0POP05-EO-EO00 and 0POP04-ZO-0001, "Control Room Evacuation" are to be performed concurrently, to the degree possible.
- C. 0POP04-ZO-0001, "Control Room Evacuation" must be performed exclusively.
- D. 0POP04-ZO-0001, "Control Room Evacuation" is to be performed, unless a CSF Orange or Red condition exists. At which time implementation of the associated FRG is required.

Answer: C Lesson Plan (As available)

Procedure: 0POP-01-ZA-0018, "Emergency Operating Procedure User's Guide," Rev 14, Section 7.1

Question Source: Bank # 1012_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

| Level | <u>RO</u> | <u>SRO</u> |
|--------------------|-----------|--------------|
| K/A # | | APE068AK3.18 |
| Importance Rating | | 4.5 |
| Tier # | | 1 |
| Group # | | 1 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 112

You are currently performing procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," and have just completed step 20, Initiate Evaluation of Plant Status. Unit 1 plant conditions are as follows:

- RCS pressure = 425 psig
- Pressurizer level = 10%
- Containment pressure = 3.0 psig
- RCS subcooling = 34°F
- Containment radiation levels = 10.5E5 R/hr
- RWST Level = 175,000 gallons

Given the above conditions, what actions are required?

- A. Continue with Procedure 0POP05-EO-EO10 and when RWST level decreases below 175,000 gallons, transition to Procedure 0POP05-EO-ES13, "Transfer to Cold Leg Recirculation."
- B. Continue with Procedure 0POP05-EO-EO10 and prepare the plant for hot leg recirculation and then transition to Procedure 0POP05-EO-ES14, "Transfer to Hot Leg Recirculation."
- C. Transition to Procedure 0POP05-EO-ES02, "Natural Circulation Cooldown."
- D. Transition to Procedure 0POP05-EO-ES12, "Post LOCA Cooldown and Depressurization."

Answer: D Lesson Plan (As available)

Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," Rev 10

Question Source:

Bank # _____
Modified Bank # _____
New X_____

Question Cognitive Level:

Memory or Fundamental Knowledge _____
Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | |
|--------------------|-----|-------------|
| Level | RO | SRO |
| K/A # | | W/E03EA2.02 |
| Importance Rating | 4.1 | |
| Tier # | | 1 |
| Group # | | 2 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 113

Unit 2 is in a Train B Outage when a reactor trip occurs followed by a loss of offsite power (LOOP). The operators have just completed 0POP05-EO-EO00, Reactor Trip and Safety Injection," including Addendum 5.

Current conditions are:

- Containment Pressure: 5.5 psig
- Containment Radiation: 10.1 R/hr
- Core Exit Thermocouples: 584 °F
- RCS Pressure: 1352 psig
- SG A WR Level: 31%
- SGs B-D WR Levels: 5 – 8%
- AFW Pump 21 failed to start
- Total AFW flow is approximately 500 gpm and cannot be increased

What actions are required?

- A. Immediately transition to Procedure 0POP-EO-FRH1, "Response to Loss of Secondary Heat Sink," and establish feed and bleed.
- B. Immediately transition to Procedure 0POP-EO-EO10, "Loss of Reactor or Secondary Coolant," and depressurize the intact SGs to 1000 psig.
- C. Immediately transition to Procedure 0POP-EO-FRH1, "Response to Loss of Secondary Heat Sink," dump steam to the condenser to reduce SG pressures.
- D. Perform Procedure 0POP-EO-FRH1, "Response to Loss of Secondary Heat Sink," concurrently with Procedure 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant."

Answer: A Lesson Plan (As available)

Procedure: 0POP-EO-FRH1, "Response to Loss of Secondary Heat Sink," and

Procedure: 0POP-01-ZA-0018, "Emergency Operating Procedure User's Guide," Rev 14

Question Source: Bank # _____
Modified Bank # _____
New X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X_____

Examination Outline Cross-reference:

| | | |
|--------------------|----|------------|
| Level | RO | SRO |
| K/A # | | W/E05EK2.2 |
| Importance Rating | | 4.2 |
| Tier # | | 1 |
| Group # | | 2 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 114

Unit 2 experienced a LOCA and the crew has just transitioned to OPOP05-EO-ES13, "Transfer To Cold Leg Recirculation." The Reactor Operator notes and reports that Train A DID NOT automatically swap suction to the containment sump.

Which ONE of the following indications would justify the failure? (consider each condition separately)

- A. STATUS MONITORING PANEL 1M25: BYP/INOP RWST OUTL MOV-0001A – ON
- B. STATUS LAMPBOX 5M2-3: AUTO RECIRC NOT RESET TRAIN A - OFF
- C. RWST Lo-Lo Alarm - ON
- D. HHSI Pump 1A MIN FLOW ISOL MOV-0011A – OPEN; MOV-0012A – CLOSED

Answer: B Lesson Plan (As available)

References P&IDs 9-Z-42114, 9-Z-42001

| | | |
|------------------|-----------------|----------|
| Question Source: | Bank # | 123_____ |
| | Modified Bank # | _____ |
| | New | _____ |

| | | |
|---------------------------|---------------------------------|--------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | _____ |
| | Comprehension or Analysis | X_____ |

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 004A2.13 |
| Importance Rating | | 3.9 |
| Tier # | | 2 |
| Group # | | 1 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 115

The following conditions exist on Unit 2:

- Reactor power is 65%
- Rod Deviation alarm is lit
- Rod Bottom alarm is lit
- Power Range Channel Deviation alarm is lit
- Rod Bottom LEDs are lit for Shutdown Bank A Rods P4 and D2

Which ONE of the following describes the Technical Specification requirement and the required response to these conditions?

- A. T/S 3.2.4, "Quadrant Power Tilt Ratio," requires that the axial flux difference and quadrant power tilt ratio be checked.
- B. T/S 3.1.3.1, "Moveable Control Assemblies," is applicable and procedures require you to trip the reactor and perform 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- C. T/S 3.1.3.1, "Moveable Control Assemblies," is applicable and up to two rods are allowed to be restored per 0POP04-RS-0001, "Control Rod Malfunction."
- D. T/S 3.1.3.5, "Shutdown Rod Insertion Limit," is applicable and procedures allow the rods to be restored per 0POP04-RS-0001, "Control Rod Malfunction", then verify operability by performing 0PSP03-RS-0001, "Monthly Control Rod Operability."

Answer: B Lesson Plan (As available)

Procedure 0POP04-RS-0001, "Control Rod Malfunction," Rev 12

Question Source: Bank # _____
Modified Bank # 1008_____
New

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|----------------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 014A2.03 |
| Importance Rating | | 4.1 |
| Tier # | | 2 |
| Group # | | 1 |
| 10 CFR 55.43(b)(2) and (5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 116

Unit 1 was at 90% power with the following plant conditions:

- Steam flow on each SG = 4.1E6 lbm/hr
- RCS Tavg on all 4 loops = 589°F
- RCS press = 2235 psig (stable)
- 1C SG feedwater flow is pegged high
- 1C SG main feedwater regulating valve is full open
- 1C SG pressure is stable
- 1C SG level is decreasing

A reactor trip and safety injection actuation occur. The plant conditions following the trip are as follows:

- RCS pressure = 1800 psig (slowly decreasing)
- 1A, 1B, and 1 D SG pressures and levels are stable
- 1C SG pressure and level are decreasing rapidly
- RCB pressure is increasing

Based on the conditions before and after the reactor trip and safety injection, what procedure would Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection," direct you to use to address this event AND what is the most likely cause of the event?

- A. Procedure 0POP05-EO-EO20, "Faulted Steam Generator Isolation," feedwater line break inside containment.
- B. Procedure 0POP05-EO-EO20, "Faulted Steam Generator Isolation," feedwater line break outside containment.
- C. Procedure 0POP05-EO-EO20, "Faulted Steam Generator Isolation," main steam line break inside containment.
- D. Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," feedwater line break inside containment.

Answer: A Lesson Plan (As available)

Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection"

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

| | | |
|--------------------|----|----------|
| Level | RO | SRO |
| K/A # | | 059A2.05 |
| Importance Rating | | 3.4 |
| Tier # | | 1 |
| Group # | 3 | |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 117

Unit 1 is operating at full power

- Unit Vent Stack Monitor RT-8010 fails
- MAB radiation levels are normal

Which ONE of the following actions apply ?

- A. Operation may continue providing all MAB ventilation is shutdown.
- B. Operation may continue providing grab samples are taken every 12 hr.
- C. Restore the monitor to Operable status within 8 hr. or be in Hot Shutdown within the following 12 hr.
- D. Place the Control Room HVAC in Filtered Recirc Mode.

Answer: B Lesson Plan (As available)

Resource: ODCM Table 3.3-13

Question Source: Bank # _____
 Modified Bank # _____
 New X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 2.3.11 |
| Importance Rating | | 3.2 |
| Tier # | | 3 |
| Group # | | 3 |
| 10 CFR 55.43(b)(1) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 118

Unit 1 is in Mode 2 at 3% power.

- F. Sometime later in the shift, Power Range Channel N-44 fails high (bistables have NOT been tripped).

Which one of the following statements describes the appropriate action to be taken?

- A. Continue the startup. T/S 3.3.1 allows the startup to continue as long as the inoperable channel is placed in tripped condition within 6 hours.
- B. Enter T/S 3.0.3 and begin a unit shutdown per Procedure 0POP03-ZG-0006, "Plant Shutdown from 100% to Hot Standby."
- C. Trip the reactor and enter Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection."
- D. Hold the startup. T/S 3.3.1 prevents entry into Mode 1 until Power Range Channel N-44 is operable.

Answer: B Lesson Plan (As available)

References: 0POP04-RP-0004, Rev 7; 0POP04-NI-0001, Rev 3; 0POP04-RP-0001, Rev 5

Question Source: Bank # _____
Modified Bank # 538 _____
New

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis A

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | 012A2.01 |
| Importance Rating | | 3.9 |
| Tier # | | 2 |
| Group # | | 2 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 119

Given the following on Unit 2:

- The Unit was operating at 4% reactor power.
- Two loops of Essential Cooling Water (ECW) were determined to be inoperable.
- The operators placed the Unit in HOT STANDBY exactly 4 hours after determining that the second ECW loop was inoperable.

Which ONE of the following time limits apply to placing the Unit in HOT SHUTDOWN and then COLD SHUTDOWN?

- A. HOT SHUTDOWN must be achieved within 6 hours of reaching HOT STANDBY and COLD SHUTDOWN must be achieved within an additional 30 hours.
- B. HOT SHUTDOWN must be achieved within 6 hours of reaching HOT STANDBY and COLD SHUTDOWN must be achieved within an additional 24 hours.
- C. HOT SHUTDOWN must be achieved within 9 hours of reaching HOT STANDBY and COLD SHUTDOWN must be achieved within an additional 30 hours.
- D. HOT SHUTDOWN must be achieved within 9 hours of reaching HOT STANDBY and COLD SHUTDOWN must be achieved within an additional 24 hours.

Answer: D Lesson Plan (As available)

Reference: TS 3.0.3

Question Source: Bank # 342____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis __C__

Examination Outline Cross-reference:

| | | |
|--------------------|----|------------|
| Level | RO | SRO |
| K/A # | | 076G2.1.12 |
| Importance Rating | | 4.0 |
| Tier # | | 2 |
| Group # | | 3 |
| 10 CFR 55.43(b)(2) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 120

During routine rounds, a plant operator called the control room and reported that he observed an individual running from the area of Valve MOV-0143, "AFWP 14 Turbine Steam Inlet." At approximately the same time the Bypass Inop Status light alarms and Valve MOV-0143 indicated not full open. Security declared a Security Alert. What actions are required?

- A. Enter Procedure 0POP01-ZO-0001, "Suspected Sabotage or Tampering Response;" immediately trip the reactor and enter Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection;" and declare an Unusual Event.
- B. Enter Procedure 0POP01-ZO-0001, "Suspected Sabotage or Tampering Response;" have the plant operator detain the individual; and, declare an Alert
- C. Enter Procedure 0POP01-ZO-0001, "Suspected Sabotage or Tampering Response;" with concurrence from the Security Force Supervisor, walkdown the area looking for damaged equipment and mispositioned valves; and, declare an Unusual Event.
- D. Enter Procedure 0POP01-ZO-0001, "Suspected Sabotage or Tampering Response;" immediately trip the reactor and enter Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection;" and, declare an Alert.

Answer: C Lesson Plan (As available)

Procedure: 0POP01-ZO-0001, "Suspected Sabotage or Tampering Response;" and 0ERP01-ZV-IN01, "Emergency Classification Tables"

Question Source: Bank # _____
Modified Bank # _____
New X _____

Question Cognitive Level: Memory or Fundamental Knowledge __M__
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|--------|
| Level | RO | SRO |
| K/A # | | 2.4.28 |
| Importance Rating | | 3.3 |
| Tier # | | 3 |
| Group # | | 4 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 121

The following conditions exist in Unit 2:

- Mode 3 following a manual reactor trip and SI
- RCS pressure 1490 psig and STABLE
- Core Exit TCs are 555°F
- Pressurizer level is 48% and INCREASING
- Containment pressure is 6.5 psig
- SG NR levels are: 32%, 30%, 30%, 36%
- Total AFW flow is 400 gpm

The Unit Supervisor is at Step 15 of Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," and is evaluating whether safety injection should be terminated.

Which ONE of the following actions is appropriate for the above conditions?

- A. SI termination criteria is met if AFW flow is adjusted to > 576 gpm. Do NOT transition to Procedure 0POP05-EO-ES11, "SI Termination," until AFW flow is adjusted.
- B. SI termination criteria is NOT met since RCS subcooling is less than the required value and further actions in Procedure 0POP05-EO-EO10 need to be performed.
- C. SI termination criteria is met and transition should be made to Procedure 0POP05-EO-ES11, "SI Termination."
- D. SI termination criteria is NOT met since pressurizer level is still low and further actions in Procedure 0POP05-EO-EO10 need to be performed.

Answer: B Lesson Plan (As available)

Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," Step 15

Question Source: Bank # 230_____
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis A

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|--------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | EPE009EA2.34 |
| Importance Rating | | 4.2 |
| Tier # | | 1 |
| Group # | | 2 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 122

Unit 2 containment pressure is 0.4 psig and requires a containment vent. The following conditions exist:

- Mode 4
- Containment Radiation Monitor RT-8011 is out-of-service, compensatory Tech Spec actions are being performed.
- Reactor Containment Purge Permit has expired.

What is/are the action(s) for the above plant conditions?

- A. Per Procedure 0POP02-HC-0003, "Supplementary Containment Purge," with Chemistry approval, a containment purge is allowed.
- B. Per Procedure 0POP02-HC-0003, "Supplementary Containment Purge," conduct a containment purge, then notify Chemistry to update the Reactor Containment Purge Permit.
- C. Per Technical Specification 3.3.3.1, obtain a new purge permit and then perform the containment purge.
- D. Per Technical Specification 3.3.3.1, a containment grab sample must be obtained and analyzed prior to performing the containment purge.

Answer: A Lesson Plan (As available)

Procedure 0POP02-HC-0003, "Supplementary Containment Purge"

Question Source: Bank # _____
 Modified Bank # _____
 New X _____

Question Cognitive Level: Memory or Fundamental Knowledge __F__
 Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|-------|
| Level | RO | SRO |
| K/A # | | 2.3.9 |
| Importance Rating | | 3.4 |
| Tier # | | 3 |
| Group # | | 3 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 123

Plant conditions are as follows:

- A large break LOCA has occurred
- Containment pressure = 9.2 psig
- Containment water level = 59 inches
- Containment radiation level = 2500 R/hr
- RWST Level is 400,000 gallons

Which procedure is appropriate for the above conditions:

- A. Procedure 0POP05-EO-FRZ1, "Response to High Containment Pressure"
- B. Procedure 0POP05-EO-FRZ2, "Response to Containment Flooding"
- C. Procedure 0POP05-EO-FRZ3, "Response to High Containment Radiation Level"
- D. Procedure 0POP05-EO-ES13, "Transfer to Cold Leg Recirculation"

Answer: C Lesson Plan (As available)

Procedure 0POP05-EO-FRZ3, "Response to High Containment Radiation Level"

Question Source: Bank # _____
Modified Bank # 16 _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge __M__
Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|-----------|------------|
| Level | <u>RO</u> | <u>SRO</u> |
| K/A # | | W/E16EA2.1 |
| Importance Rating | | 3.3 |
| Tier # | | 1 |
| Group # | | 2 |
| 10 CFR 55.43(b)(5) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 124

Maintaining the minimum AFW Storage Tank volume required by Technical Specifications ensures that enough inventory is available to provide the ability to maintain ...

- A. Hot Shutdown for 6 hours followed by a controlled cooldown to RHR entry conditions.
- B. Hot Standby for 4 hours followed by a controlled cooldown to RHR entry conditions
- C. Hot Standby for 6 hours followed by a controlled cooldown to RHR entry conditions
- D. Hot Shutdown for 4 hours followed by a controlled cooldown to Cold Shutdown

Answer: B Lesson Plan (As available)

Reference: T/S Basis 3/4.7.1.3 and STP UFSAR, Accident Analysis, 15.2.7, and Loss of Normal Feedwater; LOT202.28

Question Source: Bank # 569 _____
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge __F__
 Comprehension or Analysis _____

Examination Outline Cross-reference:

| | | |
|--------------------|----|----------|
| Level | RO | SRO |
| K/A # | | 061A1.04 |
| Importance Rating | | 3.9 |
| Tier # | | 2 |
| Group # | | 1 |
| 10 CFR 55.43(b)(2) | | |

SOUTH TEXAS PROJECT MASTER EXAM FILE 09/2001

Question # 125

Given the following conditions:

- Unit 1 is in Mode 2, performing a startup
- "PRZR Level Cont Sel" Switch is selected to L465/467
- Pressurizer Level Channels indicate as follows:

Channel 465 = 26%

Channel 466 = 26%

Channel 467 = 0%

Channel 468 = 25%

What actions are required to satisfy procedural requirements and Technical Specifications?

- A. Switch the "PRZR Level Cont Sel" Switch to L465/466 and trip Channel 467 pressurizer high level bistable within 6 hours.
- B. Switch the "PRZR Level Cont Sel" Switch to L465/466 and trip Channel 467 pressurizer high and low level bistables within 6 hours.
- C. Switch the "PRZR Level Cont Sel" Switch to L465/466 and trip Channel 467 pressurizer high level bistable within 6 hours; place excess letdown in service.
- D. Switch the "PRZR Level Cont Sel" Switch to L465/466 and trip Channel 467 pressurizer high and low level bistables within 6 hours; place excess letdown in service.

Answer: A Lesson Plan (As available)

Reference: T/S 3.3.1; Procedure 0POP04-RP-0002, "Loss Of Automatic Pressurizer Level Control";
and, Lesson LOT201.14.01

Question Source: Bank # _____
 Modified Bank # _____
 New X _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis __A__ _____

Examination Outline Cross-reference:

| Level | RO | SRO |
|------------------------|----|----------|
| K/A # | | 011A2.03 |
| Importance Rating | | 3.9 |
| Tier # | | 2 |
| Group # | | 2 |
| 10 CFR 55.43(b)(2)&(5) | | |