IPEC Unit 3 NRC Written Exam Answer Key
October 4, 2010

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | **B** | 26 | **A** | 51 | **D** | 76 | **D** |
| 2 | **B** | 27 | **C** | 52 | **D** | 77 | **C** |
| 3 | **D** | 28 | **D** | 53 | **A** | 78 | **C** |
| 4 | **B** | 29 | **D** | 54 | **D** | 79 | **C** |
| 5 | **C** | 30 | **B** | 55 | **A** | 80 | **B** |
| 6 | **C** | 31 | **A** | 56 | **A** | 81 | **B** |
| 7 | **C** | 32 | **C** | 57 | **B** | 82 | **A** |
| 8 | **C** | 33 | **B** | 58 | **C** | 83 | **C** |
| 9 | **B** | 34 | **D** | 59 | **B** | 84 | **B** |
| 10 | **D** | 35 | **C** | 60 | **B** | 85 | **D** |
| 11 | **A** | 36 | **B** | 61 | **C** | 86 | **B** |
| 12 | **B** | 37 | **C** | 62 | **D** | 87 | **D** |
| 13 | **C** | 38 | **B** | 63 | **B** | 88 | **A** |
| 14 | **C** | 39 | **C** | 64 | **B** | 89 | **D** |
| 15 | **C** | 40 | **A** | 65 | **B** | 90 | **C** |
| 16 | **C** | 41 | **B** | 66 | **A** | 91 | **C** |
| 17 | **D** | 42 | **D** | 67 | **B** | 92 | **D** |
| 18 | **A** | 43 | **C** | 68 | **D** | 93 | **B** |
| 19 | **C** | 44 | **A** | 69 | **D** | 94 | **A** |
| 20 | **C** | 45 | **A** | 70 | **B** | 95 | **A** |
| 21 | **D** | 46 | **D** | 71 | **B** | 96 | **A** |
| 22 | **A** | 47 | **B** | 72 | **A** | 97 | **C** |
| 23 | **C** | 48 | **D** | 73 | **D** | 98 | **C** |
| 24 | **B** | 49 | **B** | 74 | **A** | 99 | **A** |
| 25 | **B** | 50 | **C** | 75 | **B** | 100 | **D** |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000007A202<br>Ability to determine and interpret the following as they apply to a reactor trip: - Proper actions to be taken if the automatic safety functions have not taken place | |
| | Importance | 4.3 | 4.6 |

Question # 1

A fault on 480V Bus 3A occurred and operators initiated a manual reactor trip from 100% power. All equipment responded normally for these conditions. After verifying that SI is NOT required in E-0, Reactor Trip or Safety Injection, how is AFW status addressed?

A. No action is taken in E-0 because there will be >365 gpm AFW flow.

B. 32 AFW pump will be used to feed 31 and 32 SGs because E-0 Step 4 attempts to establish >686 gpm AFW flow if SI is NOT required.

C. 32 AFW pump will be used to feed 33 and 34 SGs because E-0 Step 4 attempts to establish >686 gpm AFW flow if SI is NOT required.

D. No action is taken in E-0 because there will be >686 gpm AFW flow.

Answer: B

Explanation/Justification:

A. Incorrect but plausible since heat sink is satisfied.

B. Correct. E-0 attempts to establish greater 686 gpm.

C. Incorrect but plausible if a candidate makes mistake on which AFW pump is lostt.

D. Incorrect but plausible if a candidate makes mistake on power supplies.

| | |
|---|---|
| Technical References: | 3-E-0 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE00 9 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 0000092145<br>Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication. | |
| | Importance | 4.3 | 4.3 |

Question # 2

Given the following:

- A small break LOCA has occurred.
- The team is in ES-1.2, Post LOCA Cooldown And Depressurization.
- The team has determined that one SI pump can be stopped.

Which ONE (1) of the following explains what will happen to the value of subcooling when the selected SI pump is stopped?

A. Lowers because break flow remains constant while ECCS flow is reduced. RCS temperature rises and stabilizes at a higher value.

B. Lowers as RCS pressure lowers in response to reduced ECCS flow. Stabilizes at a lower value when break flow equals ECCS flow.

C. Remains the same. Flow from the running SI pump rises, reaching a balance with break flow.

D. Remains the same. RCS temperature rises in response to the reduced ECCS flow, but RCS pressure also rises.

Answer: B

Explanation/Justification:

A. Incorrect but plausible. An operator could believe that reduced SI flow will lead to increased RCS Temperature.

B. Correct

C. Incorrect but plausible. Since Hi Head Pumps are centrifugal an operator could believe that flow would increase to maintain pressure relatively constant.

D. Incorrect but plausible. An operator could believe that the RCS temperature rise could cause a pressure increase.

| | |
|---|---|
| Technical References: | 3-ES-1.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 15 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 0000152137<br>Conduct of Operations - Knowledge of procedures, guidelines, or limitations associated with reactivity management. | |
| | Importance | 4.3 | 4.6 |

Question # 3

The following conditions exist at Unit 3:

- A 400 gpm tube rupture occurred on 34 SG
- Offsite power was lost when the plant was tripped
- RCS cooldown and depressurization were performed
- Offsite power was restored after depressurization
- The team is in ES-3.1, Post SGTR Cooldown Using Backfill, at the step for starting a RCP

Of the following choices, which RCP should be first started and why?

A. 34 RCP because the best PZR pressure control is maintained with this pump in service

B. 34 RCP because having forced flow in the ruptured loop will aid in maintaining SG level

C. 33 RCP because the best PZR pressure control is maintained with this pump in service

D. 33 RCP because starting a pump in the ruptured loop may lead to inadvertent criticality

Answer: D

Explanation/Justification:

A. Incorrect but plausible because 34 RCP is the pump that gives the best pressure control.

B. Incorrect but plausible because having cooling in the loop would ensure faster response to changes.

C. Incorrect but plausible because 33 RCP has a spray valve.

D. Correct answer based on the caution in ES-3.1 prior to the step for starting the first RCP.

| | |
|---|---|
| Technical References: | 3-ES-3.1 |
| Proposed References to be provided: | None |
| Learning Objective | I2LP-ILO-EOPE30 17 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000011A103<br>Ability to operate and/or monitor the following as they apply to a Large Break LOCA: - Securing of RCPs | |
| | Importance | 4 | 4 |

Question # 4

Given the following:

- SI actuated due to a LOCA.
- ALL SI Pumps failed to start and CANNOT be started.
- RCS pressure is 35 PSIG.
- CETs are 286 °F
- Containment pressure is 26 psig.
- The "RCP Bearing Coolant Low Flow" alarms have all annunciated
- The "Thermal Barrier CCW Header Low Flow" alarm has annunciated
- All other equipment is running per design.
- The crew is performing actions of E-0, Reactor Trip or Safety Injection.

What will the status of the RCPs be when the team transitions from E-0 to the appropriate EOP? Why?

A. All RCPs will be stopped because the RCP trip criteria of the foldout page was met.

B. All RCPs will be stopped to prevent mechanical damage to the pumps and motors.

C. One RCP will be running to conserve remaining three if it is needed for degraded core cooling conditions.

D. One RCP will be stopped to conserve it if it is needed for degraded core cooling conditions.

Answer: B

Explanation/Justification:

Duplicated from question no 23447

A. Inicorrect. Plausible because the RCPs should be tripped; however, the foldout page criteria is not met without SI pumps operating.

B. Correct. With a Large Break LOCA and No CCW, the RCPs will only operate for < 5 minutes before the bearings overheat and the pumps are damaged. The pumps are secured for this reason.

C. Incorrect. Plausible because functional restoration procedure FR-C.2 secures one RCP to conserve it in the event it is needed later. This is similar logic that is not correct under these condtions.

D. Incorrect. Plausible because functional restoration procedure FR-C.2 secures one RCP to conserve it in the event it is needed later. This is similar logic that is not correct under these condtions.

| | |
|---|---|
| Technical References: | 3-E-0<br>WOG-Executive |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE00 15 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Synthesis Evaluation |
| 10 CRF Part 55 Content: | 55.41 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000026K304<br>Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: - Effect on the CCW flow header of a loss of CCW | |
| | Importance | 3.5 | 3.7 |

Question # 5

Unit 3 is operating at full power, with normal system alignments. A low pressure condition in the CCW system resulted in auto start of the 32 CCW pump. The Control Room Crew has entered 3-AOP-CCW-1, Loss of Component Cooling Water, and progressed to the procedure step which asked, "Is CCW pump discharge pressure >100psig?"

What is the significance of the >100 psig verification?

A. If pressure is >100 psig, CCW relief valves are likely to be lifting.

B. If pressure < 100 psig, the Reactor Coolant Pumps must be tripped within 2 minutes

C. If pressure <100 psig, inadequate CCW flow capability exists for Post LOCA system alignment.

D. If pressure is > 100 psig, CCW heat exchanger blockage is suspected.

Answer: C

Explanation/Justification:

There is no control room indication of CCW pressure other than alarms. Therefore, any question regarding typical pressure (>100psi) is challenging.

A. Incorrect but plausible. U3 has history of relief valve lifting, but it was higher than 100 psi prerssure.

B. Incorrect but plausible. If CCW is actually lost for 2 minutes, RCPs are tripped.

C. Correct.

D. Incorrect but plausible. Blockage could raise pressure, but it is normally >100#.

Technical References: 3-AOP-CCW-1 Background
Proposed References to be provided: None

Learning Objective

Question Source: Bank

Question History: NA

Question Cognitive Level: Fundamental Knowledge

10 CRF Part 55 Content: 55.41 (b) 8

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000040K301<br>Knowledge of the reasons for the following responses as they apply to the Steam Line Rupture: - Operation of steam line isolation valves | |
| | Importance | 4.2 | 4.5 |

Question # 6

Which of the following conditions will result in AUTOMATIC closure of all MSIVs and why?

A. Reactor trip with a failure of the Turbine to Trip.
To prevent excessive cooldown of the RCS.

B. Reactor trip with a failure of the Turbine to Trip.
To prevent Overspeed of the Main Turbine Generator.

C. Main Steam Line Rupture on the East Header in the Turbine Building from 25% power.
To prevent excessive cooldown of the RCS.

D. Main Steam Safety Valve fails open following a generator trip from 100% power.
To prevent excessive blowdown of non-affected SGs

Answer: C

Explanation/Justification:

For a steam break accident, the MSIVs will close if Steam Flow exceeds a variable setpoint on 2 of 4 SG coincident with a low Tavg on 2 of 4 RCS Loops OR low SG pressure on 2 of 4 SGs.

A. Incorrect. Plausible because steam flow will remain high on all SG; however, the steam flow will not exceed the High SF SI/MSLI setpoint.

B. Incorrect. Plausible because steam flow will remain high on all SG; however, the steam flow will not exceed the High SF SI/MSLI setpoint.

C. Correct. When Steam Flow on 2 of 4 SG exceeds the variable setpoint coincident with a low Tavg condition on 2 of 4 loops an SI signal is generated and the MSIVs close.

D. Incorrect. Plausible because a failed safety valve will result in conditions that appear like a steam break, but do not cause high steam flow on 2 of 4 steam lines required for SI and MSL isolation.

| | |
|---|---|
| Technical References: | Logic Unit 3 Sheet 10<br>Logic Unit 3 Sheet 12A |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ESS001 3 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 0000292413<br>Emergency Procedures/Plan - Knowledge of crew roles and responsibilities during EOP use. | |
| | Importance | 4 | 4.6 |

Question # 7

The reactor was initially at 100% power. A transient has occurred that caused reactor trip setpoints to be exceeded. An automatic reactor trip does NOT occur, and attempts to trip the reactor manually from the control room fail.

Select the response below that describes the proper actions and reason for the actions regarding the main turbine.

A. Keep the turbine on-line to provide a heat sink for the reactor.

B. Keep the turbine on-line to minimize the severity of an RCS over pressure transient resulting from a turbine trip.

C. Trip the turbine to prevent loss of steam generator inventory.

D. Trip the turbine to provide an additional automatic reactor trip signal.

Answer: C

Explanation/Justification:

The ERG Background Document for ERG FR-S.1, Step 2, states that a turbine trip is required for an event in which a loss of main feedwater has occurred. This action has been determined by analysis to be advisable for other ATWS initiating events.

A. Incorrect but plausible because the turbine would provide a heat sink.

B. Incorrect but plausible because pressure does spike on ATWAS.

C. Correct answer per FR-S.1 and background document

D. Incorrect but plausible because it would put another trip signal input into RPS.

| | |
|---|---|
| Technical References: | 3-FR-S.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPFRS 11 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000038K309<br>Knowledge of the reasons for the following responses as they apply to the SGTR: - Criteria for securing/throttling ECCS | |
| | Importance | 4.1 | 4.5 |

Question # 8

Why does procedure E-3 (Steam Generator Tube Rupture) omit a specific value of RCS pressure in its SI termination criteria?

A. RCS pressure is maintained by ruptured SG pressure.

B. RCS pressure will stabilize at the discharge pressure of the SI pumps.

C. The RCS was depressurized to stop the primary to secondary leakage.

D. The RCS leak is stopped, so pressure control is NOT a concern.

Answer: C

Explanation/Justification:

A. Incorrect but plausible. Plausible because after SI is terminated, RCS pressure is partially controlled by ruptured SG via the break.

B. This is a true statement so it is plausible, but it is an incorrect response because it is not the reason that a pressure value is not specified for SI termination.

C. Correct, based on E-3 and background

D. Plausible because the first part of the statement is correct. Incorrect because (1) it is not the reason for the omition of RCS pressure control from SI termination crieteria and (2) it is not true that pressure control is not concern.

Technical References: 2-E-3

| | |
|---|---|
| | 3-E-3<br>WOG-Executive |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE30 13 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000055A201<br>Ability to determine and interpret the following as they apply to a Station Blackout: - Existing valve positioning on a loss of instrument air system | |
| | Importance | 3.4 | 3.7 |

Question # 9

Unit 3 air systems were NOT cross-connected with Unit1/2 and the Diesel Air Compressor (Ingersoll-Rand Compressor) was tagged out when a loss of 138KV power and plant trip occurred. Which one of the following describes the response of the Containment Fan Cooler Unit flow control valves (TCV-1103, 1104, 1105) 30 minutes after the event without any operator actions?

A. All those valves are CLOSED

B. All those valves are OPEN

C. 1103 is CLOSED; 1104 and 1105 are OPEN

D. 1103 is OPEN; 1104 and 1105 is CLOSED

Answer: B

Explanation/Justification:

A. Incorrect but plausible. It is plausible that these valves fail closed. 1104 and 1105 switches are taken to open prior to SI reset,which makes this plausible as well.

B. Correct - 3-AOP-AIR-1 ATT-1 lists valve failure positon

C. Incorrect but plausible. 1103 has no safety function, so it is plausible that it would fail closed.

D. Incorrect but plausible. 1103 does fail open and for reasons discussed in A, it is plausible that 1104/1105 could fail closed.

| | |
|---|---|
| Technical References: | 3-AOP-AIR-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPAIR D |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000056K103<br>Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: - Definition of subcooling: use of steam tables to determine it | |
| | Importance | 3.1 | 3.4 |

Question # 10

Unit 3 is operating at 100% power when the Station Aux Transformer faults and a reactor trip occurs. Ten minutes after the trip, the following conditions exist:

- 31SG Pressure 1010 psig and slowly increasing
- 32SG Pressure 1005 psig and slowly increasing
- 33SG Pressure 1015 psig and slowly increasing
- 34SG Pressure 1010 psig and slowly increasing
- All RCPs – Off
- RCS Pressure - 2235 psig and stable
- Thot is ~ 575°F in all 4 loops
- CETs indicate ~ 580°F
- Tcold is ~ 530°F in all 4 loops and stable

Based on the above indications, what is the current condition of the RCS?

A. Natural Circulation currently exists. The atmospheric steam dumps are maintaining heat removal.

B. Natural Circulation currently exists. The condenser steam dumps are maintaining heat removal.

C. Natural Circulation does NOT currently exist. Heat removal may be established by opening the condenser steam dumps.

D. Natural Circulation does NOT currently exist. Heat removal may be established by opening the atmospheric steam dumps.

Answer: D

Explanation/Justification:

Ref E-0, attachment 1 - Natural Circulation Verification.

For the question, the required subcooling margin is 40 degrees F. (note the candiate must calculate this value). This value is satisfied; however, the Tcold is lower than the saturation temperature of the SGs. This indicates that Natural Circulation does not exist.

A. Incorrect. Natural circulation does not exist based on Tcold being too low.

B. Incorrect. Natural circulation does not exist based on Tcold. In addtion, the loss of offsite power will result in a loss of all circulating water pumps which will require the use of the SG atmospherics (i.e., use of the condenser steam dumps is also incorrect).

C. Incorrect. While it is true that natural circulation does not exist, the candidate must also recognize that the condenser steam dumps are also not availabel due to the loss of off site power and loss of all circulating water pumps.

D. Correct.

| | |
|---|---|
| Technical References: | 3-E-0<br>3-ES-0.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE00 5 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000057A105<br>Ability to operate and/or monitor the following as they apply to the Loss of Vital AC Instrument Bus:<br>- Backup instrument indications | |
| | Importance | 3.2 | 3.4 |

Question # 11

Given:

- The plant is at 100% power
- Pressurizer Pressure Defeat Switch is selected to Defeat Ch III/IV
- Pressurizer Level Defeat Switch is selected to Defeat Ch III
- Steam Flow and Feed Flow are selected to the A channels.
- Rod Control is in Auto
- No operator actions have been taken.

A malfunction has resulted in the loss of a 31 Instrument Bus. Which of the following indications confirms a loss of 31 Instrument Bus?

A. Pressurizer Level is slowly rising

B. Pressurizer Pressure is rapidly lowering

C. 31 Main Boiler Feed Pump speed is at minimum

D. Power Range N-41 Channel will be at minimum

Answer: A

Explanation/Justification:

A. Correct. The controlling Pressurizer Level channel (Ch 2) failed low resulting in letdown isolation and increase charging pump speed to maximum.

B. Incorrect. Plausible because this condition is indicative of maximum spray flow. The candidate must know the failure conditions of the instruments and the Master Pressure Controller.

C. Incorrect. This failure will cause 31 Main Boiler Feed Pump Lovejoy controls to go to Track and Hold which will maintain the last valid input signal.

D. Incorrect. Power range channel N-41 is powered from Instrument bus 32.

| | |
|---|---|
| Technical References: | 3-AOP-IB-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICPZLV 2 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000058K101<br>Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: - Battery charger equipment and instrumentation | |
| | Importance | 2.8 | 3.1 |

Question # 12

A loss of DC Power Panel 32 has caused a BATTERY CHARGER TROUBLE alarm on CCR Panel SHF. How is the annunciator made available to alarm on any further battery charger alarm condition?

A. Pressing the "Alarm Acknowledge" pushbutton on the Battery Charger Panel

B. Taking the Normal/Bypass Switches on the Battery Charger Panel to BYPASS

C. Acknowledging the alarm with the CCR "Acknowledge" pushbutton

D. Opening the affected Battery Charger's output breaker

Answer: B

Explanation/Justification:

Duplicated from question no 1525 no significant modifications to this question.

A. Incorrect. Plausible because this action is correct for other equipment; however, there is no alarm acknowledge pushbutton on the battery charger panel.

B. Correct.

C. Incorrect. Plausible because some alarms have "reflash" capability meaning they will alarm again when a new condition occurs. This is not true for the Battery Charger Trouble alarm.

D. Incorrect. Plausible because opening the output breaker for a faulty piece of equipment will often clear an alarm. This is not true for the Battery Charger Trouble alarm.

| | |
|---|---|
| Technical References: | 3-ARP-011 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EDS125 2 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000062A201<br>Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: - Location of a leak in the SWS | |
| | Importance | 2.9 | 3.5 |

Question # 13

Given:

- The plant is operating at 100% power
- Essential Service Water is selected to the 4, 5, 6 header.
- Service Water Header (34, 35, 36) High Low Pressure alarm annunciated.
- 34 and 36 Service Water Pumps are running.
- Header pressure is 57 psig and stable.

Which of the following is a possible cause of the low pressure condition?

A. Exciter Air Cooler Temperature Control Valve Failure Open

B. Component Cooling Water Heat Exchangers supply line leak

C. Seal Oil Coolers supply line leak

D. Turbine Hall Closed Cooling System Temperature Control Valve Failure Open

Answer: C

Explanation/Justification:

Duplicated from question no 24401

A. Incorrect. Exciter Air Coolers are on the Non-Essential Cooling Header

B. Incorrect. CCW Heat Exchangers are on the Non-Essential Cooling Header

C. Correct.

D. Incorrect. Turbine Hall Close Cooling System Coolers are on the Non-Essential Cooling Header.

| | |
|---|---|
| Technical References: | Syst Desc 24 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SW001 1 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000065A104<br>Ability to operate and/or monitor the following as they apply to the Loss of Instrument Air: -<br>Emergency air compressor | |
| | Importance | 3.5 | 3.4 |

Question # 14

Under what conditions would the Diesel Driven Air Compressor start and supply Instrument Air Loads? (Unit 3 air systems are isolated from Unit 2 or 1 air systems)

A. A leak in the Station Air System causes pressure to decrease to 85 psig. When Instrument Air header pressure decreases to 95 psig the Diesel Driven Air Compressor Starts and supplies both Instrument and Station Air systems.

B. The Instrument Air compressor trips and the standby compressor fails to start. When Station Air pressure decreases to 110 psig the Diesel Driven Air Compressor Starts and supplies both Instrument and Station Air systems.

C. A leak in the Instrument Air System causes pressure to decrease to 85 psig. When Station Air receiver pressure decreases to 95 psig the Diesel Driven Air Compressor Starts and supplies both Instrument and Station Air systems.

D. The Station Air compressor trips and the standby compressor fails to start. When Instrument Air pressure decreases to 100 psig the Diesel Driven Air Compressor Starts and supplies both Instrument and Station Air systems.

Answer: C

Explanation/Justification:

The Diesel Driven Air Compressor starts when Station Air Receiver decreases to 95 psig.
When Instrument Air pressure decreases to 90 psig, the Station Air backup Valve (PCV-1142) opens to supply Instrument Air from Station Air.

A. Incorrect. Plausible because at <90 psig Station Air Receiver pressure, the Diesel Air Compressor will start. Instrument Air pressure does not start the Diesel Air compressor.

B. Incorrect. Plausible because with no Instrument Air compressors the pressure will decrease to the makeup valve setpoint. Station Air pressure must decrease to 90 psig to start the Diesel Air Compressor.

C. Correct.

D. Incorrect. Plausible with no Station Air Compressors, the Receiver pressure will decrease and the Diesel Air Compressor will start at 90 psig. Instrument Air pressure does not cause the Diesel Air Compressor to start.

| | |
|---|---|
| Technical References: | 3-AOP-AIR-1<br>Syst Desc 29.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SA001 4 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 000077AK205<br>Knowledge of the interrelations between Generator Voltage and Electrical Grid Disturbances and the following: - Pumps | |
| | Importance | 3.1 | 3.2 |

Question # 15

Given:

- The Unit is operating at 5% power during a plant startup.
- The System Operator notifies the control room that grid frequency is unstable

What is the effect on the plant if grid frequency decreases to 57 Hz?

A. Frequency less than 57.5 Hz for greater than 0.3 seconds will cause a direct trip of the reactor.

B. Frequency less than 57.5 Hz for greater than 30.5 seconds will cause a direct trip of the reactor.

C. Frequency less than 57.5 Hz on any 2 inside 6.9KV busses will cause all RCP breakers to open. The reactor will NOT trip on loss of flow.

D. Frequency less than 57.5 Hz on any 2 inside 6.9KV busses will cause all RCP breakers to open. The reactor will trip on loss of flow.

Answer: C

Explanation/Justification:

9321-LL-31133 Sh 7

A. Incorrect. Plausible because Under Voltage not Underfrequency (75% of nominal value) for 0.3 seconds will trip the reactor. If the Voltage remains below setpoint for 30.5 seconds, the associated RCP will trip.

B. Incorrect. Plausible because Under Voltage not Under frequency (75% of nominal value) for 30.5 seconds will trip the associated RCP . If power is greater than 35% the reactor will trip on any single pump trip. If power is greater than 10% the reactor will trip if 2 of 4 6.9 kV buses exceed the setpoint and time.

C. Correct.

D. Incorrect since the reactor does not trip at this power.

| | |
|---|---|
| Technical References: | Syst Desc 28 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCSRCP 3<br>I3LP-ILO-RCSRCP 4 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 00WE05K201<br>Knowledge of the interrelations between the Loss of Secondary Heat Sink and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features | |
| | Importance | 3.7 | 3.9 |

Question # 16

The plant has experienced a loss of heat sink and the operators are responding with RCS bleed and feed. The operators prepare to establish feed flow from the AFW system. The following plant conditions exist:

- Core Exit T/C's 587°F and stable
- All Loop $T_{hot}$ temps Approximately 565°F and stable
- All SG WR levels < 10%
- All SGs Intact
- Containment Temp 195°F

Under these conditions, which of the following AFW flow rates is initially required?

A. Feed all SGs; preferentially feed one SG at maximum achievable flow.

B. Feed any combination of SGs at >365 gpm total flow.

C. Feed only one SG at 100 GPM until WR level is greater than 16%.

D. Feed only one SG at maximum achievable flow.

Answer: C

Explanation/Justification:

Duplicated from question no 24098

SGs are Hot (hot leg temp > 550°F) and Dry (SG level < 12% or 16% adverse containment). The feed flow limitations of FR-H.1

A. Incorrect. Plausible because this action is correct when SGs are not Hot and Dry and attempts are being made to re-establish a heat sink with SG level > 9% NR level.

B. Incorrect. Plausible because 365 gpm is the value used for adequate heat sink in all other EOPs.

C. Correct. Second bullet on FR-H.1 Foldout Page.

D. Incorrect. Plausible because this is the action taken if SGs are Hot and Dry AND RCS temperatures are increasing.

| | |
|---|---|
| Technical References: | 3-FR-H.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPFRH 7 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 00WE11K201<br>Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features | |
| | Importance | 3.6 | 3.9 |

Question # 17

Which actions are directed by ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION?

1. Provide guidance on aligning the Safety Injection Pump suction directly to the Containment Sump.
2. Terminate Cold Leg Recirculation and restore Charging.
3. Cooldown and depressurize the Reactor Coolant System to allow Residual Heat Removal to be put into service.
4. Provide methods to make-up to the Refueling Water Storage Tank.

A. 1, 2 and 3.

B. 4 ONLY.

C. 1, 3 and 4.

D. 3 and 4 ONLY.

Answer: D

Explanation/Justification:

Choice 1 is not done by ECA-1.1 but is plausible because this would be a way of cooling the core with a loss of RWST.

Choice 2 is not done by ECA-1.1 but is plausible because it would conserve RWST level.

Choice 3 is a correct action in ECA-1.1.

Choice 4 is a correct action in ECA-1.1.

| | |
|---|---|
| Technical References: | 3-ECA-1.1 Background |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 00WE12K101<br>Knowledge of the operational implications of the following concepts as they apply to the Uncontrolled Depressurization of all Steam Generators: - Components:, capacity, and function of emergency systems | |
| | Importance | 3.4 | 3.8 |

Question # 18

During the performance of ECA-2.1, Uncontrolled Depressurization of All Steam Generators, the following plant condition exists:

- Cooldown rate of the RCS is greater than 100°F/hr

What action is the crew directed to perform for the above conditions?

A. Feedwater flow is reduced to 100 gpm to each SG with narrow range level less than 9%.

B. Feedwater flow is terminated to all but a single intact SG, which is fed at 100 gpm

C. Feedwater flow is NOT adjusted in ECA-2.1 until at least one SG narrow range is > 9%

D. Feedwater flow is maximized to any one SG until narrow range level in any SG is > 9%

Answer: A

Explanation/Justification:

Duplicated from question no 2568
At IPEC the lowest indicator on the AFW flow meters to each SG is 100 gpm. For this reason, flow cannot be reduced to value less than 100 gpm when SG levels are < 9% Narrow Range.

A. Correct.

B. Incorrect. Plausible because the minimum readable flowrate to any SG is 100 gpm. Attempting to reduce the cooldown rate in ECA-2.1 is a priority; however, 100 gpm is inadequate to remove maximum decay heat. Feedwater flow is maintained to each SG to keep the tubesheet "wet".

C. Incorrect. Plausible because we cannot reduce below heat sink value due to flow meter limitations.

D. Incorrect. Plausible because this action is directed in FR-H.1 Loss of Secondary Heat Sink as part of the heat sink restoration steps.

| | |
|---|---|
| Technical References: | 3-ECA-2.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE20 4 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 000001K201<br>Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: -<br>Rod bank step counters | |
| | Importance | 2.9 | 3.2 |

Question # 19

The following conditions exist on Unit 3:

- The Rod Control System is in Manual.
- Control Bank D is at 97steps.

The following event occurs:

A Rod Control System malfunction causes continuous rod withdrawal for 10 steps. Rod motion then stops.

Which ONE of the following identifies what the bank demand (step) counters for control bank C should indicate?

A. Bank C – 233

B. Bank C – 231

C. Bank C – 230

D. Bank C – 211

Answer: C

Explanation/Justification:

At IPEC the bank overlap is 104 steps. Control Bank D started withdrawing when Control Bank C reached 126 steps. When the continuous rod withdrawal

began control bank C was at 223 steps. The bank overlap unit will stop control bank C withdrawal when it reaches 230 steps. (Note: Control bank D is not stopped at 230 steps. The step counters will continue to count; however, the rod will cannot physically withdraw beyond 231 steps.)

A. Incorrect. Plausible because the candidate must determine that control bank C was at 223 steps at the beginning of the event and that Control bank C withdrawal is limited by the bank overlap unit at 230 steps.

B. Incorrect. Plausible because the control rods are physically capable of withdrawing to 231 steps. Control Banks A-C are limited by the Bank Overlap Unit to 230 steps.

C. Correct.

D. Incorrect. Plausible because the candidate may incorrectly determine the initial rod position for control bank C at 201 steps based on 104 step overlap meaning control bank D starts to move at 104 (vice 126) and the initial position was 201 rather than 223.

| | |
|---|---|
| Technical References: | Syst Desc 16.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICROD 3 |
| Question Source: | Bank |
| Question History: | Turkey Point Unit 3 8-30-1999 |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 000032K101<br>Knowledge of the operational implications of the following concepts as they apply to Loss of Source Range Nuclear Instrumentation: - Effects of voltage changes on performance | |
| | Importance | 2.5 | 3.1 |

Question # 20

The unit is in MODE 3 preparing to withdraw shutdown banks.

If the control power fuses blow on a source range channel, the source range high flux trip will:

A. NOT actuate; the trip can NOT be bypassed at the source range drawer with the control power fuses blown.

B. Actuate; the trip can be bypassed at the source range drawer with the control power fuses blown.

C. Actuate; the trip can NOT be bypassed at the source range drawer with the control power fuses blown.

D. NOT actuate; the trip can be bypassed at the source range drawer with the control power fuses blown.

Answer: C

Explanation/Justification:

Explanation: On a loss of the control power the bistable will trip. This is a widely misunderstood concept. There is much confusion over whether a loss of control power or instrument power trip the bistable. It doesn't make any difference whether the channel is bypassed or not, loss of control power trips the bistable.

A. Incorrect. Plausible because candidate may believe that a loss of power to the detector will cause it to fail low and not actuate the trip. It is true that the trip cannot be bypassed at the source range drawer.

B. Incorrect. Plausible because the trip does actuate. For a control power fuse failure the trip cannot be bypassed at the source range drawer.

C, Correct.

D. Incorrect. Plausible because candidate may believe that a loss of power to the detector will cause it to fail low and not actuate the trip. It is also NOT true that the trip can be bypassed at the source range drawer.

| | |
|---|---|
| Technical References: | Syst Desc 13 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICEXC 6 |
| Question Source: | Bank |
| Question History: | Wolf Creek 2004 |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 000033K302<br>Knowledge of the reasons for the following responses as they apply to the Loss of Intermediate Range Nuclear Instrumentation: - Guidance contained in EOP for loss of intermediate-range instrumentation | |
| | Importance | 3.6 | 3.9 |

Question # 21

Given:

- 30 minutes ago a turbine trip resulted in a reactor trip from 100% power.
- The operating team progressed through E-0, Reactor Trip or Safety Injection and transition to ES-0.1 Reactor Trip Response.
- Tavg is 548°F and stable.
- Pressurizer Pressure is 2245 psig and slowly lowering.

The CRS asks the ATC to check intermediate range flux less than $3.7 \times 10^{-11}$ amps.

The intermediate range indications are:
- N35 – $3 \times 10^{-10}$ amps and stable.
- N36 – De-energized

What actions are required for the above conditions?

A. Verify Power Above P-10 light is de-energized, and manually re-energize the source range nuclear instrument channels

B. Check both Source Range nuclear instruments energized, and select the highest reading channel on the NR-45 Recorder

C. Wait until intermediate range flux less than $3.7 \times 10^{-11}$ amps, then manually re-energize the source range nuclear Instrument channels.

D. Manually re-energize the source range nuclear Instrument channels, then select the highest reading channel on the NR-45 Recorder

Answer: D

Explanation/Justification:

After 30 minutes the flux level will be less than 3.7 E-11 amps and the Source Range NI should have automatically re-energized. N35 is under compensated and indicating higher power than exists. N36 has failed. Candidates should know that for this condition the Source Range NIs need to be manually re-energized.

A. Incorrect. Plausible because P-10 does prevent re-energizing the source range NI when power is > 10% on 2 of 4. The procedure does not check P-10 light de-energized.

B. Incorrect. Plausible because the source range NIs should be re-energized at this time; however, the candidate should recognize that N35 is undercompensated and has not decreased below the P-6 setpoint to automatically re-energize the source range NIs.

C. Incorrect. Plausible because the procedure does state "WHEN flux is less than 3.7 E-11 amps, THEN" verify source range detector energized. After 30 minutes following a normal trip with all systems functioning as designed the IR flux level will be < 3.7 E-11 amps. Furthermore, the IR indication should not be stable.

D. Correct

| | |
|---|---|
| Technical References: | 3-AOP-NI-1<br>Syst Desc 13 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICEXC 6<br>I3LP-ILO-ICEXC 8 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |

10 CRF Part 55 Content: 55.41 (b) 6

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 000036A102<br>Ability to operate and/or monitor the following as they apply to the Fuel Handling Incidents: - ARM system | |
| | Importance | 3.1 | 3.5 |

Question # 22

Indian Point Unit 3 is in a refueling outage, and the core is being offloaded to the spent fuel pool. The Fuel Storage Building (FSB) systems are aligned for refueling operations. If the FSB area radiation monitor, R-5, alarms under these conditions, which one of the following will occur?

A. The FSB perimeter door seals will become inflated.

B. The FSB supply fan starts and the inlet dampers will go open.

C. The FSB exhaust fan will stop.

D. The FSB refueling bridge and hoist will de-energize.

Answer: A

Explanation/Justification:

Duplicated from question no 2708
Justification:

A. Correct - Air is supplied to the door seals.

B. Incorrect - The supply fan stops and the inlet dampers go open. This answer requires that the operators understand the post-alarm position of the FSB Supply

C. Incorrect - The exhaust fan starts. This answer requires that the operators understand the post-alarm position of the exhaust fan

D. Incorrect - The refueling bridge and hoist are unaffected by the R-5 alarm. The refueling bridge and hoist are interlocked with other equipment in the FSB

| | |
|---|---|
| Technical References: | 3-ARP-040 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RMSARM 6 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 0000682137<br>Conduct of Operations - Knowledge of procedures, guidelines, or limitations associated with reactivity management. | |
| | Importance | 4.3 | 4.6 |

Question # 23

A plant fire has resulted in the loss of almost all CCR indications and the CCR is to be evacuated. Before leaving the CCR, the Nuclear NPO is directed to initiate Attachment 6 of 3-AOP-SSD-1. In accordance with 3-AOP-SSD-1 Attachment 6 what action is taken related to reactivity control?

A. Opens MOV-333 (Emergency Boration)

B. Opens CH-293 (Blender Boric Acid Bypass)

C. Opens CH-288 (RWST to Charging Pump Suction)

D. Opens FCV-110B (Boric Acid to Charging Pump Suction)

Answer: C

Explanation/Justification:

A. Incorrect but plausible because this would borate RCS

B. Incorrect but plausible because the valve put blender outlet to charging pump suction

C. Correct answer per 3-AOP-SSD-1 ATT-6 step 1 on page 91 of Rev 8

D. Incorrect but plausible because this would align a boration path

Technical References: 3-AOP-SSD-1
Proposed References to be provided: None

| | |
|---|---|
| Learning Objective | I3LP-ILO-AOPSSD 5 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 00WE02K102<br>Knowledge of the operational implications of the following concepts as they apply to the SI Termination: - Normal, abnormal and emergency operating procedures associated with SI Termination | |
| | Importance | 3.4 | 3.9 |

Question # 24

In E-0, which One (1) of the following sets of plant parameters satisfies the conditions for terminating Safety Injection?

A.

- RCS Subcooling based on CET's is 53° F
- SG AFW flow – 31 is 90 gpm, 32 is 90 gpm, 33 is 100 gpm, 34 is 90 gpm
- SG NR Level – 31 is 6%, 32 is off scale low, 33 is 12%, 34 is 9%
- RCS Pressure is 1680 psig and increasing
- PZR Level is 11%

B.

- RCS Subcooling based on CET's is 43° F
- SG AFW flow – 31 is 110 gpm, 32 is 110 gpm, 33 is 50 gpm, 34 is 90 gpm
- SG NR Level – 31 is 6%, 32 is off scale low, 33 is 12%, 34 is 9%
- RCS Pressure is 2000 psig and stable
- PZR Level is 23%

C.

- RCS Subcooling based on CET's is 38° F
- SG AFW flow – 31 is 100 gpm, 32 is 80 gpm, 33 is 110 gpm, 34 is 80 gpm
- SG NR Level – 31 is 8%, 32 is off scale low, 33 is 5%, 34 is off scale low
- RCS Pressure is 1750 psig and increasing
- PZR Level is 30%

D.

- RCS Subcooling based on CET's is 42° F
- SG AFW flow – 31 is 90 gpm, 32 is 90 gpm, 33 is 90 gpm, 34 is 90 gpm
- SG NR Level – 31 7%, 32 is 8%, 33 is 5%, 34 is off scale low
- RCS Pressure is 1700 psig and stable
- PZR Level is15%

Answer: B

Explanation/Justification:

Justification:
All of these parameters present combinations that the operators would have to discriminate meeting required values or not

A- Incorrect - Subcooling is Sat, Total AFW Flow and SG Level are Sat, RCS Pressure is Sat, PZR level is UNSAT

B- Correct - Subcooling is Sat,Total AFW Flow is UNSAT, however 33 and 34 SGs are Sat, RCS Pressure is Sat, and PZR Level is Sat

C- Incorrect - Subcooling is UNSAT, SG Levels are UNSAT, however Total AFW Flow is Sat, RCS Pressure is SAT and PZR Level is SAT

D- Incorrect - Subcooling is UNSAT, SG Levels and Total AFW Flow are UNSAT, RCS Pressure is Sat and PZR Level is Sat

Technical References: 3-E-0
Proposed References to be provided: None

Learning Objective I3LP-ILO-EOPE00 12

Question Source: New

Question History: NA

Question Cognitive Level: Comprehension

10 CRF Part 55 Content: 55.41 (b) 10

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 1 | |
| | K/A# | 00WE03A201<br>Ability to determine and interpret the following as they apply to the LOCA Cooldown and Depressurization: - Facility conditions and selection of appropriate procedures during abnormal and emergency operations | |
| | Importance | 3.4 | 4.2 |

Question # 25

Given:

- The crew was responding to an RCS Leak in accordance with AOP-LEAK-1.
- Based on plant conditions, the crew tripped the reactor and initiated SI 45 minutes ago.
- The crew performed all required actions of E-0, Reactor Trip or Safety Injection and E-1, Loss of Reactor or Secondary Coolant.
- All equipment operated as designed

The following conditions exist:

- RCS Pressure 500 psig
- Core Exit Thermocouples 417°F
- SI Pump Flow approximately 200 gpm each indicator
- RWST Level is 20 ft and lowering slowly

Which of the following procedures should be used at this point?

A. ES-1.3 (Transfer to Cold Leg Recirculation) to establish low to high head injection

B. ES-1.2 (Post LOCA Cooldown and Depressurization) to perform cooldown and attempt to establish RHR cooling.

C. FR-P.1 (Response to Imminent Pressurized Thermal Shock Condition) to "soak" before establishing RHR cooling.

D. Remain in E-1 and wait for RWST level to reach 11.5 ft.

Answer: B

Explanation/Justification:

Step 18 of E-1 evaluates plant conditions to transition to appropriate procedure. If RCS Pressure is < 325 psig, then RHR flow is checked > 300 gpm on at least 2 indicators. If > 300 gpm is observed, the crew is directed to ES-1.3 when RWST level decreases to 11.5 feet. Otherwise the crew is directed to ES-1.2.

A. Incorrect. Plausible because the conditions are close to those to transition to ES-1.3. Insufficient RHR flow exists to transition to ES-1.3.

B. Correct. For these conditions (a large-small break LOCA) ES-1.2 provides the appropriate actions.

C. Incorrect. Plausible because Cooldown has exceeded 100°F in the last hour; however, pressure conditions do not require entry into FR-P.1.

D. Incorrect. Plausible because this is what would be done if RHR flow > 300 gpm existed.

| | |
|---|---|
| Technical References: | 3-E-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 18 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 00WE06A103<br>Ability to operate and/or monitor the following as they apply to the Degraded Core Cooling: - Desired operating results during abnormal and emergency situations | |
| | Importance | 3.7 | 4 |

Question # 26

After an accident, the crew has implemented FR-C.1, "Response to Inadequate Core Cooling," with the following conditions:

- RCS pressure is 1000 psig
- SG pressures are 1000 psig
- CET temperatures are 725$^0$F and increasing
- RCPs are stopped
- SI flow is NOT available
- RVLIS full range level is 31% and decreasing
- SG Levels are all 10% NR with approximately 800 gpm total AFW flow

Which of the following methods should be should be used FIRST to maintain core cooling?

A. Depressurize SGs to cool RCS and inject accumulators

B. Start all RCPs to provide force circulation

C. Open both PORVs to establish bleed and feed

D. Establish Aux Spray to reduce pressure to inject with RHR pumps

Answer: A

Explanation/Justification:

A. Correct. With no SI pumps available the SG are depressurized to inject the Accumulators.

B. Incorrect. Plausible because starting an RCP is an action in FR-C.1. Conditions to start an RCP are assessed before the SGs are depressurized; however, the RCPs are not started until after the SGs are depressurized.

C. Incorrect. Plausible because opening PORVs is an action in FR-C.1. The candidate may believe that opening the PORVs will reduce pressure and allow RHR injection.

D. Incorrect. Plausible because opening the Head Vent Valves is an anction in FR-C.1. The candidate may believe that opening the head vents will allow some core recovery.

| | |
|---|---|
| Technical References: | 3-FR-C.1 Background |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPFRC 12 |
| Question Source: | Bank |
| Question History: | Prarie Island 5/15/2000 |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 1 | |
| | Group# | 2 | |
| | K/A# | 00WE14K201<br>Knowledge of the interrelations between the High Containment Pressure and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features | |
| | Importance | 3.4 | 3.7 |

Question # 27

A large break LOCA has occurred and containment pressure has risen to the automatic containment spray setpoint. 31 Containment Spray Pump tripped on overcurrent during initial sequencing operation. Which of the following describes when 32 Containment Spray Pump is stopped after the initial accident?

32 containment spray pump is stopped

A. when Recirc Switch 3 is taken to ON.

B. after the RWST reaches 11.5 feet.

C. after the RWST reaches 1.5 feet.

D. when Recirc Switch 1 is taken to ON.

Answer: C

Explanation/Justification:

Duplicated from question no 2435

A. Incorrect. Plausible because both recirc switches 1 and 3 are turned on in the same step. Recirc switch 3 secures both RHR pumps. Recirc Switch 1 secures one SI Pump (if 3 are running) and one Spray Pump (if two are running).

B. Incorrect. Plausible because one spray pump is normally stopped when level reaches 11.5 feet, if two are running. Since only 32 is running it is not stopped.

C. Correct. 32 Spray Pump is normally stopped with Recirc Switch 1 if both are running. The pump does not stop if 31 spray pump is running until 1.5 feet in the RWST.

D. Incorrect. Plausible because 31 Spray Pump is normally stopped with recirc switch 1; however, the pump does not stop if 32 pump is not running.

| | |
|---|---|
| Technical References: | Syst Desc 10.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-CS001 5 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 003000K101<br>Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: - RCP lube oil | |
| | Importance | 2.6 | 2.8 |

Question # 28

33 RCP was started. Approximately 1 minute after the pump was started, an oil line on the thrust bearing failed.

Which of the following is a result of this failure?

A. The RCP will trip when bearing lift oil pressure decreases to < 500 psig

B. RCP current will increase requiring a manual trip.

C. RCP Thrust bearing High Temperature Alarm due to loss of lift oil pressure.

D. Upper RCP bearing temperature will increase due to loss of oil

Answer: D

Explanation/Justification:

A. Incorrect. Plausible because Lift Oil pressure > 500 psig is required to start the RCP. It is not required after the pump is running.

B. Incorrect. Plausible because lift oil pressure is applied to minimize starting current; however, the running current does not have a manual trip setpoint.

C. Incorrect. Plausible because the candidate must recall that the RCP thrust bearing does not have a high temperature alarm.

D. Correct. A leak will result in a loss of oil from the reservoir and both thrust bearing and radial bearing temperatures will increase.

| | |
|---|---|
| Technical References: | Syst Desc 1.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCSRCP 2 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 012000A301<br>Ability to monitor automatic operation of the RPS, including: - Individual channel | |
| | Importance | 3.8 | 3.9 |

Question # 29

Which of the following malfunctions will cause the Overtemperature ΔT Channel Trip or Rod Stop alarm to annunciate?

A. PR Channel N41 failure high

B. Loop 32 Thot microprocessor fails low

C. PT-456 fails high

D. Loop 31 Tcold RTD fails low

Answer: D

Explanation/Justification:

A. Incorrect. Plausible because NIS does provide an input to OT delta T; however, the input is from delta flux. If the upper detector for N41 failed high, the alarm would annunciate.

B. Incorrect. Plausible because the candidate must determine how the failure will affect actual delta T and how the calculated setpoint will be affected.

C. Incorrect. Plausible because candidate must recall that Channel 2 (PT-456) cannot be the controlling channel. If a controlling channel failed high, actual pressure would decrease and the alarm would annunciate when the first OT delta T channel setpoint was reached.

D. Correct. This failure causes the indicated delta T to fail high. The alarm will annunciate when the calculated setpoint is less than the indicated delta T.

| | |
|---|---|
| Technical References: | 3-GRAPH-RPC-16<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICRXP 4 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 0040002222<br>Equipment Control - Knowledge of limiting conditions for operations and safety limits. | |
| | Importance | 4 | 4.7 |

Question # 30

Given the following:

- The unit is at 100% power.
- All control systems are in normal alignments.
- Charging flow was 50 gpm and has been rising and is currently at 62 gpm.
- Letdown temperature downstream of the Regenerative Heat Exchanger has lowered from its steady state value.
- VCT level is lowering.
- PZR level is lowering slowly.
- RCS temperature is stable.

Assuming that the above indications are due to leakage that is considered to be part of the RCS boundary, which ONE (1) of the following describes the effect on the unit and the action required?

A. RCS leakage is from the charging line downstream (RCS side) of the regenerative heat exchanger. Leakage is within technical specification limits.

B. RCS leakage is from the charging line downstream (RCS side) of the regenerative heat exchanger. Leakage is greater than technical specification limits.

C. RCS leakage is from the charging line upstream (charging pump side) of the regenerative heat exchanger. Leakage is within technical specification limits.

D. RCS leakage is from the charging line upstream (charging pump side) of the regenerative heat exchanger. Leakage is greater than technical specification limits.

Answer: B

Explanation/Justification:

Duplicated from question no 16651

A. Incorrect. Plausible because the leak is downstream of the regenerative heat exchanger; however, the leak is greater 10 gpm identified leakage.

B. Correct.

C. Incorrect. Plausible because candidate must diagnose leak location from indications given and calculate an approximate leakrate.

D. Incorrect. Plausible because candidate must diagnose leak location from indications given and calculate an approximate leakrate.

| | |
|---|---|
| Technical References: | 3-AOP-LEAK-1<br>3-SOP-RCS-004<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCS001 9 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 005000K201<br>Knowledge of bus power supplies to the following: - RHR pumps | |
| | Importance | 3 | 3.2 |

Question # 31

A Large Break LOCA occurred approximately 20 minutes ago.
All equipment responded as designed.
SI, Containment Spray, Phase A and Phase B were reset.
Offsite Power was subsequently lost.
31 EDG output breaker failed to close.
4, 5, 6 is the Essential SW Header.

Which of the following correctly identifies the equipment that must be restarted?

A. 32 RHR Pump
31 and 33 SI Pumps
31 and 32 Containment Spray Pumps

B. 31 and 32 RHR Pumps
32, and 33 SI Pumps
31 and 32 Containment Spray Pumps

C. 31 RHR Pump
32 and 33 SI Pumps
32 Containment Spray Pump

D. 31 and 32 RHR Pumps
31 and 33 SI Pumps
31 Containment Spray Pump

Answer: A

Explanation/Justification:

At IPEC there are 3 Safeguards buses; buses 2A and 3A are considered a single safeguards bus. The safety related equipment is distributed between the three buses such that any 2 buses will provide minimum safeguards equipment. 31 EDG provides emergency power to buses 2A and 3A, 33 EDG powers bus 5A and 32 EDG powers bus 6A.

The candidate must recognize which buses are energized and what bus provides power to each pump.

31 RHR Pump - 3A (Not energized)
32 RHR Pump - 6A (Energized)
31 SI Pump - 5A (Energized)
32 SI Pump - 2A (Not Energized)
33 SI Pump - 6A (Energized)
31 Spray Pump - 5A (Energized)
32 Spray Pump - 6A (Energized)

A. Correct

B. Incorrect

C. Incorrect

D. Incorrect

| | |
|---|---|
| Technical References: | Syst Desc 4.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RHR001 4 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 005000A203<br>Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:<br>- RHR pump/motor malfunction | |
| | Importance | 2.9 | 3.1 |

Question # 32

While operating the RHR System in the shutdown cooling mode with a solid plant and a charging pump is running, the running RHR pump trips.

Which of the following statements concerning this transient is correct and what action is required?

A. RCS pressure will decrease due to automatic control action of PCV-135. Immediately start the standby RHR pump.

B. RCS pressure will decrease due to the reduction in VCT pressure. Start a charging pump and adjust speed as necessary to maintain pressure RCS.

C. RCS pressure will increase due to a reduction of letdown flow. Trip all running charging pumps.

D. RCS pressure will increase due to charging flow. Reduce charging pump speed to minimum.

Answer: C

Explanation/Justification:

Duplicated from question no 1891
A. Incorrect. Plausible because PCV-135 will respond in auto to attempt to maintain pressure. It will not caus a pressure reduction. Starting the standby

RHR pump would correct the problem; howver, the procedure does not direct this action immediately.

B. Incorrect. Plausible because during certain plant condition, the overpressure on the VCT forces water through non-running charging pumps to makeup/maintain inventory in the RCS. This lineup is not used when RCS is solid.

C. Correct. The loss of RHR results in a loss of letdown flow. With charging still inservice, more makeup to RCS than is being removed will result in pressure increase and the procedure directs tripping of the charging pumps.

D. Incorrect. Plausible because the RCS pressure will increase. Charging flow will not change. The charging pumps must be tripped to prevent over pressure condition.

| | |
|---|---|
| Technical References: | 3-AOP-CVCS-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RHR001 6 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 006000K303<br>Knowledge of the effect that a loss or malfunction of the ECCS will have on the following: - Containment | |
| | Importance | 4.2 | 4.4 |

Question # 33

The plant experienced a Large Break LOCA.
Due to equipment malfunctions, the crew was NOT able to establish recirculation flow and transitioned to ECA-1.1.

ECA-1.1 determines the number of operating Containment Spray pumps based on which of the following?

A. Containment pressure, containment temperature, containment radiation levels.

B. Containment pressure, operating FCUs, and RWST level

C. Containment temperature, operating FCUs, and RWST level

D. Containment pressure, operating FCUs, containment radiation levels.

Answer: B

Explanation/Justification:

Spray flow is established at a reduced value in an attempt to conserve inventory in the RWST.

A. Incorrect.

B. Correct

C. Incorrect.

D. Incorrect

| | |
|---|---|
| Technical References: | 3-ECA-1.1<br>3-FR-Z.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPC00 22 |
| Question Source: | Bank |
| Question History: | Byron NRC Exam |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 007000A204<br>Ability to (a) predict the impacts of the following malfunctions or operations on the PRTS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:<br>- Overpressurization of the waste gas vent header | |
| | Importance | 2.5 | 2.9 |

Question # 34

During a refueling outage it is necessary to lower pressure in the PRT using the PRT Vent Valve 516 (Switch located on Panel SAF). Which of the following is a concern with opening this vent valve?

A. 516 vents the PRT to the VC. This could cause a high airborne contamination problem near the vent line.

B. 516 vents the PRT to the VC. This could cause an explosive and/or hazardous gas mixture near the vent line.

C. 516 vents the PRT to the Vent Header. The Vent Header is only rated for 2 psig, so this could cause it to rupture.

D. 516 vents the PRT to the Vent Header. The gasses in the Vent Header and PRT have the potential for creating an explosive mixture when combined.

Answer: D

Explanation/Justification:

A. Incorrect but plausible because if the PRT were vented to the VC this would be a concern.

B. Incorrect but plausible because if the PRT were vented to the VC this would be a concern.

C. Incorrect but plausible because the Waste Gas Compressors start when Vent Header pressure reaches 2 psig. The systems relief valve lifts 110 psig.

D. Correct answer.

| | |
|---|---|
| Technical References: | Syst Desc 5.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-GWR001 2 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 4 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 008000K101<br>Knowledge of the physical connections and/or cause-effect relationships between the CCWS and the following systems: - SWS | |
| | Importance | 3.1 | 3.1 |

Question # 35

Why does 3-SOP-RW-005, Service Water system Operation, limit the opening of Service Water Valves SWN 35-1 and 35-2 to 27.5 and 27 degrees open respectively?

A. The throttling characteristics of these valve decreases significantly at values greater than 27.5 and 27 degrees.

B. Values greater than 27.5 and 27 degrees open may result in thermal shock to the CCW heat exchanger tube sheet.

C. Values greater 27.5 and 27 may result in a runout condition if only one Non-Essential Service Water pump is operating.

D. Ensures 5500 gpm maximum heat exchanger flow limitation is NOT exceeded with 3 Non-Essential Service Water pumps operating.

Answer: C

Explanation/Justification:

A. Incorrect. Plausible because SWN 35-1 and 35-2 are large butterfly valves. Butterfly valves are generally not good throttle valves.

B. Incorrect. Plausible because the service water temperature varies significantly from winter (as low as 34 degrees). CCW return temperature is limited to 160 degrees.

C. Correct.

D. Incorrect. Plausible because 5500 gpm is a CCW side flow limitation on the CCW heat exchanger.

| | |
|---|---|
| Technical References: | Syst Desc 24 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SW001 1 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 008000A408<br>Ability to manually operate and/or monitor in the control room: - CCW pump control switch | |
| | Importance | 3.1 | 2.8 |

Question # 36

Given the following conditions:

- The plant is in Mode 5
- RCS temperature is 190 deg F
- A loss of Off-site power occurs.
- EDGs do NOT load onto the 480 volt busses
- Power is restored to the 480 volt busses from off-site

When restoring CCW, the pump control switch is placed in STOP/OFF prior to starting the pump. Which ONE (1) of the following describes the reason for placing the pump control switch in STOP/OFF?

A. It energizes the closing spring motor

B. It resets the pump 86 lockout relay

C. It resets the 480V Switchgear Motor Trip Common

D. It clears the low flow alarm

Answer: B

Explanation/Justification:

Duplicated from question no 2733
Dwg: 500B971 sht 27, 45 or 46
A. Incorrect. Plausible because the the candidate may believe that breaker closure is prevented by preventing charging the closing spring.

B. Correct. The "86" relay blocks the auto start on low CCW pressure. This must be re-enabled by placing the control switch to stop/off.

C. Incorrect. Plausible because placing the pump switch in trip would reset this alarm IF the pump tripped on overcurrent only.

D. Incorrect. Plausible because the some pump switches do clear the low flow alarm.

| | |
|---|---|
| Technical References: | 500B971 sht 27, 45 or 46 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-CCW001 4 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 8 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 010000K502<br>Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: - Constant enthalpy expansion through a valve | |
| | Importance | 2.6 | 3 |

Question # 37

A pressurizer safety valve simmers (slightly open) while the reactor is at 100% thermal power. Choose the most likely indicated tailpipe temperature.

Assume the following:

- 4 psig in the PRT
- Pressurizer pressure remains constant

A. 280 - 320°F

B. 240 - 280°F

C. 200 - 240°F

D. 160 - 200°F

Answer: C

Explanation/Justification:

Duplicated from question no 6057
Candidate must use the Steam Tables to determine correct answer. Saturation Temperature in the Pressurizer is 655°F at 2235 psig.

A. Incorrect.

B. Incorrect

C. Correct

D. Incorrect

| | |
|---|---|
| Technical References: | Steam Tables |
| Proposed References to be provided: | None |
| Learning Objective | I2LP-ILO-RCSPZR 4 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 012000K301<br>Knowledge of the effect that a loss or malfunction of the RPS will have on the following: - CRDS | |
| | Importance | 3.9 | 4 |

Question # 38

During a power ascension the Power Below P-7 fails to de-energize when it should. I&C has determined that a P-7 relay is mechanically bound in the energized state and needs to be replaced.

Which of the following is the result of this condition before repairs are made?

A. Source Range NI will NOT automatically re-energize on a trip.

B. The reactor will NOT trip if pressurizer water level exceeds the setpoint.

C. The power range high flux low setpoint and rod stop cannot be blocked.

D. The reactor will NOT trip if the turbine trips

Answer: B

Explanation/Justification:

A. Incorrect. Plausible because this would be true if a P-10 relay failed in the energizes state.

B. Correct. P-7 blocks the pressurizer high water level trip with power < 10%.

C. Incorrect. P-7 relays to not input to P-10. The input relays for P-7 are the same input relays for P-10 howerver, the circuits are independent.

D. Incorrect. Plausible because turbine trip - reactor trip is blocked below P-8 at 35% power.

| | |
|---|---|
| Technical References: | Syst Desc 28 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICRXP 3 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 013000K601<br>Knowledge of the effect of a loss or malfunction of the following will have on the ESFAS: - Sensors and detectors | |
| | Importance | 2.7 | 3.1 |

Question # 39

Given the following conditions:

- The plant is at 80% power.
- Containment Pressure transmitter 948A has failed low.

Which of the following statements describes why the HI-HI Containment Pressure relays are blocked when performing the appropriate attachment in accordance with 3-AOP-INST-1, Instrument or Controller Failures?

A. Blocks inadvertent actuation of Containment Spray in the case of a redundant channel failure

B. Provides a channel trip of Containment Spray to change the coincidence to 1 out of 3 for Spray actuation

C. Makes up part of the coincidence circuitry for Spray initiation, since Containment Spray relays are energized to actuate

D. Blocks the actuation signal from the failed transmitter from causing an inadvertent Phase B containment isolation signal

Answer: C

Explanation/Justification:

Duplicated from question no 16952

A. Incorrect. Plausible because Containment Spray actuation is an energize to actuate. Candidate must remember that blocking a relay in the spray circuit puts it in the energized state.

B. Incorrect. Plausibe because candidate must recall that the coincidence for spray actuation is 2 of 3 channel on 2 of 2 trains.

C. Correct. Blocking the relay places it in the energized state (I.E., the bistable is tripped).

D. Incorrect. Plausible because High High containment pressure will result in a Phase B actuation via the Containment Spray actuation signal.

| | |
|---|---|
| Technical References: | 3-AOP-INST-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ESS001 3 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 013000K201<br>Knowledge of bus power supplies to the following: - ESFAS/safeguards equipment control | |
| | Importance | 3.6 | 3.8 |

Question # 40

31 DC Power Panel is lost. Subsequently an SI occurs. How does the loss of 31 DC Power Panel affect Safeguards Actuation?

A. Safeguards loads on Bus 5A WILL NOT start if an SI condition exists. Safeguards loads on Busses 2A, 3A, and 6A WILL start.

B. Safeguards loads on Bus 2A WILL NOT start if an SI condition exists. Safeguards loads on Busses 3A, 5A, and 6A WILL start.

C. Safeguards loads on Bus 6A WILL NOT start if an SI condition exists. Safeguards loads on Bus 5A , 2A, and 3A WILL start.

D. Safeguards loads on Busses 5A, 2A, and 3A WILL NOT start if an SI condition exists. Safeguards loads on Bus 6A WILL start.

Answer: A

Explanation/Justification:

A. Correct see DC load table in Sys Description 27.5

B. Incorrect but plausible since there are two trains of SI and three busses.

C. Incorrect but plausible since there are two trains of SI and three busses.

D. Incorrect but plausible since there are two trains of SI and three busses.

Technical References: Syst Desc 27.5
Proposed References to be provided: None

| | |
|---|---|
| Learning Objective | I3LP-ILO-EDS125 1 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 022000K403<br>Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: -<br>Automatic containment isolation | |
| | Importance | 3.6 | 4 |

Question # 41

The operator simultaneously depresses BOTH of the manual containment spray actuation pushbuttons. Which one of the following correctly describes the result of this action?

A. SI does NOT actuate, Phase B does NOT actuate

B. SI does NOT actuate, Phase B does actuate

C. SI does actuate, Phase B does NOT actuate

D. SI does actuate, Phase B does actuate

Answer: B

Explanation/Justification:

113E303 Sheet 6

A. Incorrect. Plausible because it would be reasonable that without high VC pressure (e.g. auto-spray signal), phase B would not actuate.

B. Correct. A manual Spray actuation will directly cause a Phase B isolation but not SI

C. Incorrect. Plausible because it is reasonable that SI would actuate on manual spray plus See A.

D. Incorrect. Plausible because it is reasonable that SI would actuate on manual spray.

| | |
|---|---|
| Technical References: | Logic Unit 3 Sheet 12<br>Logic Unit 3 Sheet 12A |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ESS001 3 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 026000A401<br>Ability to manually operate and/or monitor in the control room: - CSS controls | |
| | Importance | 4.5 | 4.3 |

Question # 42

Given:

- The plant experienced a Large Break LOCA 1 hour ago.
- Containment Pressure peaked at 24 psig.
- The crew has established Cold Leg Recirculation in accordance with 3-ES-1.3, Transfer to Cold Leg Recirculation.
- Current Containment Pressure is 8 psig and lowering
- All other systems operated as designed.
- The crew is at the step to determine if recirculation spray flow should be established

Which of the following describes how containment spray is operated for these conditions?

A. Recirc Spray is NOT necessary; spray flow is NOT established to minimize potential for sump clogging.

B. Recirc Spray is NOT necessary; spray flow is NOT established to maximize core recirculation flow.

C. Recirc Spray is necessary; spray flow is established to ensure proper sump pH is maintained.

D. Recirc Spray is necessary; spray flow is established anytime automatic spray flow was initiated.

Answer: D

Explanation/Justification:

A. Incorrect. Plausible because the fan cooler units are adequate to reduce pressure and establishing spray flow will increase recirculation flow increasing the potential for sump clogging; however, spray flow is required for 4 hours for iodine scrubbing.

B. Incorrect. Plausible because the fan cooler units will continue to reduce pressure and establishing spray flow will increase recirculation flow reducing flow available to the core; however, spray flow is required for 4 hours for iodine scrubbing.

C. Incorret. Plausible normal spray flow is maintained from the RWST until 1.5 feet to ensure proper sump pH

D. Correct. Spray flow is required for 4 hours for iodine scrubbing anytime containment pressure exceeds 22 psig for iodine scrubbing.

| | |
|---|---|
| Technical References: | 3-ES-1.3 Background |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 003000K301<br>Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: - RCS | |
| | Importance | 3.7 | 4 |

Question # 43

Unit 3 is operating at full power, with normal system alignment.

An abnormal event caused the following: (no operator action has been taken)

- CCW Surge Tank levels rose rapidly but are now stable at:
  - #31 57%
  - #32 56%
- R-17A and R-17B, CCW Activity, are in alarm
- Pressurizer level initially sharply trended down, but now is trending back to program level.

Based upon the indications above, select below the most likely event.

A. Regenerative HX leak – letdown has isolated.

B. Seal Return Heat Exchanger leak – MOV-222 has closed.

C. RCP Thermal Barrier leak – AC-FCV-625 has closed.

D. Non-Regenerative HX leak – TCV-130 has closed.

Answer: C

Explanation/Justification:

A. Incorrect because this would not affect CCW. Plausible because there could be a misconception on non-regen vs. regen HXs.

B. Incorrect but plausible. Plausible because CCW cools the Seal Return HX, but incorrect because CCW pressure is higher than the process fluid in that HX.

C. Correct. 625 goes closed on high flow. A leak could have developed that was below the auto-closure setpoint for a long enough period to raise surge tanks levels and CCW system activity. Eventually the leak rate exceeded the high flow setpoing of 625.

D. Incorrect but plausible. Plausible because a leak in the NRHX would cause leakage into CCW; however TCV-130 will not automatically close to isolate the leak.

| | |
|---|---|
| Technical References: | Syst Desc 1.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCSRCP E |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 059000A103<br>Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW System controls including: - Power level restrictions for operation of MFW pumps and valves | |
| | Importance | 2.7 | 2.9 |

Question # 44

While performing a power ascension, which of the following describes the process for transferring feedwater control from the Low Flow Bypass Feed Regulating Valves to the Main Feedwater Regulating Valves (MFRVs)?

In accordance with 3-SOP-FW-001, Main Feedwater System Operation:

A. The evolution is performed at 180 MWe to 220 MWe and the MFRVs are done one at a time to reduce the possibility of a plant trip due to high or low steam generator water level during the transfer.

B. The evolution is performed at 180 MWe to 220 MWe and the MFRVs are done concurrently to minimize the time that the steam generator water level control system is controlling level with some MFRVs in manual.

C. The evolution is performed at 320 MWe to 360 MWe and the MFRVs are done one at a time to reduce the possibility of a plant trip due to high or low steam generator water level during the transfer.

D. The evolution is performed at 320 MWe to 360 MWe and the MFRVs are done concurrently to minimize the time that the steam generator water level control system is controlling level with some MFRVs in manual.

Answer: A

Explanation/Justification:

A. Correct per 3-SOP-FW-001 section 4.10

B. Incorrect but plausible if the candidate is not familiar with the procedure.

C. Incorrect but plausible if the candidate is not familiar with the procedure.

D. Incorrect but plausible if the candidate is not familiar with the procedure.

| | |
|---|---|
| Technical References: | 3-POP-1.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-MFW001 7 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 061000K501<br>Knowledge of the operational implications of the following concepts as they apply to the AFW System: - Relationship between AFW flow and RCS heat transfer | |
| | Importance | 3.6 | 3.9 |

Question # 45

A plant startup is in progress in accordance with POP-1.3. AFW is in service. Which of the following describes when feedwater flow is transferred from AFW to MFW and why?

A. Prior to 4% reactor power; to prevent exceeding the capacity of the Motor driven AFW pumps.

B. Prior to 4% reactor power; experience has shown this is the minimum controllable feed flow on the low flow bypass valves.

C. Prior to 5% reactor power; AFW must be declared operable for its safeguard function just prior to entering Mode 1.

D. Prior to 5% reactor power; adequate MFW flow will exist to ensure the recirculation valve can be closed minimizing flow perturbations.

Answer: A

Explanation/Justification:

A. Correct

B. Incorrect. Plausible because we do have procedure steps that are based on plant experience. We have transferred at lower power levels than 4%.

C. Incorrect. Plausible because candidate may believe that OPERABLE in mode 1 means in lined up for Automatic.

D. Incorrect. Plausible because automatic operation of the MBFP recirc valve does cause significant flow perturbations; however the recirc valves operate to maintain minimum flow through the pumps.

| | |
|---|---|
| Technical References: | 3-AOP-FW-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AFW001 3 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 061000K401<br>Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: - Water sources and priority of use | |
| | Importance | 4.1 | 4.2 |

Question # 46

Which of the following is the level at which auxiliary feedwater supply must be switched from the CST to city water, and which AFW pumps CAN be supplied by city water?

A. 1.5 feet in CST, Only 31 and 33 AFW Pumps

B. 1.5 feet in CST, All AFW Pumps

C. 3.0 feet in CST, Only 31 and 33 AFW Pumps

D. 3.0 feet in CST, All AFW Pumps

Answer: D

Explanation/Justification:

All pumps taking a suction on the RWST are secured at 1.5 feet. AFW pump suction is realigned to city water when level decreases to 3.0 feet.

A. Incorrect but plausible if candidate confuses the level with RWST level for securing pumps and confuses where city water suction supply comes in. There are differences in how city water valves fail to the motor and steam driven pumps which adds to the plausibility.

B. Incorrect but plausible if candidate confuses the level with RWST level for securing pumps.

C. Incorrect but plausible if candidate confuses where city water suction supply comes in. There are differences in how city water valves fail to the motor and steam driven pumps which adds to the plausibility.

D. Correct answer per Generic Foldout Page 3-GFO-1 and AFW System Overview Drawing.

| | |
|---|---|
| Technical References: | GFO-1<br>Syst Desc 21.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AFW001 2 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 062000A212<br>Ability to (a) predict the impacts of the following malfunctions or operations on the A.C. Distribution System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:<br>- Restoration of power to a system with a fault on it | |
| | Importance | 3.2 | 3.6 |

Question # 47
Given the following:

- Unit 3 is at 100% power when 480V Bus 5A trips on overcurrent.
- The FSS and NPO perform a visual inspection of Bus 5A.
- No indications of a fault or damage are found.
- The lockout relay and breaker amber lights all reset without issue.

Which of the following describes how power will be restored to Bus 5A in accordance with 3-AOP-480V-1, Loss of Normal Power to Any 480V bus?

A. All breakers on Bus 5A will be opened EXCEPT for MCC-36A and MCC-36E and power will be restored to the bus.

B. All breakers on Bus 5A will be opened INCLUDING for MCC-36A and MCC-36E and power will be restored to the bus.

C. Without knowing the actual cause of the trip, power cannot be restored to the bus.

D. Without knowing the actual cause of the trip, power cannot be restored to the bus unless the plant is in Mode 5 or below.

Answer: B

Explanation/Justification:

A. Incorrect but plausible because the vital MCCs do not strip.

B. Correct answer per 3-AOP-480V-1

C. Incorrect but plausible because this is very conservative.

D. Incorrect but plausible because this is more conservative.

| | |
|---|---|
| Technical References: | 3-AOP-480V-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOP480 4 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 063000K401<br>Knowledge of D.C. Electrical System design feature(s) and/or interlock(s) which provide for the following: - Manual/automatic transfers of control | |
| | Importance | 2.7 | 3 |

Question # 48

With Unit 3 in Mode 5, which of the following DC lineups is physically possible and allowed by procedure?

A. 33 Battery can be used as control power for 32 or 33 EDGs.

B. 32 and 33 DC Power Panels can be cross-connected.

C. 480V Breaker Control Power for Busses 5A and 2A can be cross-connected.

D. 31 and 32 DC Power Panels can be cross-connected.

Answer: D

Explanation/Justification:

A. Incorrect but plausible because 33 Battery is located in the center EDG cell and has switches (for isolation) that lend credibility to this answer.

B. Incorrect but plausible because 480V Busses 2A and 3A are tied together.

C. Incorrect but plausible because there are cross-connectable portions of DC, but not for control power.

D. Correct answer.

Technical References: Syst Desc 27.5
Proposed References to be provided: None

| | |
|---|---|
| Learning Objective | I3LP-ILO-EDS125 2 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 064000K607<br>Knowledge of the effect of a loss or malfunction of the following will have on the ED/G System: - Air receivers | |
| | Importance | 2.7 | 2.9 |

Question # 49

The compressor start pressure switch for 31 Emergency Diesel Generator Starting Air Receiver has failed. With an initial pressure of 290 psig, what is the design minimum number of start attempts available from 31 EDG Air Receiver?

A. 2

B. 4

C. 6

D. 8

Answer: B

Explanation/Justification:

Duplicated from question no 18673

A. Incorrect but plausible

B. Correct per LCO 3.8.3 basis

C. Incorrect but plausible

D. Incorrect but plausible

Technical References: Tech Specs
Proposed References to be provided: None

| | |
|---|---|
| Learning Objective | I3LP-ILO-EDSEDG 2 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 064000A108<br>Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ED/G System controls including: - Maintaining minimum load on ED/G (to prevent reverse power) | |
| | Importance | 3.1 | 3.4 |

Question # 50

The team is transferring the 480V busses from the EDGs to normal power and is concerned with the EDGs tripping on reverse power. Which of the following describes EDG governor and voltage control with the EDG paralleled to the BUS and the UNIT-PARALLEL switch in PARALLEL?

A. Decreasing the governor will DECREASE bus frequency and increasing the voltage rheostat will INCREASE bus voltage.

B. Decreasing the governor will DECREASE EDG load and increasing the voltage rheostat will INCREASE bus voltage.

C. Decreasing the governor will DECREASE EDG load and increasing the voltage rheostat will INCREASE lagging VARs.

D. Decreasing the governor will DECREASE bus frequency and increasing the voltage rheostat will INCREASE leading VARs.

Answer: C

Explanation/Justification:

A. Incorrect but plausible if candidate does not understand parallel operations. Bus voltage and frequency will not change.

B. Incorrect but plausible if candidate does not understand parallel operations. Bus voltage will not change.

C. Correct

D. Incorrect but plausible if candidate does not understand VARs and parallel operations.

| | |
|---|---|
| Technical References: | 3-SOP-EL-001 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EDSEDG 6 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 8 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 073000K101<br>Knowledge of the physical connections and/or cause-effect relationships between the PRM System and the following systems: - Those systems served by PRMs | |
| | Importance | 3.6 | 3.9 |

Question # 51

Which of the following radiation monitors will send a close signal to Waste Gas Discharge Flow Control Valve, RCV-014, if the monitor goes into an alarm condition?

1. R-14, Plant Vent Radio Gas Monitor
2. R-20, Gas Decay Tank Monitor
3. R-27, Wide Range Plant Vent Gas Activity Monitor

A. Only R-14

B. Only R-27

C. Only R-14 and R-20

D. Only R-14 and R-27

Answer: D

Explanation/Justification:

Duplicated from question no 18674

A. Incorrect because R-27 also does this. Plausible because R-27 was not originally installed and valve is RCV-014.

B. Incorrect because R-14 also does this. Plausible because R-27 is a much more sophsticated monitor and has replaced R-14 in other functions/uses.

C. Incorrect because R-20 does not do this function. Plausible because these were the two originally installed monitors associated with the Waste Gas System.

D. Correct.

| | |
|---|---|
| Technical References: | 3-SOP-RM-010 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RMSPRM B |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 11 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 073000K501<br>Knowledge of the operational implications of the following concepts as they apply to the PRM System: - Radiation theory, including sources, types, units, and effects | |
| | Importance | 2.5 | 3 |

Question # 52

The following conditions exist at Unit 3:

- A large steam generator tube rupture occurred 15 minutes ago on 31 SG
- Unit 3 had been operating with significant leakage on one fuel assembly
- Operators tripped the reactor and initiated manual safety injection
- On the trip fuel assembly leakage increased
- The team has just closed the MSIV for 31 SG, but has NOT started cooling down the RCS

Which of the following statements is correct regarding 31 Steam Line Radiation Monitor R-62A response at this time?

A. R-62A is designed to ONLY read N-16 gamma radiation, so it will be reading minimum detectable activity ($1.0 \times 10^{-3}$ μCi) at this time.

B. R-62A is designed to ONLY read N-16 gamma radiation, but with significant fuel assembly leakage it will be elevated at this time.

C. R-62A will respond to a wide range of gamma ray energies. However, since there is no steam flow, it will be reading minimum detectable activity ($1.0 \times 10^{-3}$ μCi) at this time.

D. R-62A will respond to a wide range of gamma ray energies, and even without flow there is enough activity in the steam to have elevated readings at this time.

Answer: D

Explanation/Justification:

KA justification. An important thing to know about IP3's steam line monitors is that they are NOT N-16 monitors as is the case at most plants. There are frequent misconceptions about the post-trip and accident response of these monitors. The KA calls for radiation theory and effects, so this is a match while allowing for an operational relevant question.

Question information. R-62A merely monitors gamma radiation coming out of the steam line. Despite the fact that it reads out in uCi/sec, it does not have an input from steam flow. Also, while the monitor respond to N-16 gammas, it is not calibrated to specifically respond to only these energies. It uses scintillation detectors that will respond to any gamma ray that penetrated the pipe and detector housing. There are a lot misconceptions about these monitors.

A. Incorrect because of N-16 reference. Plausible because of possible misconception of these monitors.

B. Incorrect because of N-16 reference. Plausible because of possible misconceptions and the fact that the second part of this distractor is very correct.

C. Incorrect because reading will not be 0 at this time. Plausible because of possible misconceptions about flow input to the monitor. Also plausible because there will be little or no steam flow past the monitor at this time.

D. Correct. Even without steam flow, there will still be high activity in the steam line. R-62A may be decreasing slowly due to decay after shutting the MSIV, but this response is a completely correct statement.

| | |
|---|---|
| Technical References: | 3-SOP-RM-010<br>Syst Desc 12 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RMSPRM 2 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 11 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 076000A102<br>Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including: - Reactor and turbine building closed cooling water temperatures | |
| | Importance | 2.6 | 2.6 |

Question # 53

In accordance with 3-RO-1, BOP Actions During Use of EOPs, FCV-1111 and 1112 are closed prior to transferring to cold leg recirculation. The reason for this is to

A. Ensure non-essential service water pumps do NOT run out when flow is increased to component cooling water to support recirculation.

B. Ensure essential service water pumps do NOT run out when flow is increased to component cooling water to support recirculation.

C. Ensure adequate service flow is maintained to emergency diesel generators from the essential header when a service water pump is secured during the transfer to cold leg recirculation.

D. Ensure adequate service flow is maintained to emergency diesel generators from the non-essential header when a service water pump is secured during the transfer to cold leg recirculation.

Answer: A

Explanation/Justification:

A. Correct answer. FCV-1111/1112 isolates conventional side non-essential SW. This has no effect on EDGs, but does affect CCW.

B. Incorrect but plausible because a candidate could forget which header we are concerned with when closing FCV-1111/11112 and also after recirculation is established the SW headers may be cross-connected.

C. Incorrect but plausible because a candidate may not know why these valves are closed. A SWP may be secured during the transfer to cold leg recirculation so this is a legitimate concern.

D. Same as C and a candidate could confuse headers.

| | |
|---|---|
| Technical References: | 3-RO-1<br>Syst Desc 24 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 8 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 078000A301<br>Ability to monitor automatic operation of the IAS, including: - Air pressure | |
| | Importance | 3.1 | 3.2 |

Question # 54
Given the following:

- Station Air to Instrument Air is isolated.
- Unit 3 air systems are isolated from Unit 1 and 2 air systems.
- 31 Instrument Air Compressor (IAC) is running in HAND
- 32 IAC is in STANDBY

A leak develops in the instrument air system. As instrument air system pressure lowers, which of the following describes the automatic response and manual actions required by 3-AOP-AIR-1, Air Systems Malfunction?

A. At 105 psig 32 IAC will start, and at 75 psig a manual reactor trip is required.

B. At 105 psig 32 IAC will start, and at 60 psig a manual reactor trip is required.

C. At 95 psig 32 IAC will start, and at 75 psig a manual reactor trip is required.

D. At 95 psig 32 IAC will start, and at 60 psig a manual reactor trip is required.

Answer: D

Explanation/Justification:

A. Incorrect but plausible if candidate cannot remember specific pressures.

B. Incorrect but plausible if candidate cannot remember specific pressures.

C. Incorrect but plausible if candidate cannot remember specific pressures.

D. Correct answer. The standby IAC starts at 95 psig and 3-AOP-AIR-1 calls for reactor trip at 60 psig.

| | |
|---|---|
| Technical References: | 3-AOP-AIR-1<br>Syst Desc 29.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPAIR B |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 4 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 1030002145<br>Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication. | |
| | Importance | 4.3 | 4.3 |

Question # 55

Upon entry into 3-ES-1.3, Transfer to Cold Recirculation, how is the need to go on recirculation confirmed?

A. If both RWST Low-Low Level Alarms are illuminated, Containment Level is verified to be trending up.

B. If both RWST Low-Low Level Alarms are illuminated, there are no additional checks.

C. If only one RWST Low-Low Level Alarm is lit, time since SI initiation is verified to be greater than 30 minutes.

D. If only one RWST Low-Low Level Alarm is lit, the local RWST level indication is checked.

Answer: A

Explanation/Justification:

A. Correct answer per 3-ES-1.3 step 1

B. Incorrect but plausible because the procedure is entered based solely on alarm status.

C. Incorrect but plausible because time since SI could be a way of estimating RWST depletion.

D. Incorrect but plausible since there is a local RWST indication.

| | |
|---|---|
| Technical References: | 3-ES-1.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 002000K105<br>Knowledge of the physical connections and/or cause-effect relationships between the RCS and the following systems: - PRT | |
| | Importance | 3.2 | 3.4 |

Question # 56

The RCS has just been depressurized at the beginning of a refueling outage. The initial RCS drain is the next evolution. Which of the following methods is used by 3-SOP-RP-020, Draining the RCS/Refuel Cavity, to ensure a vacuum condition does NOT occur in the RCS during draining?

A. Nitrogen is aligned to the PRT and the PORVs and Block Valves are opened to put a nitrogen overpressure on the RCS.

B. The PORV Nitrogen Cylinders are aligned to supply nitrogen back to the PZR to put a nitrogen overpressure on the RCS.

C. A SI Accumulator is aligned to supply nitrogen through the Manzell Monitor Connection at the PZR to put a nitrogen overpressure on the RCS.

D. A nitrogen line from the nitrogen header or a truck outside the VC is aligned to Valve RC-500, Reactor Vessel Head Vent to Eductor to put a nitrogen overpressure on the RCS.

Answer: A

Explanation/Justification:

A. Correct answer per 3-SOP-RP-020 step 4.1.9

B. Incorrect but plausible because many of our systems are cross-connected and used for different reasons during outages.

C. Incorrect but plausible. The accumulator nitrogen is actually used for PORVs when LTOPS is in service. The Manzell connection exists and this lineup could work if the fitting were installed and the procedures changed.

D. Incorrect but plausible. This setup could work when level was reduced. It would not be an effective method while level was still in the PZR.

| | |
|---|---|
| Technical References: | 3-SOP-RP-020 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-POP003 2 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 011000A102<br>Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR LCS controls including: - Charging and letdown flows | |
| | Importance | 3.3 | 3.5 |

Question # 57

Given the following Plant conditions;

- The plant is operating at 100% power, steady state.
- The Pressurizer Level Defeat switch is in the normal Defeat III position.

The operator notes the following indications 3 minutes after a failure occurred:

- All Pressurizer heaters are on.
- Letdown isolation valves LCV-459 and LCV-460 are open.
- Charging pump speed is at minimum.

Which ONE of the following describes a cause for these indications?

A. Pressurizer level channel 1 detector, LT-459, failed high.

B. Pressurizer level channel 2 detector, LT-460, failed high.

C. Pressurizer level channel 1 detector, LT-459, failed low.

D. Pressurizer level channel 2 detector, LT-460, failed low.

Answer: B

Explanation/Justification:

Duplicated from question no 18947

Explanation. With the defeat switch in Defeat Channel 3, Channel 1 is the alarm channel and closing channel for LCV-459. Channel 2 is the control channel and closing channel for LCV-460. The controlling channel failing high causes heaters to energize and chaarging pump speed to decrease. Eventually letdown will isolate and heaters will go off.

A. Incorrect but plausible if a candidate misunderstands system operation.

B. Correct answer.

C. Incorrect but plausible if a candidate misunderstands system operation.

D. Incorrect but plausible if a candidate misunderstands system operation.

| | |
|---|---|
| Technical References: | 3-AOP-INST-1<br>Syst Desc 1.4 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPINT 4 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 015000K510<br>Knowledge of the operational implications of the following concepts as they apply to the NIS: - Ex-core detector operation | |
| | Importance | 2.8 | 3 |

Question # 58

The Reactor is at 48% Thermal Power with a Quadrant Power Tilt of 1.06. Can power be increased to 75% power? Why or why not?

A. No. Entry into a specified mode or other specified condition is NOT allowed unless the specification is met.

B. Yes. Once power is increased above 50%, 2 hours are allowed to restore QPTR to less than 1.02.

C. Yes. Power operation may continue for an unlimited amount of time with QPTR at 1.06 and power at 75%.

D. No. Power must be reduced by 3% for each percent QPTR is above the limit.

Answer: C

Explanation/Justification:

Note: TS-3.0.4.a allows entry into mode: When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time

Technical References: Tech Specs
Proposed References to be provided: None

Learning Objective

Question Source: Bank

| | |
|---|---|
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 017000K601<br>Knowledge of the effect of a loss or malfunction of the following will have on the ITM System components: - Sensors and detectors | |
| | Importance | 2.7 | 3 |

Question # 59

One qualified core exit thermocouple (CET) connection opens. All other CETs are available. How does the open affect individual CET output and the available subcooling indication on Qualified Safety Parameter Display System (QSPDS)?

A. The CET will fail low. The affected train of QSPDS will NOT be able to provide subcooling indication.

B. The CET will fail low. With one failed CET, the affected train of QSPDS will be able to provide subcooling indication.

C. The CET will fail high. The affected train of QSPDS will NOT be able to provide subcooling indication.

D. The CET will fail high. With one failed CET, the affected train of QSPDS will be able to provide subcooling indication.

Answer: B

Explanation/Justification:

CETs fail low when they open or short. QSPDS has the ability to throw out one (or more) bad CET readings and adjust its subcooling calculation.

A. Incorrect but plausible

B. Correct

C. Incorrect but plausible

D. Incorrect but plausible

| | |
|---|---|
| Technical References: | Syst Desc 14 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICNXC 1 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 035000A206<br>Ability to (a) predict the impacts of the following malfunctions or operations on the S/GS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:<br>- Small break LOCA | |
| | Importance | 4.5 | 4.6 |

Question # 60

Given the following conditions:

- Unit 3 has initiated a Manual Rx Trip and Safety Injection from 100% power due to a small break LOCA.
- Containment radiation is 1 R/hr and increasing slowly
- Containment temperature peaked at 200F and is now 175F and lowering slowly.

Which of the following describes how Aux Feedwater will be controlled <u>at this time</u> and why?

Maintain total AFW flow >365 GPM…

A. until NR level in at least one SG is greater than 9% to provide a positive static head of water to prevent primary to secondary leakage.

B. until NR level in at least one SG is greater than 9% to ensure a secondary heat sink.

C. until NR level in at least one SG is greater than 14% to ensure a secondary heat sink.

D. until NR level in at least one SG is greater than 14% to provide a positive static head of water to prevent primary to secondary leakage.

Answer: B

Explanation/Justification:

Duplicated from question no 2179

A. Incorrect but plausible because a candidate may not know the basis for the minimum SG level.

B. Correct answer. Heat Sink is reason for level and VC is no longer adverse, so 9% is correct value.

C. Incorrect but plausible because a candidate may think you keep using adverse values.

D. Incorrect but plausible because candidate may not know the basis for the minimum SG level and because a candidate may think you keep using adverse values.

| | |
|---|---|
| Technical References: | 3-E-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 7 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 041000A303<br>Ability to monitor automatic operation of the SDS, including: - Steam flow | |
| | Importance | 2.7 | 2.8 |

Question # 61

Given:

- The plant is at approximately 25% power.
- 31 Main Boiler Feed Pump (MBFP) is in MANUAL.
- 32 MBFP is tagged out.
- PT-412A, Turbine First Stage Pressure failed during the previous shift and all actions of 3-AOP-INST-1, Instrument/Controller Failures have been completed.
- Subsequently, PT-404, Main Steam Header Pressure fails off-scale high.

Assuming no operator action, which ONE of the following describes the effect of this failure?

A. Steam Dumps remain closed. RCS temperature rises until Atmospheric Dump valves open to control RCS temperature.

B. Steam Dumps remain closed. RCS temperature rises until Main Steam Safety Valves open to control RCS temperature.

C. Steam Dumps open. RCS temperature rapidly lowers until 542°F when Main Steam Line Isolation and Safety Injection actuate.

D. Steam Dumps open. RCS temperature rapidly lowers until steam dumps close at 547°F. Steam dumps will then cycle to maintain 547°F.

Answer: C

Explanation/Justification:

Duplicated from question no 2430

A. Incorrect but plausible if candidate has misconeption about steam dump operation.

B. Incorrect but plausible if candidate has misconeption about steam dump operation.

C. Correct answer. With 412A failed and actions of AOP-INST-1 complete, half the high steam flow logic is made up. When 404 fails the steam dumps will open and lower RCS Tave until the SI/Main Steam Isolation setpoint is reached.

D. Incorrect but plausible if candidate has misconeption about steam dump operation.

| | |
|---|---|
| Technical References: | Syst Desc 18.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SDS001 3 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 0450002143<br>Conduct of Operations - Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc. | |
| | Importance | 4.1 | 4.3 |

Question # 62

Unit 3 is operating at 50% power with rods in MANUAL when a Main Turbine Generator Control Valve fails open.

Which of the following describes the plant response and required actions per 3-AOP-LOAD-1, Excessive Load Increase or Decrease?

A. Reactor Power and RCS Tavg will INCREASE. If Tavg exceeds Core Operating Limits Report (COLR) limit for high Tavg, immediately trip the reactor.

B. Reactor Power and RCS Tavg will INCREASE. If Tavg exceeds Core Operating Limits Report (COLR) limit for high Tavg, restore Tavg to less than the limit within 30 minutes or trip the reactor.

C. Reactor Power will INCREASE and RCS Tavg will DECREASE. If Tavg drops below Tech Spec minimum temperature for criticality, immediately trip the reactor.

D. Reactor Power will INCREASE and RCS Tavg will DECREASE. If Tavg drops below Tech Spec minimum temperature for criticality, restore Tavg to above the limit within 30 minutes or trip the reactor.

Answer: D

Explanation/Justification:

A. Incorrect but plausible if a candidate makes a mistake on which way Tavg will go.

B. . Incorrect but plausible if a candidate makes a mistake on which way Tavg will go.

C. Incorrect but plausible because a candidate may not remember that there are 30 minutes to restore.

D. Correct answer per LCO 3.4.2 and 3-AOP-LOAD-1

| | |
|---|---|
| Technical References: | 3-AOP-LOAD-1<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPLOD B |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 1 | |
| | K/A# | 014000K405<br>Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following: - Rod hold interlocks | |
| | Importance | 3.1 | 3.3 |

Question # 63

Which of the following choices contains two conditions, both of which will prevent automatic and manual rod withdrawal?

A. Nuclear flux decrease of greater than 5% in 5 seconds. Any power range nuclear instrumentation channel at 106%.

B. Any power range nuclear instrumentation channel at 106%. 1 of 4 OT DELTA T channel setpoints exceeded.

C. 1 of 4 OP DELTA T channel setpoints exceeded. Any first stage turbine impulse pressure channel below 15%.

D. Any first stage turbine impulse pressure channel below 15%. Nuclear flux decrease of greater than 5% in 5 seconds.

Answer: B

Explanation/Justification:

Duplicated from question no 23892

The four things that cause a manual rod withdrawal block are"
1) any power range exceeds setpoint (106%)
2) intermediate range exceeds setpoint (current equivalent to 20%) and P-10 not blocked
3) 1 of 4 OPDT setpoints exceeded
4) 1 of 4 OTDT setpoints exceeded.

Answer B is the correct choice. Answers A, C, and D all include conditions which will cause AUTOMATIC rod withdrawal blocks and are therefore incorrect.

| | |
|---|---|
| Technical References: | Syst Desc 16.1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICROD 9 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 075000K203<br>Knowledge of bus power supplies to the following: - Emergency/essential SWS pumps | |
| | Importance | 2.6 | 2.7 |

Question # 64

Last shift, valve lineups were performed to swap the ESSENTIAL Service Water Header from the 1-2-3 Header to the 4-5-6 Header. HOWEVER, the Service Water Pump (SWP) MODE selector switch on CCR safeguards panel SBF-1 was inadvertently left in the 1-2-3 position.

The following pumps are in service:

- All circulating water pumps (CWPs) with standby drive available
- 31 and 33 SWP on the 1-2-3 Header
- 35 SWP on the 4-5-6 Header

Which of the following describes the status of the circulating water pumps if a loss of Station Auxiliary Transformer were to occur with the unit staying on line? Assume no operator action and all equipment operates as designed for the given conditions.

A. Four CWPs are in service with seal water being supplied from 31, 32, and 33 SWPs.

B. Four CWPs are in service with seal water being supplied from 31and 33 SWPs.

C. Six CWPs are in service with seal water being supplied from 31, 32, and 33 SWPs.

D. Six CWPs are in service with seal water being supplied from 31and 33 SWPs.

Answer: B

Explanation/Justification:

K/A Justification. Along with understanding CWP system, required knowledge is which SWPs are supplied by each bus along with which busses will have non-SI blackout logic.

A. Incorrect but plausible because a candidate could believe all three ESW Pumps will start.

B. Correct answer. 480V busses 5A and 6A will de-energize when 6.9 KV busses 5 and 6 lose power. 32 and 33 EDGs will start and power busses 5A and 6A. 31 and 33 SWP will cycle on due to the non-SI blackout logic. 32 SWP will not start because its bus never loses power.

C. Incorrect but plausible because a candidate could believe all three ESW Pumps will start and that CWPs are all powered from inside 6.9 KV busses.

D. . Incorrect but plausible because a candidate could believe that CWPs are all powered from inside 6.9 KV busses.

| | |
|---|---|
| Technical References: | Syst Desc 24 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SW001 6 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 8 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 2 | |
| | Group# | 2 | |
| | K/A# | 086000A401<br>Ability to manually operate and/or monitor in the control room: - Fire water pumps | |
| | Importance | 3.3 | 3.3 |

Question # 65

The fire protection is in a normal alignment when a leak in the fire header occurs. Pressure lowered to 103 psig and then returned to normal. What indications for fire pumps do you expect to see on the Control Room Fire Display Panel right after pressure returns to normal?

A. Neither the electric or diesel fire pump will indicate running. Pressure was maintained by the jockey pumps.

B. The electric fire pump will indicate running. Pressure did NOT get low enough to start the diesel fire pump.

C. Both the electric fire pump and the diesel fire pump will indicate running.

D. The electric fire pump will indicate running. The diesel fire pump started, but secured when pressure stabilized.

Answer: B

Explanation/Justification:

A. Incorrect but plausible if candidate does not remember pressures for pump starts.

B. Correct answer.

C. Incorrect but plausible if candidate does not remember pressures for pump starts..

D. Incorrect but plausible if candidate does not remember pressures for pump starts.

| | |
|---|---|
| Technical References: | Syst Desc 29.6 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-FPS001 2 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 2 | |
| | K/A# | 1940012237<br>Equipment Control - Ability to determine operability and/or availability of safety related equipment. | |
| | Importance | 3.6 | 4.6 |

Question # 66

Given the following conditions:

- 31 Emergency Diesel Generator (EDG) is shutdown
- 33 DC Power Panel Circuit 4, Diesel Gen 31 Control Panel, breaker is tripped and cannot be reclosed.

Which ONE (1) of the following describes how the loss of DC control power would affect the EDG operation?

A. The EDG cannot be started by automatic signals or manually from the local control panel.

B. The EDG would start in response to an automatic signal or manually from the local control panel, but would NOT tie to the bus.

C. The EDG can only be started manually at the local control panel.

D. The EDG can only be started manually from the Control Room or manually at the local control panel.

Answer: A

Explanation/Justification:

Duplicated from question no 2729
063.K3.02

A. Correct

B. Incorrect. Plausible because the candidate may believe loss of control power will only affect the output breaker.

C. Incorrect. Candidate must recall that the EDG cannot be started without control power.

D. Incorrect. Candidate must recall that the EDG cannot be started without control power.

| | |
|---|---|
| Technical References: | Syst Desc 27.3 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EDSEDG 4 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Synthesis Evaluation |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 1 | |
| | K/A# | 1940012139<br>Conduct of Operations - Knowledge of conservative decision making practices | |
| | Importance | 3.6 | 4.3 |

Question # 67

Given:

- A reactor startup is in progress at EOL
- A Reactor Engineer in the Control Room.
- Control Bank withdrawal has just commenced
- The Reactor Engineer has determined the reactor will go critical more than 500 pcm above the ECP calculation.
- The Reactor Engineer is working on resolving the ECP issue.

Which of the following describes the correct action per 3-POP-1.2, Reactor Startup?

A. Trip the reactor, then perform new ECP prior to starting the reactor.

B. Fully insert control banks, obtain RCS Boron sample, and re-evaluate ECP prior to continuing startup.

C. Maintain rods at current position, obtain RCS Boron sample, and re-evaluate ECP prior to continuing startup.

D. Since Reactor Engineer is present, proceed with startup, but do NOT take the reactor critical until ECP is resolved.

Answer: B

Explanation/Justification:

A. Incorrect. Plausible because 500 pcm is a significant error in the ECP calculation. Tripping the reactor is an action taken during reactor startup for some conditions (e.g., MTC becomes positive)

B. Correct.

C. Incorrect. Plausible because the only incorrect action is maintaining rods at current position.

D. Incorrect. Plausible because the candidate may believe that the Reactor Engineer has the knowledge and authority to safely continue the startup.

| | |
|---|---|
| Technical References: | 3-POP-1.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-POP006 3 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 1 | |
| | K/A# | 1940012140<br>Conduct of Operations - Knowledge of refueling administrative requirements. | |
| | Importance | 2.8 | 3.9 |

Question # 68

Unit 3 is performing a core offload. Nuclear Instruments N38 and N39 are NOT available. N31 and N32 Source Range Instruments are operable and in service, and an adjustment to the High Flux at Shutdown Alarm setting is needed on N31. How will making this adjustment impact the core offload?

A. This will NOT impact the core offload since only one source range instrument is required for offload.

B. This will NOT impact the core offload since LCO 3.9.2 allows one of the source range monitors to be inoperable for up to an hour for testing.

C. Core alterations will be suspended while the adjustment is made to avoid having to evacuate containment when the high Flux at Shutdown Alarm sounds during adjustment.

D. Core alterations will be suspended while the adjustment is made because N31 will be inoperable during adjustment and two SR monitors are required during core alterations.

Answer: D

Explanation/Justification:

A. Incorrect but plausible. Two monitors are required per LCO 3.9.2, but it is plausible that only one would be required since fuel assemblies are being removed from core.

B. Incorrect but plausible. LCO 3.9.2 has no provision but it is plausible that it could.

C. Incorrect but plausible. The alarm could sound during adjustment, but this is not the reason for suspending core alterations.

D. Correct answer. 3-SOP-NI-003 Step 2.1 and LCO 3.9.2

| | |
|---|---|
| Technical References: | 3-SOP-NI-003<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICEXC 10 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 2 | |
| | K/A# | 1940012225<br>Equipment Control - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | |
| | Importance | 3.2 | 4.2 |

Question # 69

The total On-Site fuel oil capacity (Fuel Oil Storage Tanks plus Reserve Fuel Oil Storage Tanks) required for the Emergency Diesel Generators (EDG) is designed to support minimum safeguards loading with:

A. Operation of all three EDGs for 24 hours following a Design Basis event.

B. Operation of two EDGs for 24 hours following a Design Basis event.

C. Operation of all three EDGs for 7 days following a Design Basis event.

D. Operations of two EDGs for 7 days following a Design Basis Event

Answer: D

Explanation/Justification:

LCO 3.8.3 Basis Background

A. Incorrect but plausible because a candidate could think the oil spec assumes 3 diesels and 24 hours.

B. Incorrect but plausible because a candidate could think the oil spec is for 24 hours.

C. Incorrect but plausible because a candidate could think the spec assumes 3 diesels.

D. Correct per T.S. Basis 3.8.3 background section

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EDSEDG 2 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 2 | |
| | K/A# | 1940012239<br>Equipment Control - Knowledge of less than or equal to one hour technical specification action statements for systems. | |
| | Importance | 3.9 | 4.5 |

Question # 70

Reactor power is at 3E-11 amps and the operators are proceeding with startup. Both Source Range Neutron Flux Channel fail in a condition that does NOT cause a reactor trip. All power range and intermediate range channels are operable. What are the required Technical Specification Action(s), if any?

A. Suspend operations involving positive reactivity additions immediately and within 2 hours open reactor trip breakers.

B. Open Reactor Trip Breakers immediately.

C. Since power is above P-6 setpoint no action is required

D. Verify associated interlock is in required state for existing unit condition within 1 hour or be in Mode 3 in 7 hours.

Answer: B

Explanation/Justification:

A. Incorrect but plausible because trips on increasing power are still in place

B. Correct per LCO 3.3.1 Condition G

C. Incorrect but plausible because the intermediate range indication is close to but below the P-6 setpoint.

D. Incorrect but plausible because this is often the expected action for failed instrumentation.

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICEXC 9 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 6 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 3 | |
| | K/A# | 1940012312<br>Radiological Controls - Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. | |
| | Importance | 3.2 | 3.7 |

Question # 71

A job must be performed under the following conditions:

- Dose rate at job location is 90 mrem/hr.
- Airborne Radioactivity Area from particulates due to weld grinding:
  - Internal dose if respirator is worn is 0 mrem.
  - Internal dose if **no** respirator is worn is 82 mrem.
- Time to complete job while wearing a respirator is 3.5 hours.
- Time to complete job **without** wearing a respirator is 2.75 hours.

Which ONE (1) of the following describes whether a respirator will be worn, and why?

A. No, wearing a respirator will raise total exposure.

B. Yes, wearing a respirator will lower total exposure.

C. No, wearing a respirator will make no difference to the total exposure.

D. Yes, a respirator must be worn anytime airborne radiation is present.

Answer: B

Explanation/Justification:

Wolf creek 2006

A. Incorrect but plausible because it is possible to make a math error.

B. Correct.
With a respirator Dose = (0 internal) + (3.5*90=315 external) = 315 total
W/O a respirator Dose = (82 internal) + (2.75*90=247.5 external) = 329.5 total

C. Incorrect but plausible because it is possible to make a math error.

D. Incorrect but plausible because a candidate may not be familiar with TEDE/ALARA principles.

Technical References:
Proposed References to be provided: None

Learning Objective I0WKB-ILO-ADM00 2.3.12

Question Source: Bank

Question History: Wolf Creek 2006

Question Cognitive Level: Comprehension Analysis

10 CRF Part 55 Content: 55.41 (b) 12

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 3 | |
| | K/A# | 1940012314<br>Radiological Controls - Knowledge of radiation or contaminatin hazards that may arise during normal, abnormal, or emergency conditions or activities. | |
| | Importance | 3.4 | 3.8 |

Question # 72

Which of the following activities is likely to lead to highest levels of surface contamination if equal amounts of liquid were to leak on the floor?

A. Disconnecting hoses used for Reactor Cavity cleanup during refueling operations.

B. Removing a test gauge from Safety Injection Pump discharge piping while online.

C. Charging Pump seal leakage during a refueling outage.

D. A leak downstream of CVCS Seal Injection Filter while online.

Answer: A

Explanation/Justification:

A. Correct. Generally, the highest levels of contamiation would be expected from the Reactor Cavity during refueling.

B. Incorrect but plausible. Contamination levels should be low, but a candidate may wonder if RCS water would come out of discharge piping. The dose rate from online RCS may be higher than cavity drain water, but particulates are much less.

C. Incorrect but plausible. Charging Pump caontamination levels should not be too high due to having RCS cleanup during outages.

D. Incorrect but plausible. Contamination levels should not be that bad in CVCS (has gone through demins and reactor filter) compared to Cavity drain water. Because this water would online RCS a candidate may think levels would be high. Also the candidate is not told if the water is up or downstream of the filter.

Technical References:
Proposed References to be provided: None

Learning Objective

Question Source: Bank

Question History: NA

Question Cognitive Level: Comprehension

10 CRF Part 55 Content: 55.41 (b) 12

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 4 | |
| | K/A# | 1940012420<br>Emergency Procedures/Plan - Knowledge of operational implications of EOP warnings, cautions, and notes. | |
| | Importance | 3.8 | 4.3 |

Question # 73

There is a caution prior to EOP steps that direct securing emergency diesel generators (EDGs). The purpose of this caution is to:

A. Ensure EDGs are secured one at time, so adequate safeguards busses remain energized if offsite power is lost while securing EDGs.

B. Ensure SI has been reset prior to securing EDGs to prevent unnecessary cycling of the EDGs.

C. Ensures auto-start relays are reset to prevent safeguards loads from stripping are re-starting when the EDGs are secured.

D. Ensures over-current and reverse power trips are NOT re-instated and the non-SI blackout logic is NOT reset when EDGs are secured.

Answer: D

Explanation/Justification:

A. Incorrect but plausible. Plausible because although having all three EDGs in off at once would cause a short-term loss of all AC if offsite power were lost. However, this is acceptable because operator action is allowed.

B. Incorrect but plausible. Plausible because SI is always reset prior to securing EDGs, but this is not an actual concern or the reason for this caution.

C. Incorrect but plausible. Plausible because a candidate may have a misconception of how auto-start signals are generated.

D. Correct answer. See ES-1.2 caution prior to step 20 as an example.

| | |
|---|---|
| Technical References: | 3-ES-1.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 4 | |
| | K/A# | 1940012434<br>Emergency Procedures/Plan - Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. | |
| | Importance | 4.2 | 4.1 |

Question # 74

Which one of the following actions must be completed within 30 minutes of a control room evacuation to satisfy the safe shutdown analysis?

A. Steam generator feed water flow must be established.

B. Pressurizer pressure control must be established.

C. CCW flow must be established to the RCP seals.

D. Both RHR pumps must be tripped locally.

Answer: A

Explanation/Justification:

K/A Justification. This is an action controlled by the RO in 3-AOP-SSD-1. The "resultant operational effects" are that the safe shutdown analysis are satisfied by performing this action.

Safe Shutdown Analysis Update Section 5.2
A. Correct

B. Incorrecet but plausible. Llevel control must be established in 30 minutes, but not pressure.

C. RCP seal cooling must be established in 1 hour, but could be seal injection.

D. RHR pump spurious trip to be resolved in 1hour, but applies to one pump. No requirement to locally trip both breakers in any period of time.

| | |
|---|---|
| Technical References: | 3-AOP-SSD-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPSSD 4 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.41 (b) 10 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | 3 | |
| | Group# | 4 | |
| | K/A# | 1940012445<br>Emergency Procedures/Plan - Ability to prioritize and interpret the significance of each annunciator or alarm. | |
| | Importance | 4.1 | 4.3 |

Question # 75

The operating team is transferring to hot leg recirculation and is about to start the first high head safety injection pump when the BOP notices the "SI Pump Low Suction Pressure" alarm is annunciated. Which of the following is correct regarding addressing this alarm?

A. The alarm does NOT need to be addressed because the alarm is expected and the alarm will be blocked by procedure.

B. The alarm needs to be addressed because it could indicate a problem with the valve lineup for hot leg recirculation.

C. The alarm does NOT need to be addressed because the alarm is expected and it will clear when the SI pump is started.

D. The alarm needs to be addressed because it could be caused by high VC pressure and recirculation spray may need to be adjusted.

Answer: B

Explanation/Justification:

A. Incorrect but plausible. The alarm is unblocked by the procedure. It is plausible a candidate could get this confused.

B. Correct. ES-1.4 checks for this alarm at step 6e.If the alarm is up, the valve lineup is checked.

C. Incorrect but plausible. The recirc pumps running clear this alarm.

D. Incorrect but plausible. A high pressure condition could affect low head pump flow, but this should not affect flow to suction of the HHSI pumps.

| | |
|---|---|
| Technical References: | 3-ARP-004<br>3-ES-1.4 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.41 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 0000252145<br>Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication. | |
| | Importance | 4.3 | 4.3 |

Question # 76

Given the following plant conditions:

- The plant is in MODE 5 following a refueling outage.
- A vacuum is being drawn on the RCS in preparation for vacuum filling of the RCS in accordance with 3-SOP-RCS-017, "Reactor Vessel Refill and Mansell Level Monitoring System Operation".
- Vacuum is currently 27"Hg.
- RCS level is 62'6".
- RHR flow prior to drawing the vacuum was 2500 gpm.
- RCS temperature is 115°F.
- RHR flow indicators (FI-638 and 640) start fluctuating from low to high scale with 31 RHR pump running.

What has caused the indication of fluctuating RHR flow and what procedural guidance exists for this condition?

A. RHR flow transmitter instrument flashing due to the vacuum. Indicator FI-638 and 640 should have been isolated using 3-SOP-RCS-017 prior to drawing a vacuum.

B. RHR flow transmitter instrument flashing due to the vacuum. 3-SOP-RCS-017 provides guidance to NOT rely on FI-638 and 640 when the RCS is at vacuum conditions.

C. 31 RHR pump is cavitating due to high RCS temperature and high vacuum. 3-SOP-RCS-017 provides guidance to reduce RHR temperature as a first response to indications of RHR pump cavitation.

D. 31 RHR pump is cavitating due to high RCS temperature and high vacuum. 3-SOP-RCS-017 provides guidance to break RCS vacuum as a first response to indications of RHR pump caviation.

Answer: D

Explanation/Justification:

This is a modified bank question. Original question is IPEC 18867 not used on NRC exam.

3-SOP_RCS-017 Attachment 1 Vacuum/Temp table shows these values could lead to cavitation. Attachment 6 Compensatory Actions shows that D is the correct response.

A. Incorrect but plausible. These indicators are not specified in isolation attachment 3.

B. Incorrect but plausible. These indicators may be used during vacuum fill.

C. Incorrect but plausible. This condition could be caused in part by high temperature, but lowering temperature will take too long to help restore flow.

D. Correct.

| | |
|---|---|
| Technical References: | 3-SOP-RCS-017 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCS001 8 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Analysis Synthesis Evaluation |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 0000262404<br>Emergency Procedures/Plan - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | |
| | Importance | 4.5 | 4.7 |

Question # 77
Given:

- The plant is operating at 100% power.
- 31 and 33 CCW pumps are operating
- CCW Surge Tank levels were lowering
- The operating crew implemented 3-AOP-CCW-1,
- Makeup to the CCW surge tanks was initiated.
- CCW headers were split due to decreasing level
- 32 CCW Pump is in Trip Pull Out
- After the CCW headers were split, 31 Surge Tank level stabilized and 32 Surge Tank level continued to decrease.

Which of the following describes the actions the crew should take?

A. Cross connect the CCW headers and continue leak identification/isolation. Increase charging pump speed to maximum and initiate 3-AOP-RCP-1, RCP Malfunctions, to monitor RCP operation.

B. If 32 Surge decreases to 5%, then place 33 CCW pump in Trip Pull Out. Continue leak identification/isolation in accordance with 3-AOP-CCW-1.

C. Place 33 CCW pump in Trip Pull Out. Within 2 minutes trip the reactor and trip all RCPs in accordance with 3-AOP-CCW-1.

D. Cross connect the CCW headers and continue leak identification/isolation. If <u>both</u> CCW Surge Tank levels decrease to 5%, trip all CCW pumps, trip the reactor and trip all RCPs in accordance with 3-AOP-RCP-1.

Answer: C

Explanation/Justification:

A. Incorrect. Plausible because cross connecting headers would provide time to locate and isolate the leak; however, the procedure does not direct this action.

B. Incorrect. Plausible because the procedure does direct tripping the CCW pumps when BOTH surge tank levels decease to 5%. With the headers split, only the affected surge thank level will decrease. The procedure directs placing the pump in trip pull out if the level decreases in an uncontrolled manner.

C. Correct. With the headers split and makeup to the surge tanks in progress, level continuing to decrease is "uncontrolled". The procedure directs placing the pump in trip pull out. This will stop all CCW to the RCPs. The procedure directs tripping the reactor and RCPs if CCW is lost for 2 minutes.

D. Incorrect. Plausible because cross connecting headers would provide time to locate and isolate the leak; however, the procedure does not direct this action. The remainder of the statement is true in accordance with the procedure.

| | |
|---|---|
| Technical References: | 3-AOP-CCW-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPCCW 2 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 000054A203<br>Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): - Conditions and reasons for AFW pump startup | |
| | Importance | 4.1 | 4.2 |

Question # 78

The following conditions exist at Unit 3:

- Plant startup is in progress
- Power is 8 % and being raised in preparation for turbine warmup
- 32 MBFP is tagged out
- 31 MBFP is in service being controlled on the Startup Signal when it trips due high level in 32 SG
- SG Levels are as follows:
  - 31 SG – 50% and slowly lowering
  - 32 SG – 70% and slowly lowering
  - 33 SG – 52% and slowly lowering
  - 34 SG – 54% and slowly lowering

How will the AFW pumps respond to this event and what actions are required in response to these conditions?

A. 31 and 33 AFW pumps will have auto-started and are feeding all four SGs. Since SG levels are in or above the normal band, POP-1.3, "Plant Startup from 0 to 45% Power" guidance may be used to lower power to <4% and stabilize SG levels on AFW.

B. 31 and 33 AFW pumps will NOT have auto-started. Since SG levels are in or above the normal band, POP-1.3, "Plant Startup from 0 to 45% Power" guidance may be used to start 31 and 33 AFW pumps and lower power to <4% and stabilize SG levels on AFW.

C. 31 and 33 AFW pumps will have auto-started and are feeding all four SGs. 3-AOP-FW-1, "Loss of Feedwater" will be entered regardless of SG levels. Direction will be given to trip the reactor and go to E-0, "Reactor Trip or Safety Injection".

D. 31 and 33 AFW pumps will NOT have auto-started. 3-AOP-FW-1, "Loss of Feedwater" will be entered regardless of SG levels. Direction will be given to trip the reactor and go to E-0, "Reactor Trip or Safety Injection". AFW will be established in E-0.

Answer: C

Explanation/Justification:

A. Incorrect because procedurally there is no longer any provision for lowering power to stabalize SG levels on AFW . 3-AOP-FW-1 has to be entered and it will call for tripping the reactor. This is plausible because this guidance used to exist and still could work if allowed.

B. Incorrect for all of the reasons listed for A plus the AFW pump start will occur because of the trip of 31 MBFP. This is plausible because low SG level is an auto start that will not occur. Also there could be some confusion by the pump being controlled on the Startup Signal.

C. Correct

D. Incorrect because the pumps will auto start due to the MBFP trip. Plausible because of reasons listed in B.

| | |
|---|---|
| Technical References: | 3-AOP-FW-1<br>Syst Desc 21.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPFW1 C |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 000058A202<br>Ability to determine and interpret the following as they apply to the Loss of DC Power: - 125V dc bus voltage, low/critical low, alarm | |
| | Importance | 3.3 | 3.6 |

Question # 79

The SAFEGUARDS INITIATION RACKS OR 480V SWGR SEQ. DC POWER FAILURE alarm comes in. Investigation reveals that the DC Power Supply to the Train A Safeguards Rack has failed. No other alarms are up.

Which of the following statements accurately describes the status of the Safeguards Initiation System to this event and what actions are required?

A. SI Train A actuates due to loss of power to the master relays. SI reset in ES-1.1, "SI Termination" will require use of the SI Block Key Switches.

B. SI Train A actuates due to loss of power to the master relays. SI reset in ES-1.1, "SI Termination" will require depressing the pin resets on the master relays.

C. SI Train A is disabled due to loss of power to the master relays. If SI is required, Train A equipment will have to be manually started in RO-1, "BOP Operator Actions During Use of EOPs".

D. SI Train A is disabled due to loss of power to the master relays. If SI is required, Train A equipment cannot be started in RO-1, "BOP Operator Actions During Use of EOPs" due to a loss of control power.

Answer: C

Explanation/Justification:

This is a significant modifcation of Bank 3082

A. Incorrect because the master relays do not actuate on a loss of DC power. Plausible because most plant relays actuate on a loss of power. The SI reset information is plausible if DC was lost.

B. Incorrect because the master relays do not actuate on a loss of DC power. Plausible because most plant relays actuate on a loss of power. The SI reset information is plausible if DC was lost.

C. Correct. With power lost, the master relay will not actuate on a SI. Individual equipment on this train will not auto-start, can be manually started.

D. Incorrect because the equipment has not lost normal control power and thus can be manually started. Plausible because SI actuation control power is lost.

| | |
|---|---|
| Technical References: | 3-ARP-004 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ESS001 E |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 0000622222<br>Equipment Control - Knowledge of limiting conditions for operations and safety limits. | |
| | Importance | 4 | 4.7 |

Question # 80

The plant is in cold shutdown and preparations are in progress to heatup/startup the plant. RCS Temperature is currently 197°F and stable. Ultimate Heak Sink (UHS) water temperature is 97°F.

Can the plant heatup and reactor startup commence without performing a risk assessment? Why or Why NOT?

A. No. All components cooled by SW must be declared inoperable if the average river water temperature is >95°F.

B. No. The TS ACTIONS do NOT allow unlimited operation when service water inlet temperature is greater than 95°F.

C. Yes. The applicable LCO is met provided UHS water temperature is 95°F within 7 hours after exceeding 200°F.

D. Yes. A Note to the TS ACTIONS exempts LCO 3.0.4, Limiting Conditions for Operation (LCO) Applicability, when RCS average temperature is above 200°F.

Answer: B

Explanation/Justification:

Include TS 3.7.10 and 3.0 LCO Applicability

A. Incorrect but plausible. The mode change cannot be made, but all components cooled by SW are not declared inoperable. This is plausible because the wording is similar to 3.8 electrical specs.

B. Correct as per LCO 3.0.4

C. Incorrect but plausible. Plausible because there is a 7 hour AOT to get to Mode 3.

D. Incorrect but plausible. Plausible because there notes that exempt LCO 3.0.4, but this is not one of those specs.

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SW001 9 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension Analysis |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 1 |
| | K/A# | 00WE04A201<br>Ability to determine and interpret the following as they apply to the LOCA Outside Containment: - Facility conditions and selection of appropriate procedures during abnormal and emergency operations | |
| | Importance | 3.4 | 4.3 |

Question # 81

The following plant conditions exist:

- The plant was operating at 100% power
- The Team has initiated a manual reactor trip and Safety Injection
- RCS pressure is 1650 psig and slowly decreasing
- SG pressures are all stable at 900 psig
- No SG Level is increasing in an uncontrolled manner
- Auxiliary feedwater flow is 450 gpm and stable
- All SI pumps are running
- Containment Radiation levels, Temperature and pressure remain normal
- Primary Auxiliary Building radiation levels are increasing
- All secondary side radiation monitor readings are normal

If the RCS leakage cannot be isolated, which ONE of the following EOP procedure sequences would be utilized to address these conditions upon transition from E-0 Reactor Trip or Safety Injection?

E-1, Loss of Reactor or Secondary Coolant
ECA-1.2, LOCA Outside of Containment
ECA-1.1, Loss of Emergency Coolant Recirculation

A. E-1 to ECA-1.2 to E-1.

B. ECA-1.2 to ECA-1.1.

C. E-1 to ECA-1.2 to ECA-1.1.

D. ECA-1.2 to E-1.

Answer: B

Explanation/Justification:

Duplicated from question no 24213
Duplicated from question no 8315

A. Incorrect but plausible because an operator may not know that E-1 is not entered prior to ECA-1.2 and that E-1 is not where the team goes upon exit from ECA-1.2 if break is not isolated.

B. Correct. E-0 step 22 would direct ECA-1.2 entry. Since leak is never isolated, ECA-1.2 step 6 would direct ECA-1.1 entry. E-1 never entered.

C. Incorrect but plausible because may not know that E-1 is not entered prior to ECA-1.2.

D. Incorrect but plausible because an operator may not know that E-1 is not where the team goes upon exit from ECA-1.2.

| | |
|---|---|
| Technical References: | 3-E-0<br>3-ECA-1.1<br>3-ECA-1.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE10 22 |
| Question Source: | Bank |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 2 |
| | K/A# | 0000032237<br>Equipment Control - Ability to determine operability and/or availability of safety related equipment. | |
| | Importance | 3.6 | 4.6 |

Question # 82

Given the following plant conditions:

- Reactor Power is 20%
- Control Bank D rods are at 100 steps
- ONE Control Bank D rod was dropped and recovered
- The P/A Converter could NOT be reset per 3-AOP-ROD-1, Rod Control and Position System Malfunctions AFTER recovering the dropped rod.

What effect will these events have on continued rod control system operation? As control rods are inserted ...

A. the ROD INSERTION LO-LO Limit Alarm will be received at a lower actual rod position. Per LCO 3.1.6 (Control Bank Insertion Limits) operation may continue as long as actual rod position can be verified above the insertion limit every 12 hours.

B. the ROD INSERTION LO-LO Limit Alarm will be received at a lower actual rod position. Per LCO 3.1.6 (Control Bank Insertion Limits) the alarm must be made operable within 2 hours or the plant be brought to Mode 3 in an additional 6 hours.

C. the ROD INSERTION LO-LO Limit Alarm will be received at a higher actual rod position. Per LCO 3.1.6 (Control Bank Insertion Limits) operation may continue as long as actual rod position can be verified above the insertion limit every 12 hours.

D. the ROD INSERTION LO-LO Limit Alarm will be received at a higher actual rod position. Per LCO 3.1.6 (Control Bank Insertion Limits) the alarm must be made operable within 2 hours or the plant be brought to Mode 3 in an additional 6 hours.

Answer: A

Explanation/Justification:

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SRO Question

A. Correct. The P/A converter will have Bank D at 200 steps following rod recovery. The bank will be at 100. This will make the Rod Insertion Lo-Lo Limit alarm come in at lower actual rod position. LCO 3.1.6 (Control Bank Insertion Limits) is met as long as SR 3.1.6.3 (verify actual position) can be performed every 12 hours.

B. Incorrect but plausible. Shutdown would be required if actual position is below the insertion limit.

C. Incorrect but plausible if the candidate misunderstands how this failure affects rod control.

D. Incorrect but plausible if the candidate misunderstands how this failure affects rod control. Also see B.

| | |
|---|---|
| Technical References: | Syst Desc 16.2<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICRPI A |
| Question Source: | Bank |
| Question History: | Summer Unit 1 9/17/2002 |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 2 |
| | K/A# | 0000282225<br>Equipment Control - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | |
| | Importance | 3.2 | 4.2 |

Question # 83

Unit 3 is at 100% when the controlling pressurizer level transmitter failed causing an isolation of letdown. Prior to restoring letdown, pressurizer level goes above the Mode 1 Technical Specification limit for pressurizer level. What is the action required and reason for the Tech Spec limit on level?

A. Restore level to within the Tech Spec limit within 2 hours or be in Mode 3 with the reactor trip breakers open in the following 6 hours. The Mode 1 upper limit on pressurizer level preserves a steam space for pressure control.

B. Restore level to within the Tech Spec limit within 2 hours or be in Mode 3 with the reactor trip breakers open in the following 6 hours. The Mode 1 upper limit on pressurizer level ensures that Pressurizer safety valves will NOT open on a reactor trip with a loss of normal spray.

C. The plant is in an action statement to be in Mode 3 with the reactor trip breakers open in the following 6 hours. This action statement may be exited when level is restored to within the limit. The Mode 1 upper limit on pressurizer level preserves a steam space for pressure control.

D. The plant is in an action statement to be in Mode 3 with the reactor trip breakers open in the following 6 hours. This action statement may be exited when level is restored to within the limit. The Mode 1 upper limit on pressurizer level ensures that Pressurizer safety valves will NOT open on a reactor trip with a loss of normal spray.

Answer: C

Explanation/Justification:

Tech Spec 3.4.9 and basis (page 3.4.9-3)

A. Incorrect but plausible. There is no AOT when level is high, so the plant is immediately in a 6 hour S/D action. This makes A and B wrong. Both are plausible because the low PZR spec has a 2 hour allowance to restore.

B. Incorrect but plausible - see A

C. Correct. The reason for the high level spec is spelled out in the T.S. Basis page 3.

D. Incorrect but plausible. The action is correct, but the reason is not. On a trip without normal spray, it is likely that PORVs will have to open. The high level spec is not based on preventing this. However this is plausible because the basis states that the spec will "minimize the consequences of potential overpressure transients".

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RCSPZR 10 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 2 |
| | K/A# | 000076A201<br>Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: - Location or process point that is causing an alarm | |
| | Importance | 2.7 | 3.2 |

Question # 84

Unit 3 is in a normal 100% power lineup when R-63A and B (gross failed fuel detector) go into Alert. The Watch Chemist confirms that the readings are valid. To lower RCS activity, letdown flow will be increased…

A. per 3-AOP-HIACT-1, High RCS Activity.
R-63A/B readings will initially go up because there will be more flow past the detectors.

B. per 3-AOP-HIACT-1, High RCS Activity.
Flow past R-63A/B detectors is NOT affected by changing letdown flow.

C. per 3-ONOP-RM-2, High Activity Radiation Monitoring System.
R-63A/B readings will initially go up because there will be more flow past the detectors.

D. per 3-ONOP-RM-2, High Activity Radiation Monitoring System.
Flow past R-63A/B detectors is NOT affected by changing letdown flow.

Answer: B

Explanation/Justification:

New question

System Description 9 shows the R-63A/B layout. These detectors sample fluid from the RCS loop sample line and discharge back to VCT. Letdown status does not affect flow past detectors.

A. Incorrect but plausible. It is plausible that R-63A/B could sample letdown flow and be affected by changes in letdown.

B. Correct

C. Incorrect but plausible. It is plausible that R-63A/B could sample letdown flow and be affected by changes in letdown. It is also plausible that this guidance would be in ONOP-RM-2 since the initiating event was an alarm.

D. Incorrect but plausible. It is plausible that this guidance would be in ONOP-RM-2 since the initiating event was an alarm.

| | |
|---|---|
| Technical References: | 3-AOP-HIACT-1<br>Syst Desc 9 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RMSPRM B |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 4 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 2 |
| | K/A# | 00WE09A202<br>Ability to determine and interpret the following as they apply to the Natural Circulation Operations: - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | |
| | Importance | 3.4 | 3.8 |

Question # 85

The following conditions exist on Unit 3:

- All RCPs OOS due to a loss of CCW
- The Reactor has been tripped, and the Operations Manager has directed a unit cooldown to Mode 5 in accordance with ES-0.2 NATURAL CIRCULATION COOLDOWN
- CRDM Fans are ALL available but none are currently running
- 3 FCUs are running
- MCC-37 feeder breaker tripped on overcurrent

ES-0.2 will direct the team to take what action and why?

A. Run one CRDM fan, this is sufficient to prevent cooldown restrictions.

B. Run two CRDM fans, this prevents cooldown restrictions.

C. Run three CRDM fans since this provides enhanced cooling and prevents cooldown restrictions.

D. Run four CRDM fans, this maximizes heat removal from the upper head region and provides assistance in cooldown.

Answer: D

Explanation/Justification:

A. Incorrect but plausible.

B. Incorrect but plausible.

C. Incorrect but plausible.

D. Correct. ES-0.2 step 2 RNO - start ALL CRDM fans

| | |
|---|---|
| Technical References: | 3-ES-0.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE00 12 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 1 |
| | Group# | | 2 |
| | K/A# | 00WE09A202<br>Ability to determine and interpret the following as they apply to the Natural Circulation Operations: - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments | |
| | Importance | 3.4 | 3.8 |

Question # 85

The following conditions exist on Unit 3:

- All RCPs OOS due to a loss of CCW
- The Reactor has been tripped, and the Operations Manager has directed a unit cooldown to Mode 5 in accordance with ES-0.2 NATURAL CIRCULATION COOLDOWN
- CRDM Fans are ALL available but none are currently running
- 3 FCUs are running
- MCC-37 feeder breaker tripped on overcurrent

What action is required by ES-0.2 and why?

A. Run one CRDM fan, this is sufficient to prevent cooldown restrictions.

B. Run two CRDM fans, this prevents cooldown restrictions.

C. Run three CRDM fans since this provides enhanced cooling and prevents cooldown restrictions.

D. Run four CRDM fans, this maximizes heat removal from the upper head region and provides assistance in cooldown.

Answer: D

Explanation/Justification:

A. Incorrect but plausible.

B. Incorrect but plausible.

C. Incorrect but plausible.

D. Correct. ES-0.2 step 2 RNO - start ALL CRDM fans

| | |
|---|---|
| Technical References: | 3-ES-0.2 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPE00 12 |
| Question Source: | Bank |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 1 |
| | K/A# | 0060002239<br>Equipment Control - Knowledge of less than or equal to one hour technical specification action statements for systems. | |
| | Importance | 3.9 | 4.5 |

Question # 86
Given:

- Unit 3 is in Mode 4 coming out of a refueling outage with 31 RHR Pump and 34 RCP in service.
- Both Recirculation Pumps are to be tagged out for a recirculation sump modification.
- All other equipment is operable and available.

What would be the result of this action?

A. This would NOT place the plant in an AOT because with both RHR pumps and heat exchangers available, one could be credited as ECCS recirculation subsystem.

B. Having both Recirculation Pumps inoperable would place the plant in a 1 hour AOT to restore at least 1 ECCS recirculation subsystem or be in Mode 5 in additional 24 hours.

C. Having both Recirculation Pumps inoperable would place the plant in an immediate action statement to be in Mode 5 in 6 hours.

D. Since RCPs and SGs are available for RCS heat removal, one train of RHR can be credited for ECCs injection and the other can be credited as ECCS recirculation subsystem.

Answer: B

Explanation/Justification:

New Question

Tech Spec 3.5.3 and basis. One train of RHR and one ECCS recirculation subsystem are required in Mode 4. Action B says you have one hour to restore the ECCS recirculation subsystem or be in Mode 5 in 24 hours.

A. Incorrect but plausible. There is recirculation capability with RHR, but it is not credited for this spec.

B. Correct

C. Incorrect but plausible. Plausible because this condition is not acceptable.

D. Incorrect but plausible. Plausible because RCPs and SGs are capable of removing all heat from RCS and the RHR system can perform these functions, however, this is not what is in Tech Specs.

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-SIS001 11 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 1 |
| | K/A# | 010000A202<br>Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Spray valve failures | |
| | Importance | 3.9 | 3.9 |

Question # 87

Unit 3 is operating at 100% power when spray valve 455A fails open. No other equipment malfunctions exist. Which of the following describes the appropriate response?

A. In accordance with 3-AOP-INST-1, Instrument or Controller Failures:
- Take controller to manual and attempt to close valve
- If this fails to close valve, pull controller fuse
- If this fails to close valve, trip the reactor
- Initiate E-0, Reactor Trip or Safety Injection

B. In accordance with 3-AOP-INST-1, Instrument or Controller Failures:
- Take controller to manual and attempt to close valve
- If this fails to close valve, pull controller fuse
- If this fails to close valve, trip the reactor and trip 33 and 34 RCPs
- Go To E-0, Reactor Trip or Safety Injection

C. In accordance with 3-ARP-003, Reactor Coolant System, Pressurizer Low Press Alarm:
- Take controller to manual and attempt to close valve
- If this fails to close valve, pull controller fuse
- If this fails to close valve, trip the reactor
- Initiate E-0, Reactor Trip or Safety Injection

D. In accordance with 3-ARP-003, Reactor Coolant System, Pressurizer Low Press Alarm:
- Take controller to manual and attempt to close valve

- If this fails to close valve, pull controller fuse
- If this fails to close valve, trip reactor and trip 33 and 34 RCPs
- Go To E-0, Reactor Trip or Safety Injection

Answer: D

Explanation/Justification:

New question

3-ARP-003 section for the Pressurizer Low Press alarm gives guidance to eventually trip the reactor and both 33 and 34 RCPs.

A. Incorrec but plausible. It is reasonable since there is a controller involved that INST-1 would be the appropriate procedure. Also it is plausible that RCPs would not be tripped until EOPs direct these actions.

B. Incorrect but plausible. See A.

C. Incorrect but plausible. See A.

D. Correct

| | |
|---|---|
| Technical References: | 3-ARP-003 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPINT 8 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 1 |
| | K/A# | 022000A206<br>Ability to (a) predict the impacts of the following malfunctions or operations on the CCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:<br>- Loss of CCS pump | |
| | Importance | 2.8 | 3.2 |

Question # 88

The following plant conditions exist:

- A Large Break Loss of Coolant Accident occurred.
- Bus 5A faulted when safeguards loads began loading on.
- 32 Containment Spray Pump tripped after running for 10 minutes.
- Procedure in effect E-1, “Loss of Reactor or Secondary Coolant”.
- Containment pressure is 25 psig and increasing.
- Containment Radiation level indicates 2 R/hr.

The Team transitions to FR-Z.1, "Response to High Containment Pressure" and upon completion of all steps in FR-Z.1, containment pressure is still 25 psig and stable.

At this point, you are required to:

A. Exit FR-Z.1 and return to E-1, “Loss of Reactor or Secondary Coolant” at the step in effect.

B. Remain in FR-Z.1 until the condition is no longer a RED priority.

C. Exit FR-Z.1 and enter FR-Z.3, “Response to High Containment Radiation Level”.

D. Remain in FR-Z.1 until the condition is no longer an ORANGE priority.

Answer: A

Explanation/Justification:

Duplicated from question no 15898

Significantly modified bank question

A. Correct answer. When actions of FR-Z.1 are complete it is exited.

B. Incorrect. Plausible because in most FRPs you remain in the procedure until the condition is clear. The condition is not Red, but this is easily confused since the procedure is "1" of this series.

C. Incorrect because the entry condtion for FR-Z.3 is 3 R/hr. Plausible because this is an elevated dose rate.

D. See B and this is the correct condition level.

| | |
|---|---|
| Technical References: | 2-FR-Z.1<br>2-FR-Z.1 BG<br>3-FR-Z.1<br>OAP-012 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-EOPFRZ 11 |
| Question Source: | Modified |
| Question History: | NA |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 1 |
| | K/A# | 0590002123<br>Conduct of Operations - Ability to perform specific system and integrated plant procedures during all modes of plant operation. | |
| | Importance | 4.3 | 4.4 |

Question # 89

A plant startup is in progress and the first main boiler feed pump is being placed in service in accordance with 3-SOP-FW-1, Main Feedwater System Operation. Which of the following statements is correct regarding opening of the MBFP discharge MOV using the flight panel switch?

If an SI or FW isolation signal were generated while the valve is stroking open,

A. the valve will NOT go closed as required. For this reason 3-SOP-FW-1 does NOT allow opening both MOVs at the same time and an AOT is entered due to LCO 3.7.3 NOT being satisfied for the brief time the valve is stroking open.

B. the valve will NOT go closed as required. However, the basis for LCO 3.7.3 credits manual action for closing these valves. Therefore, an AOT is NOT entered.

C. the valve will go closed after going fully open. The total stroke time of valve could exceed accident assumptions. Therefore, 3-SOP-FW-1 does NOT allow opening both MOVs at the same time and an AOT is entered due to LCO 3.7.3 NOT being satisfied for the brief time the valve is stroking open.

D. the valve will go closed as required. Because of this, there are no AOT entries or procedural limits due to having an SI or FW isolation signal while opening these valves.

Answer: D

Explanation/Justification:

New Question

3-SOP-FW-001 P&L 2.12
These valves were modified to eliminate a problem U3 had with operability while opening the valves. Therfore all distractors are plausible.

A. Incorrect but plausible.

B. Incorrect but plausible

C. Incorrect but plausible

D. Correct

| | |
|---|---|
| Technical References: | 3-SOP-FW-001 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-MFW001 2 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 1 |
| | K/A# | 063000A201<br>Ability to (a) predict the impacts of the following malfunctions or operations on the D.C. Electrical System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Grounds | |
| | Importance | 2.5 | 3.2 |

Question # 90

Given:

- Unit 3 is operating at 100% power
- A ground on 34 Battery Charger causes a loss of power to 34 DC Power Panel.
- 34 Battery Charger is damaged by the ground
- 34 DC Power Panel and 34 Battery are NOT damaged.

Which of the following is correct regarding the impact of this event and what actions, if any, can be taken?

A. 34 Instrument Bus will lose power. 3-AOP-IB-1, Loss of Power to an Instrument Bus, will address this by powering the bus from MCC-36C.

B. 34 Instrument Bus will lose power. 3-AOP-IB-1, Loss of Power to an Instrument Bus, will address this by powering the bus from MCC-36B.

C. 34 Instrument Bus will remain energized. 3-AOP-DC-1, Loss of a 125V DC panel, will provide direction to re-energize 34 DC Panel using 35 Battery Charger.

D. 34 Instrument Bus will remain energized. 3-AOP-DC-1, Loss of a 125V DC panel, will NOT allow re-energizing 34 DC Panel using 35 Battery Charger because the plant is above Mode 5.

Answer: C

Explanation/Justification:

A. Incorrect because 34 Instrument Bus will remain energized. Plausible because 34 Instrument Bus used to not automatically switch to a backup power source. Additionally, there are two back up feeds; one from MCC-36B and the other from MCC-36C.

B. See A

C. Correct

D. Incorrect because the procedure would use 35 BC. Plausible because there are restrictions on using 35 BC above 200F due to the potential for cross-tying busses.

| | |
|---|---|
| Technical References: | 3-AOP-DC-1<br>3-SOP-EL-003 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPDC1 D |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 2 |
| | K/A# | 014000A201<br>Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Loss of offsite power | |
| | Importance | 2.8 | 3.3 |

Question # 91

Unit 3 is operating at 100% with the IRPI System in a normal lineup. Offsite power is lost, and the plant remains on line and all equipment functions as designed. How does this affect power to IRPIs, and what are the Tech Spec actions , if any, regarding Rod Control if power is lost to IRPIs?

A. The IRPIs will lose power since the primary power supply is MCC-39. Rod Control must immediately be placed in Manual to comply with Tech Specs.

B. The IRPIs will lose power since the primary power supply is MCC-39. There are no Tech Spec requirements for Rod Control based on IRPIs.

C. The IRPIs will have power since the primary power supply is MCC-36C. If IRPIs had been on backup power (MCC-39), they would have lost power, and Rod Control must immediately be placed in Manual to comply with Tech Specs.

D. The IRPIs will have power since the primary power supply is MCC-36C. If IRPIs had been on backup power (MCC-39), they would have lost power. However, there are no Tech Spec requirements for Rod Control based on IRPIs.

Answer: C

Explanation/Justification:

Reference LCO3.1.7 and SOP-RC-1

A. Incorrect but plausible if power supply is confused.

B. Incorrect but plausible if power supply is confused. It's also plausible that rod control in manual is not in T.S. since generally rods control's only T.S. function is to be in the correct position and drop when needed.

C. Correct answer.

D. . Incorrect but plausible. It is plausible that rod control in manual is not in T.S. since generally rods control's only T.S. function is to be in the correct position and drop when needed.

| | |
|---|---|
| Technical References: | 3-SOP-RC-001<br>Syst Desc 16.1<br>Syst Desc 16.2<br>Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ICRPI F |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 2 |
| | K/A# | 034000K601<br>Knowledge of the effect of a loss or malfunction of the following will have on the Fuel Handling System: - Fuel handling equipment | |
| | Importance | 2.1 | 3 |

Question # 92

You are the Refueling SRO during core re-load. As part of the re-load sequence, new fuel assemblies are being transferred from the New Fuel Racks to the SFP. While attempting to raise the empty New Fuel Elevator, the motor fails. Which of the following describes how core re-load may continue without the New Fuel Elevator as per 3-SOP-RP-022, Movement of New and Spent Fuel in the Spent Fuel Pool?

A. Use a long handled tool to allow placing new fuel assemblies in the appropriate SFP location using the overhead crane.

B. Place new fuel assemblies in the appropriate SFP location using the overhead crane. RP will have to be notified since the crane hook and cables will become contaminated.

C. Place new fuel assemblies in the SFP Upender using the overhead crane.

D. Only movement of fuel assemblies already in the SFP may continue. There is no procedurally allowed method of putting new fuel assemblies in the SFP without the New Fuel Elevator.

Answer: D

Explanation/Justification:

A. Incorrect because there is no authorized means of putting new fuel assemblies in the SFP w/o the New Fuel Elevator. Plausible because we do have long handled tools.

B. Incorrect (see A). Plausible because this physically could work.

C. Incorrect (see A). Plausible because this physically could work.

D. Correct answer.

| | |
|---|---|
| Technical References: | 3-SOP-RP-022 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-FHD001 D |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 7 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 2 |
| | Group# | | 2 |
| | K/A# | 0450002404<br>Emergency Procedures/Plan - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | |
| | Importance | 4.5 | 4.7 |

Question # 93

Unit 3 is starting up following an outage and the plant is at 30% power and 300 MWe. Troubleshooting of an oil leak on a main turbine stop valve is in progress which leads to two stop valves going closed. Which of the following describes the required action, if any, in accordance with 3-AOP-LOAD-1, Excessive Load Increase or Decrease?

A. Since power is below the P-8 setpoint, no action is required provided at least one valve can be re-opened within 30 minutes.

B. Since power is below the P-8 setpoint, trip the main turbine and go to 3-AOP-TURB-1, Main Turbine Trip without a Reactor Trip.

C. Trip the reactor and go to E-0, Reactor Trip or Safety Injection.

D. Since power is below 50%, no action is required provided at least one valve can be re-opened within 30 minutes.

Answer: B

Explanation/Justification:

K/A justification. Knowledge of whether or not continued plant operation is allowed while the initiating problem is fixed, clearly matches the K/A. The question tests this knowledge.

A. Incorrect but plausible since there are procedure differences above and below P-8. The 30 minutes adds plausibility.

B. Correct per 3-AOP-LOAD-1 step 4.27

C. Incorrect but plausible if a candidate either has difficulty remembering P-8 setpoint or if this matters for 3-AOP-LOAD-1.

D. Incorrect but plausible since the concern is for turbine damage that could take time to develop.

| | |
|---|---|
| Technical References: | 3-AOP-LOAD-1 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPLOD B |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 1 |
| | K/A# | 1940012106<br>Conduct of Operations - Ability to manage the control room crew during plant transients. | |
| | Importance | 3.8 | 4.8 |

Question # 94

3-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, provides guidance for the Shift Manager to coordinate operating crew activities necessary to shut down the reactor and maintain stable Mode 3 conditions when the plant cannot be safely controlled from the Control Room. This procedure is designed to successfully achieve these goals under which one of the following facility conditions?

A. If there is NO accident occurring during shutdown.

B. If there is ANY accident occurring during shutdown.

C. If there is ANY accident occurring during shutdown EXCEPT accidents requiring entry into SAMGs.

D. If there is no accident occurring during shutdown EXCEPT loss of coolant accidents.

Answer: A

Explanation/Justification:

This question is modified slightly to match KA and SRO question requriements. Question 24420 is the earlier version.

Technical References: 3-AOP-SSD-1
Proposed References to be provided: None

Learning Objective

| | |
|---|---|
| Question Source: | Bank |
| Question History: | Browns Ferry 2001 INPO 21102 |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 1 |
| | K/A# | 1940012107<br>Conduct of Operations - Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. | |
| | Importance | 4.4 | 4.7 |

Question # 95

Given:

- A small break LOCA has occurred
- RCS Pressure is 1030 and stable
- Core Exit Thermocouple Temperatures are approximately 550°F and stable
- RCPs are secured

Which of the following statements is true for the current plant conditions and what actions should be taken?

A. RVLIS Full Range indication is decreasing. Initiating a cooldown in accordance with 3-ES-1.2, Post LOCA Cooldown and Depressurization, will re-establish subcooling, RCS inventory will stabilize.

B. RVLIS Full Range is stable. Initiating a cooldown in accordance with 3-ES-1.2, Post LOCA Cooldown and Depressurization, will re-establish subcooling, RCS inventory will increase.

C. RVLIS Full Range is indication is decreasing. Starting an RCP in accordance with 3-E-1, Loss of Reactor or Secondary Coolant, will reduce the $\Delta T$ across the core; break flow will decrease

D. RVLIS Full Range is stable. Starting an RCP in accordance with 3-E-1, Loss of Reactor or Secondary Coolant, will reduce the $\Delta T$ across the core; break flow will decrease.

Answer: A

Explanation/Justification:

A. Correct. A cooldown with RCS saturated will decrease RCS pressure, SI flow will increase. Eventually, breakflow and SI flow will equalize.

B. Incorrect. Plausible because a cooldown is established in ES-1.2; however, RCS inventory will stabilize with break flow equal to SI flow.

C. Incorrect. Plausible because starting an RCP is desired if conditions can be established to support its operation. An RCP is started in ES-1.2 (if conditions permit) not E-1.

D. Incorrect. Plausible because starting an RCP is desired if conditions can be established to support its operation. An RCP is started in ES-1.2 (if conditions permit) not E-1.

| | |
|---|---|
| Technical References: | I0LP-ILO-MCD001 |
| Proposed References to be provided: | None |
| Learning Objective | I0LP-ILO-MCD001 6 |
| Question Source: | New |
| Question History: | NA |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 2 |
| | K/A# | 1940012214<br>Equipment Control - Knowledge of the process for controlling equipment configuration changes or status. | |
| | Importance | 3.9 | 4.3 |

Question # 96

Which situation would require a Temporary Modification?

A. Leaving a pump suction strainer installed following flushing.

B. Lifting a lead as part of troubleshooting activities.

C. Installing a temporary hose to direct water from vent to drain a pump tagged out for maintenance.

D. Installing a jumper on tagged out equipment using an approved work order.

Answer: A

Explanation/Justification:

EN-DC-136, Temporary Modifications describes what would constituted a temp mod. Attachment 1 flowchart is the easiest reference to use from the procedure. The three wrong answers all involve systems that are not in service at the time of the change. This would exclude them from being temp mods. Answer A would meet the criteria.

INPO Bank 22532

Diablo Canyon Unit 1 10/1/2002

Which situation would require a Temporary Modification (TMOD)?

Answer:

Leaving a pump suction strainer installed following flushing.

Distract 1:

Installing a temporary hose to drain a pump cleared for maintenance.

Distract 2:

Lifting a lead as part of a surveillance test.

Distract 3:

Installing a jumper on cleared equipment using an approved work order.

| | |
|---|---|
| Technical References: | EN-DC-136 |
| Proposed References to be provided: | None |

Learning Objective

| | |
|---|---|
| Question Source: | Bank |
| Question History: | Diablo Canyon Unit 1 10/1/2002 |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 3 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 3 |
| | K/A# | 1940012304<br>Radiological Controls - Knowledge of radiation exposure limits under normal and emergency conditions. | |
| | Importance | 3.2 | 3.7 |

Question # 97

A plant shutdown is required due to the gross specific activity of the reactor coolant NOT being within limits.

Which one of the following is the reason Technical Specifications require TAVG to be reduced to less than $500^0$F following the reactor shutdown?

A. Slows the release of noble gas to the reactor coolant, reducing the source term of the activity.

B. Minimizes the temperature related degradation of the CVCS demineralizers while RCS clean-up is in progress.

C. Prevents the direct release of activity to the environment via the S/G safety valves in the event of a S/G tube rupture.

D. Minimizes the magnitude of the iodine spiking phenomena caused by the unit shutdown.

Answer: C

Explanation/Justification:

INPO Bank 20683

Point Beach Unit 1 2/2/2002

Original Question

A plant shutdown is required due to the gross specific activity of the reactor coolant not being within limits.

Which one of the following is the reason Technical Specifications require TAVG to be reduced to less than 500F following the reactor shutdown?

Answer:

Prevents the direct release of activity to the environment via the S/G safety valves in the event of a S/G tube rupture.

Distract1:

Slows the release of noble gas to the reactor coolant, reducing the source term of the activity.

Distract2:

Minimizes the temperature related degradation of the CVCS demineralizers while RCS clean-up is in progress.

Distract3:

Minimizes the magnitude of the iodine spiking phenomena caused by the unit shutdown.

A. Incorrect but plausible.

B. Incorrect but plausible.

C. Correct per T.S. 3.16 and Basis

D. Incorrect but plausible.

| | |
|---|---|
| Technical References: | Tech Specs |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPACT 5 |
| Question Source: | Bank |
| Question History: | Point Beach Unit 1 2/2/2002 |

| | |
|---|---|
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 3 |
| | K/A# | 1940012305<br>Radiological Controls - Ability to use radiation monitoring systems, such as fixesd radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. | |
| | Importance | 2.9 | 2.9 |

Question # 98

You have just declared R-15, Air Ejector Exhaust Gas Activity, inoperable with Unit 3 at 100% power. Which of the following describes the actions required to be taken by the Watch HP in accordance with OAP-035, Technical Specifications and Technical Requirements Manual – License Adherence and Use?

A. Take periodic micro-R readings at steam jet air ejectors.

B. Take periodic micro-R readings at designated spots on the blowdown lines.

C. Take periodic micro-R readings at a designated spot on R-15 piping.

D. Take periodic micro-R readings at designated spots on the main steam lines.

Answer: C

Explanation/Justification:

A. Incorrect but plausible. The chemist will be taking 8 hour samples og SGs.

B. Incorrect but plausible. Readings on the steam lines would indicate a SGTL, however probably not sensitive enough.

C. Correct as per OAP-035

D. Incorrect but plausible. Readings on the steam lines would indicate a SGTL, however probably not sensitive enough.

| | |
|---|---|
| Technical References: | OAP-035 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-RMSPRM H |
| Question Source: | New |
| Question History: | N/A |
| Question Cognitive Level: | Fundamental Knowledge |
| 10 CRF Part 55 Content: | 55.43 (b) 2 |

Comments

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 4 |
| | K/A# | 1940012411<br>Emergency Procedures/Plan - Knowledge of abnormal condition procedures. | |
| | Importance | 4 | 4.2 |

Question # 99

Given the following initial conditions on Unit 3:

- An RCS Cooldown is in progress in accordance with 3-POP-3.3, Plant Cooldown Hot to Cold Shutdown
- RCS Temperature is 325°F
- RCS Pressure is 350 psig.
- RCS is being cooled down using RHR.

A few minutes ago a Containment Area Rad monitor alarmed. The crew noted the following:

- PZR Level is DECREASING.
- Letdown is ISOLATED.
- Charging flow is 125 gpm.

Which procedure contains steps to mitigate this event?

A. ONOP-RCS-8, LOCA in Mode 3 or 4 with Accumulators Isolated.

B. 3-AOP-LEAK-1, Sudden Increase in Reactor Coolant System Leakage.

C. 3-AOP-RHR-1, Loss of RHR.

D. 3-AOP-AIR-1, Air Systems Malfunction.

Answer: A

Explanation/Justification:

INPO 20416

Byron Unit 1 10/29/2001

Given the following initial conditions on Unit 1:
- MODE 3 operations were in progress after a normal shutdown and cooldown in accordance with all procedures.
- RCS Pressure was manually depressurized to 900 psig.
- RCS was being cooled down by dumping steam to the condenser at 50F per hr.
- SI Accumulators were ISOLATED as pressure was reduced below 1000 psig.

A few minutes ago a Containment Area Rad monitor alarmed. The crew noted the following:
- PZR Level is DECREASING.
- Letdown is ISOLATED.
- Charging flow is 150 gpm.

Actions to mitigate this situation are contained in . . .

Answer:
1BwOA S/D-2 SHUTDOWN LOCA.

Distract1:
1BwOA PRI-10 LOSS OF RH COOLING.

Distract2:
1BwOA PRI-1 EXCESSIVE PRIMARY PLANT LEAKAGE.

Distract3:
1BwOA SEC-4 LOSS OF INSTRUMENT AIR

A. Correct

B. Incorrect but plausible because this procedure could be entered, but it will not take actions.

C. Incorrect but plausible because RHR-1 has actions to go on recirc, but the entry conditions are not met

D. Incorrect but plausible because several of the indications could be caused by a loss of instrument air.

| | |
|---|---|
| Technical References: | 3-ONOP-RCS-8 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-ONPRCS 1 |
| Question Source: | Bank |
| Question History: | Byron Unit 1 10/29/2001 |

| | |
|---|---|
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |
| Comments | |

| Exam Outline Cross Reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier# | | 3 |
| | Group# | | 4 |
| | K/A# | 1940012432<br>Emergency Procedures/Plan - Knowledge of operator response to loss of all annunciators. | |
| | Importance | 3.6 | 4 |

Question # 100

Unit 3 is at 100% power when the ATC notices that the normal alarms on the supervisory panel are NOT lit. He performs an alarm test on the supervisory panels and none of the alarms work. Further investigation reveals that 31 DC Distribution Panel Circuit 11 Breaker has tripped and will NOT reset. Maintenance reports that it will take a minimum of an hour to resolve the issue. What actions are required based on this condition as per 3-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators and IP-EP-120, Emergency Classification?

A. Trip the reactor, take required compensatory monitoring actions, and declare an NUE.

B. Trip the reactor, take required compensatory monitoring actions and declare an ALERT.

C. Maintain power stable, take required compensatory monitoring actions, and declare an ALERT.

D. Maintain power stable, take required compensatory monitoring actions, and declare an NUE.

Answer: D

Explanation/Justification:

INPO Bank 21167
Dresden Unit 2 6/14/2002

Unit 2 was at rated conditions when "ANNUN DC PWR FAILURE" alarms are received on several panels simultaneously.

A bell inside 902-4 sounds

Which of the following describes the expected operator actions?

Answer: Determine the cause of the loss of annunciators. The Shift Manager should evaluate for a possible GSEP condition.

Distract1. Scram the reactor due to the loss of annunciators. The Shift Manager should evaluate for a possible GSEP condition.

Distract2. Verify that the normal AC power supply is still available by performing an annunciator checks on each effected panel. Notification of the Shift Manager is NOT required.

Distract3. Verify that the normal AC power supply is still available by performing an annunciator checks on each effected panel. Notification of the Shift Manager is required.

A. Incorrect but plausible because tripping the reactor could be required.

B. Incorrect but plausible (seeA) ALERT would be appropriate declaration if a transient is in progress.

C. Incorrect but plausible since an operator could confuse which level of declaration is required..

D. Correct

| | |
|---|---|
| Technical References: | 3-AOP-ANNUN-1<br>IP-EP-120 |
| Proposed References to be provided: | None |
| Learning Objective | I3LP-ILO-AOPANN 6 |
| Question Source: | Modified |
| Question History: | Dresden Unit 2 6/14/2002 |
| Question Cognitive Level: | Comprehension |
| 10 CRF Part 55 Content: | 55.43 (b) 5 |

Comments