

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Partial or Complete Loss of AC / 6

Group #

1

Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : (CFR: 41.10 / 43.5 / 45.13)

K/A # 295003

AA2.05

Whether a partial or complete loss of A.C. power has occurred

Importance Rating

4.2

Proposed Question:

The plant is shutdown for a Refueling outage. Site electrical power is being provided from the 115 KV system. The only deviation from the normal alignment is that disconnect 10017, North-South Bus Disconnect, is currently OPEN. From this condition, circuit breaker 10022, (LHH-FITZ 115 KV LINE 3 BKR), trips.

Which one of the following identifies the expected procedural response?

RO/SRO

S1

- a) AOP-16, Loss of 10300 Bus and AOP-18, Loss of 10500 Bus
- b) AOP-17, Loss of 10400 Bus and AOP-19, Loss of 10600 Bus
- c) AOP-57, Recovery from Residual Bus Transfer
- d) AOP-49A, Station Blackout In Cold Condition

Proposed Answer:

b) AOP-17, Loss of 10400 Bus and AOP-19, Loss of 10600 Bus

Explanation (Optional):

Technical Reference(s):

OP-44, AOP-17

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

SDLP-71D, EO-1.05.a, 1.06, 1.09

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

5

55.43

5

Comments:

| | | | |
|---|--|---------------------------------|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | Group # | 1 | 1 |
| Knowledge of facility ALARA program. (CFR: 41.12 / 43.4 / 45.9 / 45.10) | K/A # 295001 | 2.3.2 | 2.3.2 |
| | Importance Rating | 2.5 | 2.9 |
| Proposed Question: | <p>During 100% power, the Shift Manager authorizes an entry into the Steam Affected Area to find the source of a new steam leak. The Operator is given a time limit for the search based on expected dose rates. Just as the Operator enters the Steam Affected Area, an announcement is made that 'A' Recirculation Pump has tripped.</p> <p>The Operator should recognize</p> <p>a) dose rates are less than expected and contact RP to request a verbal time extension.</p> <p>b) dose rates are the same as expected and immediately leave the area due to the change in plant conditions.</p> <p>c) dose rates are the same as expected and leave the area when the time limit is expired.</p> <p>d) dose rates are less than expected and immediately leave the area due to the change in plant survey conditions.</p> | | |
| RO/SRO | | | |
| 1/2 | | | |
| Proposed Answer: | d) dose rates are less than expected and immediately leave the area due to the change in plant survey conditions. | | |
| Explanation (Optional): | <p>Distractor 'A' -AP-7.01, RWP Program would be violated – no provision for verbal changes to a RWP, would require new survey data & time to route for approval.</p> <p>Requires recognition that SAA dose rates are power dependant & drop as power drops, also understand requirement to immediately leave area due to change from survey conditions.</p> | | |
| Technical Reference(s): | AP-7.01, AP-7.03, AP-7.06 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | LPAP-7.01, EO-26.02 | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | X |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 12 | |
| | 55.43 | 4 | |

Comments:

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|---|---|---------------------------------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Partial or Complete Loss of AC / 6 | Group # | 1 | 1 |
| Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : (CFR: 41.10 / 43.5 / 45.13) | K/A # 295003 | AA2.01 | AA2.01 |
| Cause of partial or complete loss of A.C. power | Importance Rating | 3.4 | 3.7 |
| Proposed Question: | From a normal full power operating condition, a complete and instantaneous loss of bus 10500 occurs. All equipment functions as designed. Several minutes after the loss, the bus is still deenergized. | | |
| | Which one of the following is the cause? | | |
| | a) Loss of DC Control Power to bus 10500 | | |
| RO/SRO | b) Actuation of the bus 10500 Degraded Bus Voltage timer | | |
| 2/3 | c) Ground fault trip of circuit breaker 10514 | | |
| | d) Overcurrent condition on CRD pump A motor | | |
| Proposed Answer: | c) Ground fault trip of circuit breaker 10514 | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-18 (Attach if not previously provided) | | |
| | ARP-09-8-2-8 | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-71E, EO-1.05.C, 1.10, SDLP-71O, EO-1.23 (As available) | | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Partial or Total Loss of DC Pwr / 6 | Group # | 1 | 1 |
| Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: (CFR: 41.7 / 45.8) | K/A # 295004 | AK2.01 | AK2.01 |
| Battery charger | Importance Rating | 3.1 | 3.1 |

Proposed Question: A reactor startup is in progress at 5 % power when the following indications occur:

- 09-8-1-1, UPS INPUT DC VOLT LO
- 09-5-2-28, MAIN TURBINE EHC DC POWER LOSS TRIP
- Loss of breaker position indication on; 10100, 10300, 10500 and 10700 busses

Which one of the following is consistent with the above indications?

| | |
|--------|--|
| RO/SRO | a) 09-8-1-22, 125 VDC BATT CHGR B AC SUPP TROUBLE and 09-4-3-10, RWR MG B GEN LOCKOUT |
| 3/4 | b) 09-8-1-19, 125 VDC BATT CHGR A AC SUPP TROUBLE and 09-8-1-20, 125 VDC BATT A VOLT LO |
| | c) 09-8-1-19, 125 VDC BATT CHGR A AC SUPP TROUBLE and 09-4-3-1, RWR MG A GEN LOCKOUT |
| | d) 09-8-1-22, 125 VDC BATT CHGR B AC SUPP TROUBLE and 09-8-1-23, 125 VDC BATT B VOLT LO |

Proposed Answer: b) 09-8-1-19, 125 VDC BATT CHGR A AC SUPP TROUBLE and
09-8-1-20, 125 VDC BATT A VOLT LO

Explanation (Optional): The correct response, "b)" are direct symptoms of AOP-45, LOSS OF DC POWER SYSTEM A.
The incorrect responses require stem evaluation to conclude that only the "A" Division is affected and recognition that "A" Busses are powered by 115 KV and therefore will NOT de-energize.

Technical Reference(s): AOP-45 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-71B, EO-1.05.A.2, 1.13A (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content:

55.41

8

55.43

Comments:

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|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Main Turbine Generator Trip / 3 | Group # | 1 | 1 |
| Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: (CFR: 41.7 / 45.8) | K/A # 295005 | AK2.07 | AK2.07 |
| Reactor pressure control | Importance Rating | 3.6 | 3.7 |

Proposed Question: The following conditions exist while performing a shutdown for a refueling outage:

- Reactor power is 29%.
- Recirculation flow is at minimum.
- A Main Turbine Trip occurs.

Which of the following is the correct plant and procedural response?

RO/SRO

4/5

- Turbine Bypass Valves may be able to control RPV pressure. Supplement RPV pressure control by opening Main Steam Line Drains.
- Turbine Bypass Valves are not able to control RPV pressure. A manual scram is required unless opening available steam drains is capable of controlling RPV pressure.
- Turbine Bypass Valves may be able to control RPV pressure. A manual SCRAM is required due to the loss of feedwater heating.
- Turbine Bypass Valves are not able to control RPV pressure. Insert Cram Groups per Reactor Analyst Instructions.

Proposed Answer: c) Turbine Bypass Valves may be able to control RPV pressure. A manual SCRAM is required due to the loss of feedwater heating.

Explanation (Optional): AOP-2 requires an immediate manual SCRAM if Power is $\geq 29\%$ CTP, making "C" the correct response. With 25% BPV capacity and 3-5 % steam loads for auxiliary uses (RFP's, SJAE's, Steam Seals, etc.), the BPV's may be capable of controlling RPV pressure. Although possible, the BPV's may NOT be capable of controlling RPV pressure, the AOP-2 manual SCRAM requirement is not conditional on actions to control RPV pressure at $\geq 29\%$. At $< 29\%$ "B" may be correct. "D" is always incorrect in that no CRAM Groups exists at $< 70\%$ Rod Line. "A" is not correct because a Rx SCRAM is required.

Technical Reference(s): OP-9, AOP-2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-94C, EO-1.10.K (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New New

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

7

55.43

Comments:

| | | | |
|---|---|--|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| SCRAM / 1 | Group # | 1 | 1 |
| Knowledge of the operational implications of the following concepts as they apply to SCRAM : | K/A # 295006 | AK1.03 | AK1.03 |
| (CFR: 41.8 to 41.10) | | | |
| Reactivity control | | | |
| | Importance Rating | 3.7 | 4.0 |
| Proposed Question: | The Control Room Supervisor orders you to insert a manual scram because power is unexpectedly rising. Which of the following responses indicates that the scram has successfully controlled reactivity under all conditions? | | |
| | a) Reactor power dropping rapidly through the IRM and SRM ranges. b) 6 rods indicate position 02, remaining rods indicate position 00. c) 1 rod indicates 48, 1 rod at 10, remaining rods indicate position 00. d) Annunciators, 09-5-1-13, RPS A MAN SCRAM and 09-5-1-14, RPS B MAN SCRAM are in alarm. | | |
| RO/SRO | | | |
| 5/6 | | | |
| Proposed Answer: | b) 6 rods indicate position 02, remaining rods indicate position 00. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-1, EP-1 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | LP-AOP, EO-2.01, EOP2LP, EO-1.07 (As available) | | |
| Question Source: | Bank # | Dresden 2 INPO Bank # 6558 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 3/11/1996 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 6 | |
| | 55.43 | | |
| Comments: | | | |

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|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Control Room Abandonment / 7 | Group # | 1 | 1 |
| Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and the following: (CFR: 41.7 / 45.8) | K/A # 295016 | AK2.03 | AK2.03 |
| Control room HVAC | Importance Rating | 2.9 | 3.1 |

Proposed Question: During normal full power steady-state operation, a 55-gallon drum of diesel fuel is inadvertently spilled in the Ventilation Equipment Room just west of the Control Room. In a short time the Control Room Operators sense a strong concentration of gaseous fumes, which are becoming progressively more irritating to them.

Which of the following sequences would be expected by the Crew?

Place the Control Room Ventilation ISOL & Purge CNTRL switch in _____; if conditions continue to worsen, consider entry into _____.

| | |
|--------|--|
| RO/SRO | a) ISOLATE; AOP-43, Plant Shutdown From Outside the Control Room |
| 6/7 | b) ISOLATE; AOP-28, Operation during Plant Fires |
| | c) PURGE; AOP-43, Plant Shutdown From Outside the Control Room |
| | d) PURGE; AOP-28, Operation during Plant Fires |

Proposed Answer: c) PURGE; AOP-43, Plant Shutdown From Outside the Control Room

Explanation (Optional): Although a flammable liquid, AOP-28 is only entered for a confirmed fire. As a Toxic Gas is entering the Control Room environment, AOP-43 entry is warranted. Operating Control Room Ventilation in the ISOLATE Mode will trap the toxic gas in the Control Room while the PURGE Mode will turnover the Control Room atmosphere volume to outside air.

Technical Reference(s): AOP-43, OP-55B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____ None

Learning Objective: LPAOP, EO-1.03.A, SDLP-70, EO-1.06 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New NEW

Question History: Last NRC Exam _____

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis _____ X

10 CFR Part 55 Content: 55.41 10

55.43 _____

Comments: _____

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Partial or Total Loss of CCW / 8 | Group # | 1 | 1 |
| Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : (CFR: 41.8 to 41.10) | K/A # 295018 | AK1.01 | AK1.01 |
| Effects on component/system operations | Importance Rating | 3.5 | 3.6 |

Proposed Question: The plant is operating at 90% power with one Reactor Building Closed Loop Cooling (RBCLC) pump tagged out of service. An electrical problem causes the two running RBCLC pumps to trip.

Operators have the ability to restore cooling via Emergency Service Water to EACH of the following EXCEPT:

| | |
|--------|--|
| RO/SRO | a) RWCU Non- Regenerative Heat Exchanger |
| 7/8 | b) Drywell Cooling Assemblies |
| | c) Recirculation Pump Seal Coolers |
| | d) Drywell Equipment Sump Cooler |

Proposed Answer: a) RWCU Non- Regenerative Heat Exchanger

Explanation (Optional):

Technical Reference(s): AOP-11 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-15, EO-1.09, SDLP-46B, EO-1.06.B (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 7

55.43

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|--|--------------|-------------------|-------------------|
| | Tier # | 1 | 1 |
| Partial or Total Loss of Inst. Air / 8 | Group # | 1 | 1 |
| Knowledge of refueling administrative requirements. | K/A # 295019 | 2.2-26 | 2.2-26 |
| | | 2.1.7 | 2.1.7 |

(RANDOMLY RESELECTED)

Ability to evaluate plant performance and make Operational Judgements based on operating characteristics/reactor behavior and instrument interpretation.

(CFR: 43.5 /45.12 / 45.13)

| | | |
|-------------------|----------------|----------------|
| Importance Rating | 2.5 | 3.7 |
| | 3.7 | 4.4 |

Proposed Question: The plant is in a refueling outage. The spent fuel pool gates are removed. Thirty, (30) minutes after a complete loss of Instrument Air occurs, you note that 09-4 Refuel Water Level (02-3LI-86) indicates that RPV Level has risen several inches over the last hour.

Which of the below is the probable cause?

- | | |
|--------|---|
| RO/SRO | a) RWCU Blowdown Flow Control Valve (12FCV-55) failed closed. |
| 8/9 | b) In-Service CRD Flow Control Valve (03FCV-19A/B) failed open. |
| | c) In-Service Fuel Pool Filter/ Demineralizer has isolated. |
| | d) Feedwater Low Flow Control Valve, (34FCV-137), loss of air signal. |

Proposed Answer: a) RWCU Blowdown Flow Control Valve (12FCV-55) failed closed.

Explanation (Optional): Question forces conclusion that CRD is in service and the RWCU Blowdown Mode is being used for level control. CRD FCV's fail closed on loss of air while FW Low Flow Control Valve fails As IS. FPCC has no effect on level.

Technical Reference(s): AOP-12, SDLP-39 1.09f,j (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LPAOP, EO-1.10 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 4,7,10

55.43 5

Comments:

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|---|---|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Loss of Shutdown Cooling / 4 | Group # | 1 | 1 |
| Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING : (CFR: 41.7 / 45.6) | K/A # 295021 | AA1.04 | AA1.04 |
| Alternate heat removal methods | Importance Rating | 3.7 | 3.7 |
| Proposed Question: | <p>The plant is in an outage with the RBCLC System out of service when a loss of shutdown cooling occurs. The cavity is flooded and the spent fuel pool gates are installed. The current decay heat load of the core and spent fuel pool is 1.8×10^6 BTU/hr. Which decay heat removal lineup listed below will provide sufficient decay heat removal?</p> <p>a) RWCU in blowdown mode – leave gates installed.</p> <p>b) Fuel pool cooling system – remove gates.</p> <p>c) Decay heat removal system – leave gates installed.</p> <p>d) RWCU in recirculation mode – remove gates.</p> | | |
| RO/SRO | | | |
| 9/10 | | | |
| Proposed Answer: | a) RWCU in blowdown mode – leave gates installed. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | <u>AOP-30</u> (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | <u>AOP-30, Attachment 3</u> | | |
| Learning Objective: | <u>SDLP-10, EO 1.15.a</u> (As available) | | |
| Question Source: | <u>Bank # JAF LOR 20004206B02C Rev.2</u> <u>Modified Bank #</u> (Note changes or attach parent) <u>New</u> | | |
| Question History: | <u>Last NRC Exam</u> | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | <u>Memory or Fundamental Knowledge</u> <u>Comprehension or Analysis</u> | | |
| 10 CFR Part 55 Content: | <u>55.41 8</u> <u>55.43</u> | | |
| Comments: | | | |

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|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Refueling Acc Cooling Mode / 8 | Group # | 1 | 1 |
| Knowledge of the reasons for the following responses as they apply to REFUELING ACCIDENTS : (CFR: 41.5 / 45.6) | K/A # 295023 | AK3.02 | AK3.02 |
| Interlocks associated with fuel handling equipment | Importance Rating | 3.4 | 3.8 |

Proposed Question: Fuel Handling operations are in progress. The following conditions exist:

- Mode switch in REFUEL
- Fuel Grapple NOT loaded
- Fuel Grapple full up
- One (1) control rod selected and fully withdrawn
- Bridge over the Spent Fuel Pool

From these conditions, which one (1) of the following restrictions occurs and why?

| | |
|--------|---|
| RO/SRO | a) Bridge motion near or over the core will not be permitted to prevent bridge operator overexposure. |
| 10/11 | b) Bridge motion near or over the core will not be permitted to prevent inadvertent criticality. |
| | c) A second control rod selected will cause a rod block to prevent bridge operator overexposure. |
| | d) A second control rod selected will cause a rod block to prevent inadvertent criticality. |

Proposed Answer: d) A second control rod selected will cause a rod block to prevent inadvertent criticality.

Explanation (Optional): JAF Safety Evaluation-96-013 R.3
 FSAR Section 14.6.1.4 Refueling Accidents. "The refueling interlocks, which impose restrictions on the movements of refueling equipment and control rods, prevent inadvertent criticality during refueling operations...."

Technical Reference(s): ST-20F (Attach if not previously provided)
JAF Safety Evaluation-96-013 R.3

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-08B, EO-1.02, 1.05.B (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 5

55.43

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|--|--------------|--------|--------|
| | Tier # | 1 | 1 |
| High Drywell Pressure / 5 | Group # | 1 | 1 |
| Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE : (CFR: 41.8 to 41.10) | K/A # 295024 | EK1.01 | EK1.01 |
| Drywell integrity: Plant-Specific | | | |

Importance Rating 4.1 4.2

Proposed Question: From full power operation, a SCRAM occurs due to a sudden loss of coolant in the primary containment. Following the initial SCRAM response, Operators note the following:

- Drywell pressure..... 6 psig (rising slowly)
- Drywell temperature..... 280 ° F (rising slowly)
- Torus pressure 4 psig (rising slowly)
- Torus level 14.1' (steady)

Several Crew members recommend initiating Drywell Sprays to restore Containment temperature and pressure.

Which of the following, identifies the correct response to this recommendation and why?
Drywell Sprays.....

RO/SRO

11/12

- Should be initiated to prevent Containment damage due to chugging of the downcomers.
- Should NOT be initiated because sprays could cause chugging of the downcomers.
- Should be initiated to prevent excessive differential pressure between the Drywell and Torus.
- Should NOT be initiated because sprays could cause excessive differential pressure between the Drywell and Torus.

Proposed Answer: d) Should NOT be initiated because sprays could cause excessive differential pressure between the Drywell and Torus.

Explanation (Optional): Requires recognition that Sprays are warranted on Containment temperature leg and NOT warranted on Containment pressure leg.

Requires application of DWSIL Curve and understanding of the basis of the curve. Chugging is a concern on pressure leg but are not correct because Sprays are warranted on the temperature leg.

Not allowed on either leg based upon DWSIL Curve which is based upon sufficient Non-condensibles in Torus.

Distractors, a & b- Chugging is NOT a concern until after Torus violates DW Spray Limit when pressure rises to a higher value than 4 psig.

Technical Reference(s): EOP-4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOP's

Learning Objective: MIT-301.11E, EO 4.07 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)

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| | New | <u>NEW</u> | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | <u>X</u> |
| 10 CFR Part 55 Content: | 55.41 | <u>5</u> | |
| | 55.43 | <u>5</u> | |
| Comments: | | | |

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|---|---|--|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Reactor Pressure / 3 | Group # | 1 | 1 |
| Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: (CFR: 41.7 / 45.6) | K/A # 295025 | EA1.07 | EA1.07 |
| ARI/RPT/ATWS: Plant-Specific | | | |
| | Importance Rating | 4.1 | 4.1 |
| Proposed Question: | Which <u>ONE</u> of the following describes the effect a reactor vessel pressure signal of 1170 psig will have on the reactor recirculation pumps and alternate rod insertion (ARI) system? | | |
| | The Recirculation motor/generator... | | |
| RO/SRO | a) | drive motor breakers will trip and the ARI solenoid valves will energize. | |
| 12/13 | b) | generator field breakers will trip and the ARI solenoid valves will energize. | |
| | c) | drive motor breakers will trip and the ARI solenoid valves will de-energize. | |
| | d) | generator field breakers will trip and the ARI solenoid valves will de-energize. | |
| Proposed Answer: | a) drive motor breakers will trip and the ARI solenoid valves will energize. | | |
| Explanation (Optional): | <i>both (a) and (b) are correct</i> | | |
| Technical Reference(s): | ITS-3.3.4.1/SR-3.3.4.1.4 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-02H EO 1.05.C.2, SDLP-03C EO1.05.C.2 (As available) | | |
| Question Source: | Bank # | Quad Cities 1 INPO Bank # 16832 (Modified for JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 3/16/1998 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 6 | |
| | 55.43 | 2 | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Control Room Abandonment / 7

Group #

1

Ability to perform specific system and integrated plant procedures during different modes of plant operation. (CFR: 45.2 / 45.6)

K/A # 295016

2.1.23

[Link to 10CFR-55.43\(b\)\(5\)](#)

Importance Rating

4.0

Proposed Question:

A Plant shutdown is in progress after a year of continuous full power operation. The following conditions currently exist:

- All Control Rods fully inserted
- Mode switch is in SHUTDOWN
- RPV pressure at 900 psig, controlled by EHC
- A normal forced cooldown to < 212 ° F is commenced using EHC.
- At this point, a verbal report is received in the Control Room of a significant fire in the Cable Spreading Room.
- Simultaneously, an un-expected half SCRAM occurs on RPS 'A'.

Based on these conditions, which one (1) of the following methods should be utilized to depressurize and cooldown the RPV?

RO/SRO

S14

- a) AOP-55, Alternate Shutdown Cooling Due To Plant Fires.
- b) AOP-43, Plant Shutdown From Outside The Control Room.
- c) EP-11, Alternate Depressurization using SRV's From 02ADS-71.
- d) OP-65, Startup And Shutdown Procedure.

Proposed Answer:

b) AOP-43, Plant Shutdown From Outside The Control Room.

Explanation (Optional):

- a) AOP-55 is only used with AOP-28, which is not applicable.
- b) AOP-43 is required in Mode 3 (Mode Switch in Shutdown and > 212 ° F), the Cable Spread Area is in AOP-43 Areas. Verbal report, significant fire, un-expected equipment operation are in decision tree for AOP-43.
- c) EP-11 is only used when in the EOP's.
- d) OP-65 is used for a Normal Shutdown and Cooldown.

Technical Reference(s):

AOP-43

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LP-AP, EO-46.03

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

10 CFR Part 55 Content:

Comprehension or Analysis

| | |
|-------|---------------|
| 55.41 | <u>6,7,10</u> |
| 55.43 | <u>5</u> |

| |
|----------|
| <u>X</u> |
|----------|

Comments:

| | | | |
|---|-------------------|----|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 1 |
| Partial or Total Loss of Inst. Air / 8 | Group # | | 1 |
| Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR :(CFR: 41.10 / 43.5 / 45.13) | K/A # 295019 | | AA2.01 |
| Instrument air system pressure | Importance Rating | | 3.6 |

Proposed Question: Given the following conditions at 100% power:

- Condenser Vacuum at 26" and slowly worsening
- The Blue SCRAM lights are ON for Control Rods 26-27 and 42-19
- 09-6-2-38, Breathing Air HDR Press Lo alarm is in
- Condensate Pump Minimum Flow valve is OPEN
- 09-5-2-3, Rod Drift Alarm is in

Which of the below describes the expected plant condition and appropriate mitigative procedure?

RO/SRO

S15

- Air header pressure above 65 psig. AOP-42, Feedwater Malfunction, Lowering Feedwater Flow and AOP-27, Control Rod Drift.
- Air header pressure below 85 psig. AOP-12, Loss of Instrument Air and AOP-31, Loss of Condenser Vacuum.
- Air header pressure above 65 psig. AOP-12, Loss of Instrument Air and AOP-27, Control Rod Drift.
- Air header pressure below 85 psig. AOP-31, Loss of Condenser Vacuum and AOP-42, Feedwater Malfunction, Lowering Feedwater Flow.

Proposed Answer: b) Air header pressure below 85 psig. AOP-12, Loss of Instrument Air and AOP-31, Loss of Condenser Vacuum.

Explanation (Optional): Pressure is not above 65 psig. Must conclude < 65 psig because a rod has drifted due to Scram Valve opening. Scram Air Header low is set at 65 psig to alarm before any rods drift. Pressure is < 85 psig= Breathing Air isolates at 85 psig. AOP-12 & 31 have appropriate mitigative actions. AOP-42 is a symptom of the true problem and loss of feedwater flow does not truly exist. AOP-27 provides no guidance if the AOP-12 required Manual SCRAM is inserted.

Technical Reference(s): AOP-12 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-39, EO-1.15.A (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

10 CFR Part 55 Content:

Comprehension or Analysis

55.41 10

55.43 5

X

Comments:

| | | | |
|---|--|-------------------------------------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Reactor Pressure / 3 | Group # | 1 | 1 |
| Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: (CFR: 41.10 / 43.5 / 45.13) | K/A # 295025 | EA2.06 | EA2.06 |
| Reactor water level | Importance Rating | 3.7 | 3.8 |
| Proposed Question: | Following a reactor SCRAM and MSIV isolation, HPCI is injecting into the reactor. RPV level on narrow Range is 200" and rising. Reactor pressure is 800 psig and rising. | | |
| | The HPCI turbine will trip | | |
| RO/SRO | a) At a lower indicated NR level at 800 psig than at 1100 psig. | | |
| 13/16 | b) At a higher indicated NR level at 800 psig than at 1100 psig. | | |
| | c) At the same indicated NR level at 800 psig and at 1100 psig. | | |
| | d) When NR level indication reaches 222.5". | | |
| Proposed Answer: | a) At a lower indicated NR level at 800 psig than at 1100 psig. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-15, attachment 3 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-23, EO-1.05.C.1, 1.13 | (As available) | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 10 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|---|--|-------------------------------------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Suppression Pool High Water Temp. / 5 | Group # | 1 | 1 |
| Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE : (CFR: 41.8 to 41.10) | K/A # 295026 | EK1.01 | EK1.01 |
| Pump NPSH | | | |
| | Importance Rating | 3.0 | 3.4 |
| Proposed Question: | The following plant conditions exist: Torus Pressure-1.0 psig Torus Level- 11.92 feet | | |
| | What is the maximum Torus water temperature that two (2) RHR Pumps can operate at 8,000 gpm each without exceeding NPSH limitations? | | |
| RO/SRO | a) 173 ° F | | |
| 14/17 | b) 182 ° F | | |
| | c) 200 ° F | | |
| | d) 206 ° F | | |
| Proposed Answer: | c) 200 ° F | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-13 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | OP-13A, Attachment # 1 | | |
| Learning Objective: | SDLP-13, EO-1.13.A | (As available) | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 8 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|--------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Drywell Temperature / 5 | Group # | 1 | 1 |
| Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE (CFR: 41.10 / 43.5 / 45.13) | K/A # 295028 | EA2.01 | EA2.01 |
| Drywell temperature | | | |

| | | |
|-------------------|-----|-----|
| Importance Rating | 4.0 | 4.1 |
|-------------------|-----|-----|

Proposed Question: EOP-4, PRIMARY CONTAINMENT CONTROL, has been entered due to a low Torus water level condition. Simultaneously, EPIC power is lost and no Control Room computer screens are available.

The following indications exist:

- DW TEMP A, 16-1TR-108 reading 140 ° F
- DW TEMP B, 16-1TR-107 reading 132 ° F
- DW COOLER A TEMP, 68TE-100 reading 160 In, 120 Out
- DW COOLER B TEMP, 68TE-100 reading 140 In, 120 Out

Which of the below describes the expected operator action, if any?

- | | |
|--------|--|
| RO/SRO | a) EOP-4 reentry on DW Cooler A and B average inlet temperature. |
| 15/18 | b) EOP-4 reentry is not required on subsequent entry conditions. |
| | c) EOP-4 reentry on DW TEMP A and B average temperature. |
| | d) No additional EOP-4 entry condition exist. |

Proposed Answer: c) EOP-4 reentry on DW TEMP A and B average temperature.

Explanation (Optional): Question tests application of EP-1 to determine alternative indications on loss of computer. Also tests EP-1 expectation to reenter EOP's (4.2.1.A). Correct answer is "C". "A" does not use correct indications. "B" & "D" violate 4.2.1.A.

Technical Reference(s): EP-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EP-1 (excluding section 4.7)

Learning Objective: (As available)

Question Source: Bank # JAF LOR 20005204B06C Rev. 1

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 10

55.43 5

Comments:

| | | | |
|---|---|---|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Low Suppression Pool Wtr Lvl / 5 | Group # | 1 | 1 |
| Ability to interpret control room indications to verify the status and operation of system / and understand how operator actions and directives affect plant and system conditions. | K/A # 295030 | 2.4.48 | 2.4.48 |
| (CFR: 43.5 / 45.12) | | | |
| | Importance Rating | 3.5 | 3.8 |
| Proposed Question: | While experiencing torus water level control problems, an operator opens an ADS valve with torus water level at 5.2 ft. | | |
| | Opening the SRV under these conditions will result in: | | |
| | a) | direct suppression chamber pressurization. | |
| RO/SRO | b) | excessive hydrodynamic loading of SRV Tailpipe. | |
| 16/19 | c) | valve seat damage from the excessive flowrates. | |
| | d) | drawing water up into the tailpipe. | |
| Proposed Answer: | a) direct suppression chamber pressurization | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | EOP-2 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | MIT 301.11E- EO 4.03 (As available) | | |
| Question Source: | Bank # | Dresden 1INPO # 6483 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 9/26/1998 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | F | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 3 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Reactor Low Water Level / 2 | Group # | 1 | 1 |
| Knowledge of the reasons for the following responses as they apply to REACTOR LOW WATER LEVEL : (CFR: 41.5 / 45.6) | K/A # 295031 | EK3.01 | EK3.01 |
| Automatic depressurization system actuation | Importance Rating | 3.9 | 4.2 |

Proposed Question: From full power and with HPCI inoperable, a SCRAM occurs from a small primary leak in the drywell simultaneous with a loss of offsite power. EDG's start and reenergize vital busses. RCIC initiates, but insufficient injection results in RPV water level continuing to lower.

Which of the following is correct assuming **NO** operator action?

RO/SRO

17/20

- a) SRV's should open on their automatic pressure relief setpoints and lower reactor pressure to permit level recovery injection with low pressure ECCS.
- b) SRV's assigned to ADS should open when RPV level lowers to an assigned setpoint to permit level recovery injection with low pressure ECCS.
- c) A residual bus transfer will result in automatic start and injection by the condensate booster pumps.
- d) SRV's should cycle on their automatic pressure relief setpoints and together with the RCIC injection will provide steam cooling with injection.

Proposed Answer: b) SRV's assigned to ADS should open when RPV level lowers to an assigned setpoint to permit level recovery injection with low pressure ECCS.

Explanation (Optional):

- a) incorrect, automatic pressure relief will reset and SRV's will close before pressure lowers enough to enable low pressure ECCS injection.
- b) The correct response is intended to backup HPCI & enable low pressure ECCS.
- c) Incorrect- A residual transfer locks out the CBP's and they can only be started by operator action.
- d) Incorrect-Steam Cooling with or without injection requires core uncover. Additionally, ADS SRV's will open on ADS function rather than cycle on over pressure.

Technical Reference(s): OP-68 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-02J, EO-1.01, 1.05.A, 1.05.C (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 5

55.43

Comments:

| | | | |
|---|---|-------------------------------------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 | Group # | 1 | 1 |
| Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : (CFR: 41.10 / 43.5 / 45.13) | K/A # 295037 | EA2.02 | EA2.02 |
| Reactor water level | Importance Rating | 4.1 | 4.2 |
| Proposed Question: | As directed by EOP-3, the current RPV level band is -19 to 110 inches and being controlled at 80-100 inches with Feedwater. Which of the following is the preferred instrumentation for maintaining the 80-100 inches band? | | |
| RO/SRO | a) Narrow Range. | | |
| 18/21 | b) Wide Range. | | |
| | c) Refuel Zone. | | |
| | d) Fuel Zone. | | |
| Proposed Answer: | b) Wide Range. | | |
| Explanation (Optional): | a) Normal range is off scale low b) Wide Range is located at Panel 09-5 & hot calibrated c) Refuel Zone is cold calibrated and located remote to FW control (Panel 09-3 & 4) d) Fuel Zone is cold calibrated and located remote to FW control (Panel 09-3 & 4) | | |
| Technical Reference(s): | SDLP-02B, Table IV | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-02B, EO-1.05.A.3 | (As available) | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Off-site Release Rate / 9 | Group # | 1 | 1 |
| Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: | K/A # 295038 | EK2.02 | EK2.02 |
| (CFR: 41.7 / 45.8) | | | |
| Offgas system | | | |
| | Importance Rating | 3.6 | 3.8 |

Proposed Question: While operating at full power, a large fuel leak develops.
Which of the following automatic responses from a high radiation signal will occur to limit off-site release rates?

RO/SRO
19/22

a) Condenser Vacuum Pump trip.
b) Off gas System isolation.
c) Hydrogen Addition System trip.
d) Reactor SCRAM.

Proposed Answer: b) Off gas System isolation.

Explanation (Optional):

a) Condenser Vacuum Pump will still isolate at 3 X NFPB MSL Radiation, but is not allowed to be in service >5% CTP.
b) On a high setpoint and after a 15 minute delay, SJAE Off-Gas will isolate SJAE discharge to stack.
c) Although Hydrogen Injection flowrate is directly related to radiation levels throughout the plant, it has no MSL Hi Radiation signal trip.
d) MSL Radiation no longer provides an automatic Reactor SCRAM function.

Technical Reference(s): OP-24A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-01A, EO-1.05.C.1 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Plant Fire On Site / 8 | Group # | 1 | 1 |
| Ability to operate and / or monitor the following as they apply to PLANT FIRE ON SITE: | K/A # 600000 | AA1.06 | AA1.06 |
| Fire alarm | Importance Rating | 3.0 | 3.0 |

Proposed Question: With the Fire Protection System in a normal standby lineup, which one (1) of the following Fire Protection Panel Alarms would you expect to result in the start of one or more Fire Pumps?

RO/SRO
20/23

- a) Heat detection actuation in the West Cable Tunnel
- b) Heat detection actuation in the North EDG Switchgear Room
- c) Ionization detector actuation in the Reactor Building 272' Drywell Entrance
- d) Ultraviolet Flame detector in the Recirculation M/G Room

Proposed Answer: a) Heat detection actuation in the West Cable Tunnel

Explanation (Optional):

Technical Reference(s): OP-33 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-76 EO 1.05c (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| | | | |
|---|--|--|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Loss of Main Condenser Vac / 3 | Group # | 2 | 2 |
| Ability to determine and/or interpret the following as they apply to LOSS OF MAIN CONDENSER VACUUM : (CFR: 41.10 / 43.5 / 45.13) | K/A # 295002 | AA2.01 | AA2.01 |
| Condenser vacuum/absolute pressure | Importance Rating | 2.9 | 3.1 |
| Proposed Question: | Reactor power is 38%, on the APRM's when annunciator 09-6-1-29, CONDENSER VAC LOW, alarms. Condenser vacuum, as read on control room meters, indicates 24.8" and lowering slowly. If vacuum continues to lower, WHICH ONE (1) of the following automatic protective actions would occur first? | | |
| | a) Reactor Feed Pump Turbine Trip b) Main Turbine Trip c) Bypass Valve Closure d) MSIV Closure | | |
| RO/SRO | | | |
| 21/24 | | | |
| Proposed Answer: | b) Main Turbine Trip | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-9, OP-2A, OP-1, AOP-31 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | LP-AOP, EO-1.02 | | (As available) |
| Question Source: | Bank # | Nine Mile Point 1 INPO # 11813 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 1/20/1998 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 10 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Reactor Pressure / 3 | Group # | 2 | 2 |
| Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: | K/A # 295007 | AK2.04 | AK2.04 |
| (CFR: 41.7 / 45.8) | | | |
| LPCS | | | |
| | Importance Rating | 3.2 | 3.3 |

Proposed Question: An Emergency Depressurization is to be performed from 700 psig to permit low pressure ECCS injection into the reactor. The only ECCS available is Core Spray System A. CS Pump A is running on minimum flow and all other components are in a normal standby condition. When SRV's are operated, only one (1) SRV responds. Reactor pressure lowers at approximately 10 psi/minute.

The Core Spray Injection Valve opens when reactor pressure goes below _____.
RPV injection _____ immediately.

RO/SRO
22/25

a) 450 psig: occurs
b) 450 psig: does **NOT** occur
c) 310 psig: occurs
d) 310 psig: does **NOT** occur

Proposed Answer: b) 450 psig: does **NOT** occur

Explanation (Optional):

Technical Reference(s): OP-14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-14, EO-1.13e, 1.14b (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| | | | |
|---|---|--|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Inadvertent Reactivity Addition / 1 | Group # | 2 | 2 |
| Knowledge of the interrelations between INADVERTENT REACTIVITY ADDITION and the following: (CFR: 41.7 / 45.8) | K/A # 295014 | AK2.07 | AK2.07 |
| Reactor power | Importance Rating | 3.9 | 3.9 |
| Proposed Question: | From normal full power operation, which of the following will result in a stable higher power level? | | |
| RO/SRO | a) Inadvertently isolating the Reactor Water Cleanup System. b) Raising 10100 Bus frequency. c) Main Condenser Circulating Pump Trip. d) Closing the manual extraction steam valve for Feed Heater 6B. | | |
| 23/26 | | | |
| Proposed Answer: | d) Closing the manual extraction steam valve for Feed Heater 6B. | | |
| Explanation (Optional): | Explanation: <i>Both (b) and (d) are correct</i> a) Inadvertently isolating the Reactor Water Cleanup System results in higher feedwater temperature- therefore a lower power level. b) Raising 10100 bus frequency will momentarily raise Recirc MG speed. Speed vs. Speed demand will reduce it back down. c) A Main Condenser Circulating Pump Trip will result in higher condensate and therefore feedwater temperature resulting in a lower power level. d) The manual extraction steam valve for Feed Heater 6B closing will prevent the heating of the feedwater in the 6B heater, thereby, causing colder feedwater to enter the vessel and drive reactor power up. | | |
| Technical Reference(s): | AOP-62, AOP-32, OP-3A | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | LP-AOP EO 1.02 | (As available) | |
| Question Source: | Bank # | Clinton INPO # 20412 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 7/23/2001 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Refueling Acc Cooling Mode / 8

Group #

1

Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS :(CFR: 41.8 to 41.10)

K/A # 295023

AK1.01

Radiation exposure hazards

Also 10CFR-55.43(b)(4)

Importance Rating

4.1

Proposed Question:

Core Alterations are in progress.

An irradiated fuel bundle being moved from the reactor cavity to the Spent Fuel Pool becomes ungrappled and falls into the reactor vessel downcomer area. (Between the vessel wall and the shroud). Bundle integrity is maintained.

Which of the below describes the person at greatest risk?

RO/SRO

S27

a) Mechanic working on Torus to Drywell Vacuum Breaker.

b) Refuel SRO on the Bridge.

c) I&C Technician at SLC Skid.

d) Mechanic working on SRVs.

Proposed Answer:

d) Mechanic working on SRVs.

Explanation (Optional):

Technical Reference(s):

RAP-7.1.1.04B

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LP-AP, RAP-7.1.04B73.03

(As available)

Question Source:

Bank #

Clinton INPO # 20401 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

7/23/2001

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

9

55.43

4

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|--|-------------------|--------|--------|
| | Tier # | 1 | 1 |
| High Secondary Containment Area Temperature / 5 | Group # | 2 | 2 |
| Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (CFR: 43.4 / 45.10) | K/A # 295032 | 2.3.10 | 2.3.10 |
| | Importance Rating | 2.9 | 3.3 |

Proposed Question: The plant was operating at 100% power when a un-isolable steam leak occurred inside the Reactor Building. EOP-5, SECONDARY CONTAINMENT CONTROL, had been initially entered on an area temperature > MAX NORMAL. When the first full set of data were collected, Reactor Building conditions were as follows:

- HPCI drywell entrance temperature.....253 ° F.
- RCIC drywell entrance temperature.....240 ° F.
- R.B. 272 ft. elevation southwest temperature.....130 ° F.
- A RHR Heat Exchanger Room temperature.....110 ° F.
- West HCU area radiation level.....100 mr/hr.
- R.B. Access 272 ft. elev. area radiation level.....10 mr/hr.
- CRD Removal Hatch Area radiation level.....250 mr/hr.

Which one of the following is correct for these plant conditions?

RO/SRO

24/28

- a) Evacuate the Protected Area, enter EOP-2, open the Bypass Valves fully.
- b) Evacuate the Protected Area, enter EOP-2, commence an orderly Plant cool-down using the SRV's and/or the Bypass Valves.
- c) Evacuate the Reactor Building, exit EOP-5 and enter EOP-2; perform an Emergency RPV Depressurization per EOP-2.
- d) Evacuate the Reactor Building, concurrently with EOP-5, enter EOP-2, and perform an Emergency RPV Depressurization.

Proposed Answer: d) Evacuate the Reactor Building, concurrently with EOP-5, enter EOP-2, and perform an Emergency RPV Depressurization.

Explanation (Optional): EOP-5 is initially entered, the R.B. 272 ft. elevation southwest temperature is above it's maximum normal value, the HPCI drywell entrance temperature and RCIC drywell entrance temperature are greater than their maximum safe operating values and the West HCU area radiation level & CRD Removal Hatch Area radiation levels are above their maximum normal levels. EOP-5 then directs the operator to enter EOP-2, which directs the operator to shutdown the reactor. EOP-2 directs leaving the RPV/P leg and entering Emergency RPV Depressurization.

Correct answer is to evacuate the affected area, enter EOP-5 which directs an Emergency Depressurization due to > Max Safe Temperatures and entry into EOP-2, EOP-2 directs leaving RPV/P leg and using Emergency Depressurization leg. As a result- anticipating ED and using BPV's and SRV's for either anticipating ED or performing a shutdown and a normal cool down are not correct. EOP-5 and 2 are to be performed concurrently.

Evacuation of PA not required at this point as the problem is localized. Reactor Building evacuation is required.

Technical Reference(s): EOP-5, EOP-2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

| | | | |
|---|---------------------------------|---------------------------------------|----------------|
| Learning Objective: | EOP5LP, EO-1.07 | | (As available) |
| Question Source: | Bank # | JAF LOR # 0877 | |
| | Modified Bank # | _____ (Note changes or attach parent) | |
| | New | _____ | |
| Question History: | Last NRC Exam | _____ | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | _____ | |
| | Comprehension or Analysis | _____ X _____ | |
| 10 CFR Part 55 Content: | 55.41 | 12 | |
| | 55.43 | 4 | |
| Comments: | | | |

| | | | |
|---|---|-------------------------------------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High Secondary Containment Area Radiation Levels / 9 | Group # | 2 | 2 |
| Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : (CFR: 41.7 / 45.6) | K/A # 295033 | EA1.05 | EA1.05 |
| Affected systems so as to isolate damaged portions | Importance Rating | 3.9 | 4.0 |
| Proposed Question: | During power operation, the Area Radiation Monitor (ARM) for the CRD Removal Hatch area alarms, together with receipt of a Fire Protection System ionization detector alarm in the Southwest Drywell Entrance Area. Which system(s) should be considered for manual isolation? | | |
| | a) HPCI and RWCU | | |
| RO/SRO | b) RCIC and Main Steam | | |
| 25/29 | c) Main Steam and RWCU | | |
| | d) HPCI and RCIC | | |
| Proposed Answer: | d) HPCI and RCIC | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | EOP-5 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | EOP5LP, EO-1.07 | (As available) | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

High Reactor Pressure / 3

Group #

1

Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE:

K/A # 295025

EA2.05

(CFR: 41.10 / 43.5 / 45.13)

Decay heat generation

Importance Rating

3.6

Proposed Question:

After a long period of full power operation, an instantaneous loss of all AC power occurs and is not corrected. The HPCI System failed to start.

Without initial operator action, over the next hour you would expect _____ (1) _____ and subsequent Operator action to be _____ (2) _____?

RO/SRO

S30

- a) (1) SRV's to open and close periodically on mechanical overpressure.
(2) Commencing a cooldown at 100 ° F/ hr.
- b) (1) SRV's initial operation with RCIC operation precluding the need for further SRV operation.
(2) Commencing a cooldown at 100 ° F/ hr.
- c) (1) SRV's to open and close periodically on mechanical overpressure.
(2) Commencing a cooldown at less than 20 ° F/ hr.
- d) (1) SRV's initial operation with RCIC operation precluding the need for further SRV operation.
(2) Commencing a cooldown at less than 20 ° F/ hr.

Proposed Answer:

- c) (1) SRV's to open and close periodically on mechanical overpressure.
(2) Commencing a cooldown at less than 20 ° F/ hr.

Explanation (Optional):

Must recognize that RCIC Steam demand is far less than decay heat steam generation. Must also recognize that stem conditions describe AOP-49 applicability thus limiting cooldown rate to < 20 ° F/ hr.

Technical Reference(s):

AOP-49

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LP-AOP, EO-1.10

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments:

| | | | |
|---|--|---|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| Secondary Containment High Sump/Area Water Level / 5 | Group # | 2 | 2 |
| Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : (CFR: 41.5 / 45.6) | K/A # 295036 | EK3.01 | EK3.01 |
| Emergency depressurization | Importance Rating | 2.6 | 2.8 |
| Proposed Question: | While operating at full power, an earthquake has resulted in the following: | | |
| | <ul style="list-style-type: none"> • A severe piping crack between the CST's and the Torus results in a rapid addition of water to the Torus Room and both Crescent Areas. • A small, un-isolable leak in the RWCU Pump suction piping in the Reactor Building. • Crescent Area water levels are 19" rising • Highest Reactor Building Area (RB 300' Southwest) temperature is 103°F | | |
| | Why must an Emergency Depressurization be performed for these conditions? | | |
| RO/SRO | a) | A loss of CST inventory will result in total loss of HPCI and RCIC for inventory control. | |
| 26/31 | b) | Operability of equipment located in the Crescents is threatened by Crescent water level rise. | |
| | c) | Primary Containment integrity is threatened by Torus Room water level rise. | |
| | d) | Operability of RPV Water Level instruments located on Reactor building 300' is challenged. | |
| Proposed Answer: | b) | Operability of equipment located in the Crescents is threatened by Crescent water level rise. | |
| Explanation (Optional): | | | |
| Technical Reference(s): | EOP-5 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | EOP's | | |
| Learning Objective: | EOP5LP, EO-1.07 | (As available) | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 5 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 1 | 1 |
| High CTMT Hydrogen Conc. / 5 | Group # | 2 | 2 |
| Ability to operate and monitor the following as they apply to HIGH CONTAINMENT HYDROGEN CONTROL: (CFR: 41.7 / 45.6) | K/A # 500000 | EA1.06 | EA1.06 |
| Drywell sprays | Importance Rating | 3.3 | 3.4 |

Proposed Question: A LOCA has occurred with the following conditions:

- Drywell Hydrogen.....6.03 %
- Drywell Oxygen.....5.40 %
- Torus Hydrogen.....5.70 %
- Torus Oxygen.....3.00 %
- Torus Water Level.....13.92 Feet
- Reactor Pressure.....0 psig
- Offsite release rates will not exceed the release rate LCO

What actions are required to control containment gas?

- | | |
|--------|---|
| RO/SRO | a) Establish Torus Sprays. When Drywell Hydrogen is less than .6 %, Vent and Purge the Drywell. |
| 27/32 | b) Establish Torus Sprays. Vent and Purge the Drywell until Drywell Hydrogen is less than .6 %. |
| | c) Establish Drywell Sprays. When Torus Hydrogen is less than .6 %, Vent and Purge the Torus. |
| | d) Establish Drywell Sprays. Vent and Purge the Torus until Torus Hydrogen is less than .6 %. |

Proposed Answer: d) Establish Drywell Sprays. Vent and Purge the Torus until Torus Hydrogen is less than .6 %.

Explanation (Optional): The 2 legs directed by the conditions are DW/G-3 and T/G-1, making 'D' the correct response. Torus Sprays are not required by the stem conditions, eliminating 'A' and 'B'. Venting and Purging of Torus is required to reduce hydrogen to <.6 % - not contingent on being below .6 %.

Technical Reference(s): EOP-4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOP's

Learning Objective: EOP4LP, EO-4.03 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 7, 10

55.43 5

Comments:

| | | | |
|--|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RHR/LPCI: Injection Mode | Group # | 1 | 1 |
| Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI INJECTION MODE (PLANT SPECIFIC) controls including: (CFR: 41.5 / 45.5) | K/A # 203000 | A1.05 | A1.05 |
| Suppression pool level | Importance Rating | 3.8 | 3.7 |

Proposed Question: A Design Basis LOCA has occurred. ECCS systems are injecting into the reactor. Torus Level is at 12.8 feet and lowering.
Which one of the following is the expected response of Low Pressure Coolant Injection (RHR)?

RO/SRO
28/33

a) The RHR pumps will continue to operate regardless of Torus Level until the pumps trip on motor overload.

b) The RHR pumps will automatically trip when Torus Level drops to the RHR Pump Vortex Limit.

c) The RHR pumps will continue to operate regardless of Torus Level due to automatic bypass of all trip signals.

d) The RHR Pump Torus Suction valves will automatically close. The RHR pumps will trip on Interlock.

Proposed Answer: a) The RHR pumps will continue to operate regardless of Torus Level until the pumps trip on motor overload.

Explanation (Optional): Reference: ESK-5BU. Pump trips are:

- No Suction Path
- Breaker electrical protection interlocks
- EDG programmed restart sequence
- 09-3 and breaker mounted control switches

The RHR Suction path MOV's have no auto stroke provisions. They only have open permissive interlock to prevent cross connecting the suction flow path.

Technical Reference(s): OP-13A (Attach if not previously provided)
ESK-5BU

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-10, EO-1.10.f (As available)

Question Source: Bank # Grand Gulf 1 INPO # 16342 (Modified to JAF)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 4/1/2000

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 5

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Low Suppression Pool Wtr Lvl / 5

Group #

1

Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL

K/A # 295030

EA2.04

WATER LEVEL : (CFR: 41.10 / 43.5 / 45.13)

Drywell/ suppression chamber differential pressure:
Mark-I&II

Importance Rating

3.7

Proposed Question:

Two hours into the shift, the SNO reports that Torus water level has dropped from 14.0 ft to 13.91 ft while Drywell to Torus D/P has dropped from 1.8 psid to 1.6 psid and Torus pressure has remained constant at 0.0 psig. You have confirmed the indications on EPIC-LOG1.

Your required actions are.....

RO/SRO

S34

- a) Enter EOP-4, Primary Containment Control, and immediately makeup nitrogen to the Drywell restore D/P.
- b) Enter EOP-4, Primary Containment Control, and immediately makeup water to the Torus to restore Torus level.
- c) Enter AOP-9, Loss of Primary Containment Integrity, and dispatch Operators to search for Primary Containment leakage.
- d) Enter AOP-9, Loss of Primary Containment Integrity, and dispatch Operators to determine why RBCLC temperature has risen.

Proposed Answer:

- c) Enter AOP-9, Loss of Primary Containment Integrity, and dispatch Operators to search for Primary Containment leakage.

Explanation (Optional):

- EOP-4 Entry conditions of 13.88 ft or 2.7 psig DW pressure do not exist, therefore EOP-4 Entry is not required.
- Adequate AOP-9 symptoms do exist warranting entry.
- The stem conditions are symptomatic of Primary Containment leakage. A RBCLC temperature rise will cause the reverse of the indications based on higher DW temperatures caused by less heat removal by the DW cooling units.

Technical Reference(s):

OP-37

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

Learning Objective:

SDLP-16B, EO-1.09d

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

SLC

Group #

1

Ability to direct personnel activities inside the control room.

K/A # 211000

2.1.9

(CFR: 45.5 / 45.12 / 45.13)

Importance Rating

4.0

Proposed Question:

A failure to SCRAM has occurred with the following conditions:

- RPV water level is being controlled 80 to 110 inches using HPCI.
- RPV pressure is being controlled 800 to 1000 psig using SRV's.
- Initial SLC Tank level – 80 %.
- Current SLC Tank level – 58 %.
- Reactor Power – 10 %.
- Torus water level – 14.0 feet.
- Torus water temperature – 120 °F.
- There is **NO** indication of a Steam Line break.
- The 10300, 10400 and 10700 busses are de-energized.

Based upon these indications, you should order:

RO/SRO

S35

- a) Terminate and Prevent all injection except SLC, RCIC and CRD until APRMs are downscale, RPV level is at TAF, or SRV's remain closed.
- b) Irrespective of the resulting RPV cooldown rate, maintain RPV pressure below the Heat Capacity Temperature Limit.
- c) Equalize and reopen the MSIV's per EP-9. Bypass the MSIV Low Water Level Isolation per EP-2.
- d) Using HPCI, restore and maintain RPV Level between 177 and 222.5 inches. Be cautious of rapid level changes.

Proposed Answer:

- d) Using HPCI, restore and maintain RPV Level between 177 and 222.5 inches. Be cautious of rapid level changes.

Explanation (Optional):

Question was rewritten as SRO Only swapped original RO/SRO question 35/47 to make it a SRO Only- S35, SRO original question S35 was made RO/SRO question 35/47.

- a) BIIT at 10% power is 125 °F. 120 °F is not yet violating BIIT, Terminate and Prevent is not required until BIIT is violated.
- b) At a Torus level of 14 ' and RPV pressure of 1000 psig, the HCTL will be violated at 172 °F. Torus temperature of 120 °F is far from violating the HCTL.
- c) Without the 10300, 10400 & 10700 Busses- there are no Circ Water Pumps, thus the Main Condenser is not available.
- d) This is the correct response- When SLC Tank Level drops by 22 % (80 to 58%) level restoration is required with caution that rapid level changes may cause a reactivity excursion.

Technical Reference(s):

EOP-3

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

| | | | |
|---|---------------------------------|-----|---------------------------------|
| Learning Objective: | EOP3LP, EO-1.07 | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | | (Note changes or attach parent) |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 6 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RHR/LPCI: Injection Mode | Group # | 1 | 1 |
| Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) | K/A # 203000 | A4.11 | A4.11 |
| Indicating lights and alarms | Importance Rating | 3.7 | 3.5 |

Proposed Question:

Given the following alarms and indications:

- 09-3-1-8, RHR SYS A LOGIC ACTUATED
- 09-3-1-27, RHR & CORE SPRAY INJ VLV PERM
- 09-3-1-34, RWR INJ VLV PERM
- RPV pressure 200 psig and lowering
- LPCI 'A' Inboard and Outboard Injection Valves OPEN
- EPIC is unavailable
- 09-3, RHR System Flow Indications unavailable

Which of the following indications can be used to help verify that LPCI 'A' is functioning as designed and injecting water into the RPV?

| | RHR PUMP MTR AMPS | RHR PUMP DISC PRESS | 10MOV-16A(B) POSITION INDICATION |
|------------------|----------------------|------------------------|-------------------------------------|
| RO/SRO | a) lowering | rising | closed |
| 29/36 | b) rising | lowering | closed |
| | c) rising | rising | open |
| | d) lowering | rising | open |
| Proposed Answer: | b) rising | lowering | closed |

Explanation (Optional):

Technical Reference(s): OP-13A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-10, EO 1.05.a.1.b (As available)

Question Source: Bank # JAF LOR 20505001RHRC19
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Shutdown Cooling | Group # | 1 | 1 |
| Knowledge of the effect that a loss or malfunction of the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) will have on following: (CFR: 41.7 / 45.4) | K/A # 205000 | K3.04 | K3.04 |
| Recirculation loop temperatures | Importance Rating | 3.7 | 3.7 |

Proposed Question: The Plant is in Mode 4. A loss of Shutdown Cooling has occurred. Which of the below is an acceptable Operator action to provide for reliable Reactor Coolant temperature monitoring?

RO/SRO
30/37

a) Place at least one Recirculation Pump in service.
b) Establish an RPV Water Level Band of 177 - 234.5 inches.
c) Open either loop, Recirculation Pump suction and discharge valves.
d) Average the 02-3TR-89, RPV Vessel Metal Temperatures Recorder on Panel 09-21.

Proposed Answer: a) Place at least one Recirculation Pump in service.

Explanation (Optional):

a) Correct response- restores recirculation loop temperature indications.
b) Incorrect- raising level to 234.5-270" will promote natural circulation. Further action will be necessary to restore temperature indication.
c) Incorrect- action will accomplish nothing unless RPV level is raised to 234.5 - 270". (Normal is 177- 234.5") This is not a procedurally supported action unless it results from Recirculation loop startup.
d) Incorrect- action is a twist on AOP-30 options to monitor FDWTR Nozzle N4B INBD temperature on RPV Vessel Temperature Recorder, 02-3TR-89 at Panel 09-21.

Technical Reference(s): OP-13D, AOP-30, ITS Definitions (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LP-AOP, EO-1.03, 1.04 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7

55.43 2

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Reactor Low Water Level / 2

Group #

1

Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

K/A # 295031

EA 1.08

(CFR: 41.7 / 45.6)

Alternate injection systems: Plant Specific

Link to 10CFR-55.43(b)(1-6)

Importance Rating

3.9

Proposed Question:

A startup is in progress at 20% CTP when an RPS electrical malfunction results in the following:

- HPCI/RCIC & MSIV Isolation on High Temperature
- Full Reactor SCRAM
- One (1) rod remains at position 40 and one (1) other rod is at position 02. All other rods are Full In.
- RPV water level is 150 inches, slowly trending down.
- RPV pressure is 1000 psig, slowly trending up.

The correct course of action is to:

RO/SRO

S38

- Enter EOP-3, stabilize RPV pressure, and maintain RPV level with Feed/Condensate.
- Enter EOP-2, commence a normal cooldown, and maintain RPV level with Feed/Condensate.
- Enter EOP-3, commence a normal cooldown, and maintain RPV level with SLC/CRD.
- Enter EOP-2, Emergency Depressurize, and maintain RPV level with SLC/CRD.

Proposed Answer:

- Enter EOP-2, commence a normal cooldown, and maintain RPV level with Feed/Condensate.

Explanation (Optional):

Technical Reference(s):

EOP-2, EP-1

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP

Learning Objective:

EOP2LP, EO-1.07

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

7

55.43

5

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| HPCI | Group # | 1 | 1 |
| Knowledge of 10 CFR: 20 and related facility radiation control requirements. (CFR: 41.12 / 43.4. 45.9 / 45.10) | K/A # 206000 | 2.3.1 | 2.3.1 |
| | Importance Rating | 2.6 | 3.0 |

Proposed Question: The plant is at full power and HPCI is being operated in the Test (CST to CST) lineup. HPCI flow control is in automatic.

Which of the following will lower the general area Dose Rates for personnel in the vicinity of the HPCI Turbine?

| | |
|--------|---|
| RO/SRO | a) Throttle Open 23MOV-21, Test Valve to CST. |
| 31/39 | b) Align HPCI to Torus Suction. |
| | c) Place RHR System 'A' into Torus cooling. |
| | d) Close 23MOV-24, HPCI & RCIC Test Valve to CST. |

Proposed Answer: a) Throttle Open 23MOV-21, Test Valve to CST.

Explanation (Optional): In the Test Mode, throttle closed on 23MOV-21, raises discharge pressure. HPCI must raise speed to maintain flowrate. Raising speed requires more turbine steam flow and therefore higher dose rates.

| | |
|--|--|
| | a) Correct- Reduces Turbine Steam Flow. |
| | b) If anything, Torus suction may raise dose rates. |
| | c) No Impact on Dose Rates- opposite side of Building. |
| | d) Cause same effect as closing 23MOV-21. |

Technical Reference(s): OP-15, Step C.2.9, AP-07.03 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-23, EO-1.13.A, LPAP-28.03 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 12

55.43 4

Comments:

| | | | |
|---|-------------------|----|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 1 |
| Inadvertent Reactivity Addition / 1 | Group # | | 2 |
| Knowledge of the operational implications of the following concepts as they apply to INADVERTENT REACTIVITY ADDITION : | K/A # 295014 | | AK1.01 |
| (CFR: 41.8 to 41.10) | | | |
| Prompt critical | | | |
| Also 10CFR 55.43(b)(6) | | | |
| | Importance Rating | | 3.8 |

Proposed Question: The plant is in a startup and control rods are being withdrawn to bring the Reactor critical. The selected control rod is two (2) notches from the ECP's predicted criticality when a control rod drop occurs. The control rod blade that dropped went from position 4 to 48.

Assuming no further Operator action, which of the following barriers are in place to prevent this type of event AND what is a potential impact?

| | |
|--------|--|
| RO/SRO | a) ST-20A, Rod Worth Minimizer Functional Test, the Reactor will heat up until alpha T turns power. |
| S40 | b) ST-20A, Rod Worth Minimizer Functional Test, the Reactor will go critical until full SCRAM on IRM HI-HI trip. |
| | c) ST-23B, Control Rod Coupling Integrity Test, the Reactor will heat up until alpha T turns power. |
| | d) ST-23B, Control Rod Coupling Integrity Test, the Reactor will go critical until full SCRAM on IRM HI-HI trip. |

Proposed Answer: d) ST-23B, Control Rod Coupling Integrity Test, the Reactor will go critical until full SCRAM on IRM HI-HI trip.

Explanation (Optional):

Technical Reference(s): ST-23B, FSAR-14.5.4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-03F, EO-1.13 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

| | | |
|-------------------------|-------|---|
| 10 CFR Part 55 Content: | 55.41 | 5 |
| | 55.43 | 6 |

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Loss of CRD Pumps / 1

Group #

2

Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS : (CFR: 41.10 / 43.5 / 45.13)

K/A # 295022

AA2.02

CRD system status

Importance Rating

3.4

Proposed Question:

While at full power, the following alarms and indications are received:

- 09-5-1-43, CRD ACCUM PRESS LO or LVL HI
- 09-5-1-9, CRD CHARGING WTR PRESS LO
- 03PDI-303, DRV WTR DIFF PRESS, indicates 0 psid.
- 03FI-306, CLG WTR FLOW, indicates 0 gpm.
- 03FI-310, CRD FLOW CNTRL, indicates 0 gpm.
- Several Yellow Accumulator lamps are lit on the Full Core Display.

Which of the following is the cause and the appropriate mitigating procedure?

RO/SRO

S41

- 03CRD-56, CRD Charging Water Supply Header Isolation Valve, has been closed, ARP-09-5-1-9, CRD Charging WTR Press Lo.
- 03FCV-19A(B), in-service CRD Drivewater Flow Control Valve, has failed closed, AOP-69, Control Rod Drive Trouble.
- 03 MOV-22, CRD Cooling Water Pressure Control Valve, has been closed, ARP-09-5-1-9, CRD Charging WTR Press Lo.
- 03P-16A(B), in-service CRD Drive Water Pump has failed, AOP-69, Control Rod Drive Trouble.

Proposed Answer:

d) 03P-16A(B), in-service CRD Drive Water Pump has failed, AOP-69, Control Rod Drive Trouble.

Explanation (Optional):

Technical Reference(s):

OP-25, AOP-69

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

SDLP-03C, EO-1.12.B

(As available)

Question Source:

Bank #

Fermi 2 INPO # 8900 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

4/6/1998

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments:

| | | | |
|---|-------------------|----|--------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 1 |
| Secondary Containment High Differential Pressure / 5 | Group # | | 2 |
| Knowledge of the process for performing a containment purge. (CFR: 43.4 / 45.10) | K/A # 295035 | | 2.3.9 |
| | Importance Rating | | 3.4 |

Proposed Question: While at full power, a unisolable leak has developed in the RWCU suction piping in the Reactor Building. Secondary Containment pressure has risen due to the leak into the Reactor Building but is still slightly negative.

Which of the following will minimize the radiation hazard and control the Secondary Containment pressure?

RO/SRO

S42

- a) Initiate SGT System and manually isolate Reactor Building Ventilation.
- b) Ensure that SGT starts and Reactor Building Ventilation isolated when High D/P Setpoint is reached.
- c) Place all Crescent Area Unit Coolers in service.
- d) Operate RWCU in the Blowdown Mode to the Main Condenser.

Proposed Answer: a) Initiate SGT System and manually isolate Reactor Building Ventilation.

Explanation (Optional):

Technical Reference(s): OP-20, OP-51A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-01B, EO-1.14.E (As available)

Question Source: Bank # JAF LOR 20005214B01C
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 12
55.43 4

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Secondary Containment High Sump/Area Water Level / 5

Group #

2

Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL:

K/A # 295036

EA2.01

(CFR: 41.10 / 43.5 / 45.13)

Operability of components within the affected area.

Importance Rating

3.2

Proposed Question:

Thirty (30) minutes after an earthquake, the following conditions exist:

- RPV water level is 185 inches increasing
- RPV Pressure is 1000 psig increasing
- All control rods are at position 00, except for one (1) rod at position 22
- One (1) foot of water is on the Crescent Floors due to a leaking Torus drain flange.
- The MSIVs are Closed.
- Reactor Scram has been reset.
- Torus level is 10.75 feet and slowly lowering.

Based on these conditions, which statement below correctly states the procedure to be used and the basis for the action?

RO/SRO

S43

- a) EOP-3 action is based upon ensuring Reactor remains shutdown without Boron Injection.
- b) EOP-4 action is based upon preserving HPCI Injection capability.
- c) EOP-5 action is based upon a loss of the Core Spray Hold Pumps.
- d) There are NO EOP entry conditions. Plant is controlled by AOP-1.

Proposed Answer:

c) EOP-5 action is based upon a loss of the Core Spray Hold Pumps.

Explanation (Optional):

- a) Incorrect- Stem indicates all rods are at 00 except 1 at 22. EOP-3 is not applicable.
- b) HPCI is tripped at 10.75 feet Torus level to preclude HPCI operation from pressurizing the Containment. HPCI exhaust to Torus is uncovered.
- c) Correct- EOP-5 action protects equipment in the secondary containment. The CS Hold Pumps are the lowest elevation equipment of concern in the Crescents.
- d) EOP-4 on low Torus Level and EOP-5 on high crescent level both exist.

Technical Reference(s):

EOP-5, OP-14

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LPEOP-5, EO-1.07

(As available)

Question Source:

Bank #

Monticello 1 INPO # 15350 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

8/23/1999

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments:

| | | | |
|---|---|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| HPCI | Group # | 1 | 1 |
| Knowledge of the physical connections and/or cause effect relationships between HIGH PRESSURE COOLANT INJECTION SYSTEM and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8) | K/A # 206000 | K1.07 | K1.07 |
| D.C. power: BWR-2,3,4 | Importance Rating | 3.7 | 3.8 |
| Proposed Question: | Which of the following would render HPCI incapable of automatically injecting into the RPV from a Normal Standby Lineup? | | |
| | a) Loss of the 10500 Bus b) Loss of 125 VDC Bus 'B' c) Loss of Condensate Storage Tank level d) Both Standby Gas Treatment Trains Out of Service | | |
| RO/SRO | | | |
| 32/44 | | | |
| Proposed Answer: | b) Loss of 125 VDC Bus 'B' | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-15 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-23, EO-1.10.E (As available) | | |
| Question Source: | Bank # Modified Bank # (Note changes or attach parent) New NEW | | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge X Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 7,8 55.43 | | |
| Comments: | | | |

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| LPCS | Group # | 1 | 1 |
| Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13) | K/A # 209001 | 2.2.13 | 2.2.13 |
| | Importance Rating | 3.6 | 3.8 |

Proposed Question: Which one (1) of the following requirements must be met in order to permit operation of Core Spray Hold Pump 'A' under a Striped Tag?

- RO/SRO
33/45
- a) Tag Holder for the CS Hold Pump must be designated by position such as "Electrical Supervisor".
 - b) A procedure or Work Request with Step Text must exist to provide CS Hold Pump operation guidance.
 - c) Tag Holder for the CS Hold Pump with concurrence from the SNO directs CS Hold Pump operation.
 - d) If the CS Hold Pump is out of it's protected position for > one (1) shift, Tagout control must shift to the Work Week Manager.

Proposed Answer: b) A procedure or Work Request with Step Text must exist to provide CS Hold Pump operation guidance.

Explanation (Optional):

Technical Reference(s): AP-12.01 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: LP-AP-44.10 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10

55.43

Comments:

| | | | |
|--|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| LPCS continued | Group # | 1 | 1 |
| Knowledge of the effect that a loss or malfunction of the LOW PRESSURE CORE SPRAY SYSTEM will have on following: (CFR: 41.7 / 45.4) | K/A # 209001 | K3.02 | K3.02 |
| ADS logic | Importance Rating | 3.8 | 3.9 |

Proposed Question: While at full power, a small break LOCA with HPCI inoperable has occurred. ADS has initiated. The only Low Pressure ECCS in service is Core Spray 'B' which subsequently trips. ADS valves will _____?

RO/SRO
34/46

a) Remain open.
b) Close immediately.
c) Close after a two (2) minute delay.
d) Remain open until RPV level reaches ≥ 59.5 ".

Proposed Answer: b) Close immediately.

Explanation (Optional):

Technical Reference(s): OP-68, OP-14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-14, EO-1.09.B (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

1

SCRAM Condition Present and Power Above APRM
Downscale or
Unknown / 1

Group #

1

1

**Ability to determine and/or interpret the following
as they apply to SCRAM CONDITION PRESENT
AND REACTOR POWER ABOVE APRM
DOWNSCALE OR UNKNOWN :**

K/A # 295037

EA2.05

EA2.05

(CFR: 41.10 / 43.5 / 45.13)

Control rod position

Importance Rating

4.2

4.3

Proposed Question:

While operating at full power, the plant has experienced a complete loss of UPS.
Operator actions failed to prevent a Reactor SCRAM.

Plant control is directed by _____ (1) _____ and SCRAM Rod
Positions are verified by _____ (2) _____.

RO/SRO

35/47

- a) (1) EOP-2
(2) Green Full In Lamps on the Full Core Display
- b) (1) EOP-2
(2) Blue SCRAM Lamps on the Full Core Display
- c) (1) EOP-3
(2) Blue SCRAM Lamps on the Full Core Display
- d) (1) EOP-3
(2) Green Full In Lamps on the Full Core Display

Proposed Answer:

- c) (1) EOP-3
(2) Blue SCRAM Lamps on the Full Core Display

Explanation (Optional):

**Question was rewritten as SRO Only swapped original RO/SRO question 35/47
to make it a SRO Only- S35, SRO original question S35 was made RO/SRO
question 35/47.**

RPIS is inoperable with a loss of the UPS. Per AOP-21, the SCRAM is verified by
confirming the Blue & Yellow lamps lit on the Full Core Display. This indication only
confirms that the SCRAM Inlet & Outlet Valves opened and the accumulator
discharged. With no immediate way of confirming Rod Digital Position Indication, the
Operators are forced to conclude that Rod Position is Unknown, thus entry into EOP-3
is required.

Technical Reference(s):

EOP-3

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

Learning Objective:

LP-AOP, EO-1.03, EOP3LP, EO-1.07

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

Question Deleted - No Correct Answer

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

| | | |
|---------------------------|---------------------------------|-------------------|
| Question Cognitive Level: | Memory or Fundamental Knowledge | <u>X</u> |
| | Comprehension or Analysis | <u> </u> |
| 10 CFR Part 55 Content: | 55.41 <u>6</u> | |
| | 55.43 <u> </u> | |
| Comments: | | |

| | | | |
|---|--|---------------------------------|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RPS | Group # | 1 | 1 |
| Knowledge of the operational implications of the following concepts as they apply to REACTOR PROTECTION SYSTEM : (CFR: 41.5 / 45.3) | K/A # 212000 | K5.02 | K5.02 |
| Specific logic arrangements | Importance Rating | 3.3 | 3.4 |
| Proposed Question: | While at 20% power, what possible Reactor Protection System (RPS) response(s) can occur if the Inboard and Outboard MSIV's on any two (2) Main Steam Lines are closed? | | |
| | a) No response <u>OR</u> full SCRAM | | |
| RO/SRO | b) No response <u>OR</u> half SCRAM | | |
| 36/48 | c) Half SCRAM always | | |
| | d) Full SCRAM always | | |
| Proposed Answer: | b) No response <u>OR</u> half SCRAM | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | ST-1I, OP-1 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-29, EO 1.09.f, 1.13.C | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 5 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|--|---------------------------------------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| IRM | Group # | 1 | 1 |
| Ability to monitor automatic operations of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM including: (CFR: 41.7 / 45.7) | K/A # 215003 | A3.04 | A3.04 |
| Control rod block status | Importance Rating | 3.5 | 3.5 |
| Proposed Question: | An IRM HI Flux Control Rod Block is automatically bypassed when _____? | | |
| | a) The Reactor Mode Switch is placed in RUN. | | |
| RO/SRO | b) The IRM is on Range 1. | | |
| 37/49 | c) The IRM's companion APRM is downscale. | | |
| | d) The SRM's are fully inserted. | | |
| Proposed Answer: | a) The Reactor Mode Switch is placed in RUN. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-16 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: _____ None | | | |
| Learning Objective: | SDLP-07B, EO- 1.05.C.2 | (As available) | |
| Question Source: | Bank # | _____ | |
| | Modified Bank # | _____ (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | _____ | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | _____ | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | _____ | |
| Comments: | | | |

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Source Range Monitor | Group # | 1 | 1 |
| Ability to monitor automatic operations of the SOURCE RANGE MONITOR (SRM) SYSTEM including: (CFR: 41.7 / 45.7) | K/A # 215004 | A3.04 | A3.04 |
| Control rod block status | Importance Rating | 3.6 | 3.6 |

Proposed Question: The following plant conditions exist:
 Reactor Mode Switch is in STARTUP/HOT STBY.
 Intermediate Range Monitors (IRM's) all on Range 3.
 Source Range Monitor (SRM) A is reading 0.5 cps
 SRM's B and C are reading 8.3×10^4
 SRM D mode switch is in STANDBY
 A rod block signal has been generated.
 Which one of the following has caused the rod block?

RO/SRO a) SRM Inoperable
 38/50 b) SRM not full in
 c) SRM Downscale
 d) SRM Upscale

Proposed Answer: a) SRM Inoperable

Explanation (Optional):

Technical Reference(s): OP-16 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-07B, EO 1.05.b.1, EO 1.05.c, EO 1.14.c (As available)

Question Source: Bank # Perry 1 INPO# 21837 (Modified to JAF)
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam 1/1/2001

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
 55.43 _____

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|--|-------------------|-------|-------|
| | Tier # | 2 | 2 |
| APRM / LPRM | Group # | 1 | 1 |
| Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including: (CFR: 41.7 / 45.7) Full core display | K/A # 215005 | A3.02 | A3.02 |
| | Importance Rating | 3.5 | 3.5 |

Proposed Question: A reactor startup is being performed following a planned outage. Annunciator, 09-5-2-33, LPRM Downscale, clears. The SNO can confirm that this is expected and correct by verifying?

RO/SRO

39/51

- a) All APRM Downscale alarms are clear.
- b) All Full Core Display LPRM downscale lights are out.
- c) All IRM Range Switches are above Range 1.
- d) Reactor Mode Switch is in RUN.

Proposed Answer: b) All Full Core Display LPRM downscale lights are out.

Explanation (Optional):

Technical Reference(s): OP-16, ARP- 09-5-2-33 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-07C, EO-1.12.D,1.05.C.1.B

(As available)

Question Source: Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

7

55.43

Comments:

| | | | |
|--|-------------------|----|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 2 |
| SLC | Group # | | 1 |
| Knowledge of the effect that a loss or malfunction of the STANDBY LIQUID CONTROL SYSTEM will have on following: (CFR: 41.7 / 45.4) | K/A # 211000 | | K3.02 |
| Core spray line break detection system: Plant-Specific Link to 10CFR-55.43(b)(2) | | | |
| | Importance Rating | | 3.2 |

Proposed Question: Engineering has just informed the Shift Manager of an industry event where flow induced vibration has breached the integrity of the in-vessel section of the Standby Liquid Control piping at the vessel wall.

In addition to SLC, which one (1) of the following systems Technical Specification operability could be threatened by such an occurrence?

RO/SRO
S52

- a) 'A' Loop of Core Spray only.
- b) Both Loops of Core Spray.
- c) 'A' Loop Recirc Pump Trip function only.
- d) Both Loops Recirc Pump Trip functions.

Proposed Answer:

b) Both Loops of Core Spray.

Explanation (Optional):

- Above Core Plate section of pipe is one side of Core Spray Sparger Leak Detection System ΔP cell- it is connected as high side of ΔP .
- This pipe is outer part of pipe- within – a pipe. Inner pipe is SLC Injection pipe and exits outer pipe below core plate.
- If flow induced vibrations caused wearing away of pipe where SLC (inner) exits outer, then the breach would put Core Spray sensing point below the core plate, making high side ΔP correction value even higher.
- Therefore, if break did occur in CS Injection piping, there would be no guarantee that the resulting ΔP change, calibrated for high side on above core plate would shift enough to cause associated alarm warning of sparger injection problem.
- Until Engineering could prove/disprove or calculate exact effect, then TRM requirement 3.3.H (Table 3.3.H-1) could not be assured to be met. The TRM Action is to monitor parameters within 12 hours. If this could not be done, then the system would be declared in-operable.
- Distractors- 'C and D' are incorrect in that the pressure sensing for ARI/RPT comes from RPV level Sensing Reference Legs. (3A&B Condensing Chambers).

Technical Reference(s): OP-14, OP-11, ARP-09-03-1-1 (Attach if not previously provided)
TRM 3.3.H (Table 3.3.H-1)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-14, EO-1.07.C, 1.16, 1.05.A.13 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

| | | | |
|---------------------------|---------------------------------|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | | F |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | 2 | |

Comments:

| | | | |
|---|--|---------------------------------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RCIC | Group # | 1 | 1 |
| Knowledge of the effect that a loss or malfunction of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) will have on following: (CFR: 41.7 / 45.4) K3.01 Reactor water level | K/A # 217000 | K3.01 | K3.01 |
| | Importance Rating | 3.7 | 3.7 |
| Proposed Question: | From a normal full power condition, the Station has lost all AC electrical power. RPV level is being controlled using RCIC system operation. | | |
| | Which statement below describes the effect, if any, that the loss of 'A' Station Battery will have on level control? | | |
| | a) HPCI system will have to be used to control RPV level. b) Diesel Fire Pump to RHR X-connect must be used to maintain level. c) All injection sources will be lost. Steam Cooling is required when RPV level drops to -19". d) RCIC will continue to inject but must be controlled in manual from the Control Room. | | |
| RO/SRO | | | |
| 40/53 | | | |
| Proposed Answer: | a) HPCI system will have to be used to control RPV level. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-45, AOP-49 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP 13, EO 1.09.A, 1.10.B (As available) | | |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|--|---------------------------------|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RCIC | Group # | 1 | 1 |
| Ability to monitor automatic operations of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) including: (CFR: 41.7 / 45.7) | K/A # 217000 | A3.06 | A3.06 |
| Lights and alarms | Importance Rating | 3.5 | 3.4 |
| Proposed Question: | RCIC has received an Initiation Signal and is operating as expected when the following alarm is received. 09-4-1-23- RCIC PMP SUCT PRESS LO | | |
| | Which of the below indications is consistent with this alarm? | | |
| | a) 13MOV-21, RCIC Pump Discharge to RPV, closes. | | |
| RO/SRO | b) 13HOV-1, RCIC Turbine Trip/Throttle Valve, closes then reopens. | | |
| 41/54 | c) 13MOV-131, RCIC Turbine Steam Inlet Isolation, closes. | | |
| | d) RCIC Pump suction has re-aligned to the Torus. | | |
| Proposed Answer: | a) 13MOV-21, RCIC Pump Discharge to RPV, closes. | | |
| Explanation (Optional): | a) Low suction is a trip that closes 13HOV-1. 13MOV-21 closes on interlock. | | |
| | b) 13HOV-1 must be manually reset to reopen. HPCI will cycle on a low suction pressure trip signal. | | |
| | c) 13MOV-131 will only close on RPV high water level. | | |
| | d) RCIC suction swap will occur without causing a RCIC Turbine Trip. | | |
| Technical Reference(s): | OP-19, ARP 09-4-1-23 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | | | None |
| Learning Objective: | SDLP-13, EO 1.05.b, 1.12, | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

APRM / LPRM

Group #

1

Ability to maintain primary and secondary plant chemistry within allowable limits.

K/A # 215005

2.1.34

(CFR: 41.10 / 43.5 / 45.12)

2.1.17

RANDOMLY RESELECTED

2.1.6

~~Ability to make accurate / clear and concise verbal reports.~~

(CFR: 45.12 / 45.13)

RANDOMLY RESELECTED

Ability to supervise and assume a management role during plant transients and upset conditions.

(CFR: 43.5 / 45.12 / 45.13)

Importance Rating

2.9

3.6

4.3

Proposed Question:

A reactor startup is in progress at 8 % power, Mode 2, when the Feedwater Startup Valve, 34FCV-137, fails full open with the following results:

- Full SCRAM.
- SNO-1 reports 4 rods at positions between 04 and 48.
- All four of the rods are widely separated across the core.
- APRMs are Downscale.
- RPV level peaked low at 190 inches and is slowly rising.
- SNO-2 is able to control Feedwater Startup Valve, 34FCV-137, in manual.
- RPV pressure is 900 psig and slowly trending down.

Which of the following is the cause of the SCRAM and the appropriate direction to the SNO-1?

RO/SRO

S55

- a) RPV High Water Level, Determine an EP-3 success path and insert control rods.
- b) APRM Upscale, Determine an EP-3 success path and insert control rods.
- c) RPV High Water Level, Insert control rods per AOP-1, Subsequent Operator Actions.
- d) APRM Upscale, Insert control rods per AOP-1, Subsequent Operator Actions.

Proposed Answer:

d) APRM Upscale, Insert control rods per AOP-1, Subsequent Operator Actions.

Explanation (Optional):

APRM set-down SCRAM of 15% when RMS is out of RUN.

Even if RPV HIGH LEVEL is reached and the Turbine Trips, the TSV Closure SCRAM is bypassed when the RMS is out of RUN.

Stem provides no EOP-2 entry conditions, therefore EOP-3 and thus EP-3 are not applicable.

AOP-1 provides Operator guidance for these conditions.

Technical Reference(s):

AOP-1, SDLP-07C, SDLP-05

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

| | | | |
|---|---------------------------------|---------------------------------|----------------|
| Learning Objective: | SDLP-07C, SDLP-05 | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 5, 10 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|---|-------------------|----|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 2 |
| RCIC | Group # | | 1 |
| Knowledge of electrical power supplies to the following: (CFR: 41.7) | K/A # 217000 | | K2.04 |
| Gland seal compressor (vacuum pump) | | | |
| <u>Link to 10CFR-55.43(b)(2)</u> | | | |
| | Importance Rating | | 2.6 |

Proposed Question: The Plant is operating at 100% power steady state with HPCI tagged out for maintenance. You are currently in day three (3) of the HPCI LCO. The SNO is performing a surveillance test to demonstrate RCIC is operable and reports that the Barometric Compressor Vacuum Pump, (13P-3), will not start.

Which of the below describes appropriate action and the impact on Technical Specifications?

RO/SRO

S56

- a) Dispatch NPO to check breaker status on BMCC-1/3. LCO is more restrictive.
- b) Dispatch NPO to check breaker status on BMCC-1/3. No change in LCO.
- c) Dispatch NPO to check breaker status on BMCC-2/4. LCO is more restrictive.
- d) Dispatch NPO to check breaker status on BMCC-2/4. No change in LCO.

Proposed Answer:

a) Dispatch NPO to check breaker status on BMCC-1/3. LCO is more restrictive.

Explanation (Optional):

Technical Reference(s): OP-43, OP-19 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective: SDLP-13, EO-1.04.A (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 7

55.43 2

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| ADS | Group # | 1 | 1 |
| Knowledge of the physical connections and/or cause effect relationships between AUTOMATIC DEPRESSURIZATION SYSTEM and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Safety/relief valves | K/A # 218000 | K1.06 | K1.06 |
| | Importance Rating | 3.9 | 3.9 |

Proposed Question: The Plant is at 70% power and normal operating pressure. The Control Room receives annunciator, 09-4-2-37, "SRV Electric Lift Initiated or Bypassed".
All SRV green lights are on.

Which of the following describes how this impacts the operation of the ADS Valve(s)?

RO/SRO
42/57

- a) Will operate on hydraulic overpressure.
- b) Will operate pneumatically on High RPV pressure.
- c) Only operate manually from Panel 02ADS-071.
- d) Only operate manually from 09-4 Panel.

Proposed Answer: a) Will operate on hydraulic overpressure.

Explanation (Optional):

Technical Reference(s): ARP-09-4-2-37, OP-68 (Attach if not previously provided)
GE DWG 791E453

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-29, EO-1.05.A.4 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|--------------|---------------------------|---------------------------|
| | Tier # | 2 | 2 |
| PCIS/Nuclear Steam Supply Shutoff | Group # | 1 | 1 |
| Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6) | K/A # 223002 | A2.04 A2.05 | A2.04 A2.05 |

~~Process radiation monitoring system failures~~

(RANDOMLY RESELECTED)

Nuclear boiler instrumentation failures

| | | |
|-------------------|----------------|----------------|
| Importance Rating | 2.9 | 3.2 |
| | 3.3 | 3.6 |

Proposed Question: During full power operation, I&C is conducting PCIS Group 1 Testing per Instrument Surveillance Procedures on transmitters, 02-3LT-57A through 57D. The technician commences testing RPV Level 1 response on level transmitter 02-3LT-57A. At the same moment the technician imposes a level signal of < 59.5" on LT-57A, level transmitter 02-3LT-57C fails downscale.

Which of the following describes the expected results of this combination of events (1) and Operator response (2)?

RO/SRO

43/58

- a) (1) Inboard MSIV's closed causing Reactor SCRAM. (2) Operators respond per AOP-1, Reactor SCRAM, AOP-15, ISOLATION VERIFICATION AND RECOVERY and EOP's.
- b) (1) All MSIV's closed causing Reactor SCRAM. (2) Operators respond per AOP-1, Reactor SCRAM, AOP-15, ISOLATION VERIFICATION AND RECOVERY and EOP's.
- c) (1) Half Isolation signal on PCIS 'A'. (2) Operators direct I&C Technician to restore 02-3LT-57A per AP-02.06, PROCEDURE USE AND ADHERANCE and reset the isolation signal per AOP-15, ISOLATION VERIFICATION AND RECOVERY.
- d) (1) Half Isolation signal on PCIS 'A'. (2) Operators direct I&C Technician to restore 02-3LT-57A per AP-02.06, PROCEDURE USE AND ADHERANCE and stop further testing.

Proposed Answer: d) (1) Half Isolation signal on PCIS 'A'. (2) Operators direct I&C Technician to restore 02-3LT-57A per AP-02.06, PROCEDURE USE AND ADHERANCE and stop further testing.

Explanation (Optional):

Group 1 MSIV Logic includes RPV Low Level. To permit testing and guard against spurious instrument failure, the de-energized- to-function, fail-safe logic, initiates a 1 out of 2 taken twice arrangement, which is also divided between two divisions. The failure of any one transmitter (either LT-57A or 'C', or 'B' or 'D') will not cause MSIV Closure, just indication of partial logic actuation; the consequences will depend upon which ones are involved. Any combination of one on 'A' logic (LT-57A or 57C) and one on 'B' logic (LT-57B or 57D) will fulfill complete logic and MSIV's (all) will automatically close. If both transmitters on the same logic train fail, it will result in no more than the half isolation logic actuation.

- a) Incorrect because MSIV's will not close with signals from 2 PCIS Logic 'A' Train signals.
- b) Incorrect because MSIV's will not close with signals from 2 PCIS Logic 'A' Train signals.
- c) Incorrect because even with the LT-57A returned to service, the ½ isolation signal is still present from LT-57C and can't be reset. Also- AOP-15 assumes isolation occurred.
- d) Correct- /2 isolation occurs and AP requires backing out of procedure by placing component manipulated into a safe condition.

Technical Reference(s): AP-12.03, AP-02.06 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-02B, EO-1.09.C (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 5, 10

55.43 5

Comments:

| | | | |
|---|-------------------|----|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 2 |
| PCIS/Nuclear Steam Supply Shutoff | Group # | | 1 |
| Knowledge of electrical power supplies to the following: (CFR: 41.7) | K/A # 223002 | | K2.01 |
| Logic power supplies | | | |
| <u>Link to 10CFR-55.43(b)(5)</u> | | | |
| | Importance Rating | | 2.7 |

Proposed Question: In which of the following complete system loss events, would you expect to find at least one MSIV in each Main Steam Line closed?

a) AOP-59, Loss of RPS Bus A Power
OR
AOP-45, Loss of DC Power System A

b) AOP-18, Loss of 10500 Bus
AND
AOP-45, Loss of DC Power System A

c) AOP-21, Loss of UPS
AND
AOP-46, Loss of DC Power System B

d) AOP-19, Loss of 10600 Bus
OR
AOP-46, Loss of DC Power System B

RO/SRO

S59

Proposed Answer: b) AOP-18, Loss of 10500 Bus
AND
AOP-45, Loss of DC Power System A

Explanation (Optional):

Technical Reference(s): AOP-18, AOP-19, AOP-21 (Attach if not previously provided)
AOP-45, AOP-46

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-29, EO 1.04.a, EO 1.05.a.1.c (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New New

Question History: Last NRC Exam _____

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43 5

Comments:

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| PCIS/Nuclear Steam Supply Shutoff | Group # | 1 | 1 |
| Knowledge of conditions and limitations in the facility license. (CFR: 43.1 / 45.13) | K/A # 223002 | 2.1.10 | 2.1.10 |
| | Importance Rating | 2.7 | 3.9 |

Proposed Question: The following data was collected on a Post Trip Review of a reactor scram from 100% power:

- Time + 0, reactor scrammed manually, all immediate operator actions of AOP-1 completed, all rods inserted fully
- Time + 1 minute - Main Condenser Vacuum 22.5" HG – Main Turbine tripped, all Turbine Stop Valves shut
- Time + 1.5 minutes - Main Condenser Vacuum 20" HG – Both Reactor Feed pumps tripped
- Time + 2.5 minutes, HPCI started and injected into the RPV on RPV level of 126.5"
- Time + 3 minutes, Main Condenser Vacuum 8" HG – Bypass Valves and MSIV's shut
- Time + 4 minutes, RPV pressure stabilized 800-1000 psig by manually operating SRV's
- Time + 8 minutes, RPV level restored to Normal band of 196.5 to 222.5"
- Time + 30 minutes, plant stabilized in Mode 3

Which system did not respond as required?

RO/SRO
44/60

- a) Main Turbine.
- b) Feedwater Pumps.
- c) HPCI.
- d) MSIV's.

Proposed Answer: d) MSIV's.

Explanation (Optional):

- a) Main Turbine responded as expected to loss of vacuum.
- b) FW pumps responded as expected to loss of vacuum.
- c) HPCI responded as expected to low RPV level.
- d) MSIV's did not respond, as expected- should have not closed on loss of vacuum, bypassed low vacuum trip at 8" with Main Stop Valves Closed and Mode Switch not in Run. Immediate Operator Actions per AOP-1 to place Rx Mode switch in Shutdown provided in stem at Time 0 minute.

Technical Reference(s): AOP-1, AOP-31 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LPAOP EO-1.02 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

| | | | |
|---------------------------|---------------------------------|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | 1 | |

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Main and Reheat Steam

Group #

2

Ability to (a) predict the impacts of the following on the MAIN AND REHEAT STEAM SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

K/A # 239001

A2.01

(CFR: 41.5 / 45.6)

Malfunction of reactor turbine pressure regulating system

Link to 10CFR-55.43(b)(5)

Importance Rating

3.9

Proposed Question:

The reactor is operating at 25% power with recirculation flow at minimum.

If a turbine trip occurs and the bypass valves fail to open, which of the following would be the appropriate procedure(s) to respond to the event?

RO/SRO

S61

- a) AOP-1, Reactor Scram, AND AOP-6, Malfunction of EHC Pressure Regulator.
- b) AOP-2, Main Turbine Trip Without Scram, AND AOP-6, Malfunction of EHC Pressure Regulator.
- c) EOP-2, RPV Control, AND AOP-2, Main Turbine Trip Without Scram.
- d) AOP-1, Reactor Scram, AND EOP-2, RPV Control.

Proposed Answer:

d) AOP-1, Reactor Scram, AND EOP-2, RPV Control.

Explanation (Optional):

High pressure entry into EOP-2 and AOP-1

Technical Reference(s):

AOP-1, EOP-2

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

SDLP-05, EO 1.07.a.6, 7, & 10

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 5, 10

55.43 5

Comments:

| Examination Outline Cross-reference: | Level | RO | SRO |
|--|--------------|-------|-------|
| | Tier # | 2 | 2 |
| SRVs | Group # | 1 | 1 |
| Knowledge of the physical connections and/or cause effect relationships between RELIEF/SAFETY VALVES and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Nuclear boiler | K/A # 239002 | K1.01 | K1.01 |

| | | |
|-------------------|-----|-----|
| Importance Rating | 3.8 | 3.9 |
|-------------------|-----|-----|

Proposed Question: After steady state conditions are achieved, which of the below is confirmation of an inadvertent SRV full opening while in normal full power operation?

RO/SRO

45/62

- a) Reactor Power at 100% and Main Generator Output at 850 MWe.
- b) RPV Water level at 207 inches and Level Set at 202 inches.
- c) Feed flow at 11×10^6 lbm/hr and Steam flow at 10×10^6 lbm/hr.
- d) Torus water temperature trending down slowly with Torus cooling in service.

Proposed Answer: c) Feed flow at 11×10^6 lbm/hr and Steam flow at 10×10^6 lbm/hr.

Explanation (Optional):

Technical Reference(s): AOP-36 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: LPAOP, EO-1.02,2.27

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 8

55.43

Comments:

SRO

2

1

K1.13

3.2

Proposed Question:

The plant is operating at 100% power with a normal Feed and Condensate alignment. There are no systems or components inoperable. The A Condensate Pump trips due to an electrical fault.

Which one of the following is the expected result of this trip?

RO/SRO

46/63

- The operating pumps assume the additional load and the RFPs are not affected. A normal power reduction is required.
- The A Condensate Booster Pump trips on interlock, but the RFPs are not affected. A normal power reduction is required.
- The A Condensate Booster Pump trips on interlock causing RFPs to trip on low suction pressure. A manual SCRAM is required.
- Condensate Booster Pump suction pressure decreases causing RFPs to trip on low suction pressure. A manual SCRAM is required.

Proposed Answer:

- a) The operating pumps assume the additional load and the RFPs are not affected. A normal power reduction is required.

Explanation (Optional):

Technical Reference(s):

AOP-42, OP-3

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

SDLP-33, EO 1.05.b.2 & 1.14.c

(As available)

Question Source:

Bank #

JAF LOR# 25601012B02C

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

7

55.43

Comments:

| | | | |
|---|---|---|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| SGTS | Group # | 1 | 1 |
| Knowledge of the effect that a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on following: (CFR: 41.7 /45.6) | K/A # 261000 | K3.05 | K3.05 |
| Secondary containment radiation/ contamination levels | Importance Rating | 3.2 | 3.5 |
| Proposed Question: | A Station Blackout has occurred resulting in a full Reactor SCRAM with all rods in. HPCI is operating to maintain RPV water level and pressure control. | | |
| | As a result of HPCI operation: | | |
| | a) | The 'A' Station Battery is expected to rapidly deplete. | |
| RO/SRO | b) | The Crescent Area contamination levels are expected to rise. | |
| 47/64 | c) | The HPCI Turbine MUST be manually tripped on RPV high water level. | |
| | d) | RPV water level is expected to slowly drop until injection overcomes decay heat losses. | |
| Proposed Answer: | b) The Crescent Area contamination levels are expected to rise. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-49, AOP-45, AOP-46 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-01B, EO-1.09.A, F, LPAOP-49, EO-1.04 | | (As available) |
| Question Source: | Bank # | | |
| | Modified Bank # | | (Note changes or attach parent) |
| | New | NEW | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 7 | |
| | 55.43 | | |
| Comments: | | | |

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|-------------------|-------|-------|
| | Tier # | 2 | 2 |
| AC Electrical Distribution | Group # | 1 | 1 |
| Knowledge of electrical power supplies to the following: (CFR: 41.7) | K/A # 262001 | K2.01 | K2.01 |
| Off-site sources of power | Importance Rating | 3.3 | 3.6 |

Proposed Question: The Plant is in day 8 of a refuel outage. A full core off load has just been completed. Niagara Mohawk called to report that the Lake Road 13.2 KV line is being taken out of service immediately.

Which of the below is a priority Control Room action?

RO/SRO

48/65

- a) Dispatch an NPO to transfer DHR power to the Diesel Generator.
- b) Transfer in house electrical distribution from Normal to Reserve Station Service.
- c) Dispatch an NPO to align 115 KV control power to the alternate source.
- d) Implement alternate temperature monitoring of Interim Spent Fuel Storage.

Proposed Answer:

a) Dispatch an NPO to transfer DHR power to the Diesel Generator.

Explanation (Optional):

Technical Reference(s): AOP-71 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: LPAOP, EO-1.03, SDLP-71S, EO-1.09, SDLP-32, EO-1.04, 1.10.A (As available)

Question Source: Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

7

55.43

Comments:

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| UPS (AC/DC) | Group # | 1 | 1 |
| Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13) | K/A # 262002 | 2.2.13 | 2.2.13 |
| | Importance Rating | 3.6 | 3.8 |

Proposed Question: Operators are tagging out the UPS M/G set for bearing replacement.
Worker protection is assured by:

- RO/SRO
49/66
- a) A Maintenance PTR.
 - b) A Special Condition PTR.
 - c) A Guarantee PTR.
 - d) A Hold PTR.

Proposed Answer: d) A Hold PTR.

Explanation (Optional): PTR Purposes:

- a) Maintenance PTR- used outside the power block.
- b) Special Condition PTR- Not personnel protection-cautionary statement.
- c) Guarantee PTR- a formal agreement from Ops controller to another controller- does not mean equipment is deenergized. Hold tags are used for a Guarantee PTR.
- d) Hold PTR- Personnel protection in power block to support maintenance.

Technical Reference(s): OP-46B, AP-12.01 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-71A, EO 1.13.e (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Offgas

Group #

2

Ability to predict and/or monitor changes in parameters associated with operating the OFFGAS SYSTEM controls including:

K/A # 271000

A1.06

(CFR: 41.5 / 45.5)

Filter differential pressure

Link to 10CFR-55.43

Importance Rating

2.5

Proposed Question:

The plant is operating at rated power when the following indications simultaneously occur:

- 09-6-1-23, OFF GAS LINE FILTER DIFF PRESS HI in and clear.
- 09-6 Off Gas Flow Recorder (38FR-101) drops from 120 to 70 SCFM.
- EPIC OFFGASRAD alarm.
- 09-10 Off Gas Radiation Monitors both reading 150-175 mr/hr.

Which of the following describes the plant event and the appropriate mitigating procedure?

RO/SRO

S67

- Off Gas line blockage will cause a loss of condenser vacuum. AOP-31, LOSS OF CONDENSER VACUUM.
- A hydrogen fire has ignited in piping downstream of the SJAE's. AOP-5, COMBUSTION IN SJAE AFTERCONDENSER.
- Fuel failure has resulted in a large radioactive gas release from the RPV. AOP-3, HIGH ACTIVITY IN REACTOR COOLANT OR OFFGAS.
- An explosion has breached the SJAE discharge piping. AOP-4, EXPLOSION IN AIR EJECTOR DISCHARGE PIPING.

Proposed Answer:

- A hydrogen fire has ignited in piping downstream of the SJAE's. AOP-5, COMBUSTION IN SJAE AFTERCONDENSER.

Explanation (Optional):

Technical Reference(s):

ARP-09-6-1-23/AOP-4

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LPAOP-EO 1.01

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

5,10

55.43

5

Comments:

| | | | |
|--|---|---------------------------------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| DC Electrical Distribution | Group # | 1 | 1 |
| Ability to (a) predict the impacts of the following on the D.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6) Grounds | K/A # 263000 | A2.01 | A2.01 |
| | Importance Rating | 2.8 | 3.2 |
| Proposed Question: | The plant is operating at 100% with operators attempting to locate a ground on the "A" station battery. The next breaker to be opened is the supply for 10700 BKR Control Power (71DCA3 Ckt 24). How will the opening of this DC breaker affect the 4KV breakers on the 10700 bus <u>AND</u> which procedures will provide guidance? | | |
| RO/SRO | a) The breakers will immediately trip, AOP-20, Loss of 10700 Bus, and AOP-22, DC Power System 'A' Ground Isolation. | | |
| 50/68 | b) The breakers can be tripped mechanically only, OP-46A, 4160 V & 600 V Normal AC Power Distribution, and AOP-22, DC Power System 'A' Ground Isolation. | | |
| | c) The breakers will immediately trip, OP-46A, 4160 V & 600 V Normal AC Power Distribution, and AOP-22, DC Power System 'A' Ground Isolation. | | |
| | d) The breakers can be tripped mechanically, AOP-20, Loss of 10700 Bus, and AOP-22, DC Power System 'A' Ground Isolation. | | |
| Proposed Answer: | b) The breakers can be tripped mechanically only, OP-46A, 4160 V & 600 V Normal AC Power Distribution, and AOP-22, DC Power System 'A' Ground Isolation. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-22 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-71B, EO-1.09.C.18 (As available) | | |
| Question Source: | Bank # | JAF LOR # 20004211B01C | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | X | |
| | Comprehension or Analysis | | |
| 10 CFR Part 55 Content: | 55.41 | 10 | |
| | 55.43 | 5 | |
| Comments: | | | |

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| EDGs | Group # | 1 | 1 |
| Knowledge of the effect that a loss or malfunction of the following will have on the EMERGENCY GENERATORS (DIESEL/JET) : | K/A # 264000 | K6.02 | K6.02 |
| (CFR: 41.7 / 45.7) | | | |
| Fuel oil pumps | Importance Rating | 3.6 | 3.6 |

Proposed Question: A LOCA and LOOP exists. Off-site power is not expected to be returned to service for two days. All EDG equipment is operable with the exception that Fuel Oil Transfer Pumps 93P1-A1 & 2 have just tripped and cannot be started.

Based upon these events, select the expected plant response assuming NO Operator action.

| | |
|--------|--|
| RO/SRO | a) EDG's "A", "B", "C", & "D" will continue to run until off- site power is restored. |
| 51/69 | b) EDG "A" will trip immediately, EDG's "B", "C", & "D" will continue to run until off-site power is restored. |
| | c) EDG "A" will continue to run for up to three (3) hours then trip, EDG's "B", "C", & "D" will continue to run until off- site power is restored. |
| | d) EDG "A" and "C" will continue to run for up to three (3) hours then trip. EDG's "B" & "D" will continue to run until off- site power is restored. |

Proposed Answer: c) EDG "A" will continue to run for up to three (3) hours then trip, EDG's "B", "C", & "D" will continue to run until off- site power is restored.

Explanation (Optional):

Technical Reference(s): OP-22 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-93, EO-1.05.A.4, 1.10.G (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of the process for making changes in procedures as described in the safety analysis report. (CFR: 43.3 / 45.13)

Group #

K/A #

2.2.6

Importance Rating

3.3

Proposed Question:

Who must approve a temporary change to a Technical Specification related procedure?

RO/SRO

S70

- a) The procedure RPO and an Operations QTR.
- b) A plant management QTR and a SRO license QTR.
- c) The General Manager-Plant Operations and a plant management QTR.
- d) A plant management QTR and any operations licensed QTR.

Proposed Answer:

b) A plant management QTR and a SRO license QTR.

Explanation (Optional):

Technical Reference(s):

AP-2.04

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

LPAP, EO-4.05

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

3

Comments:

| | | | |
|--|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Instrument Air | Group # | 1 | 1 |
| Knowledge of the connections and / or cause effect relationships between INSTRUMENT AIR SYSTEM and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Main Steam Isolation Valve air | K/A # 300000 | K1.05 | K1.05 |
| | Importance Rating | 3.1 | 3.2 |

Proposed Question: The plant is operating at 75% reactor power.
The SNO-1 depresses the TEST pushbutton for 29AOV-86B, 'B' OUTBOARD MSIV.
Which one of the following describes the response of 29AOV-86B?

RO/SRO
52/71

a) Instrument Nitrogen bleeds off the bottom portion of the MSIV air cylinder and the top portion of the MSIV air cylinder is pressurized to stroke the MSIV closed in 3-5 seconds.

b) Instrument Air bleeds off the bottom portion of the MSIV air cylinder causing the MSIV to slowly close.

c) Instrument Nitrogen bleeds off the bottom portion of the MSIV air cylinder causing the MSIV to slowly close.

d) Instrument Air bleeds off the bottom portion of the MSIV air cylinder and the top portion of the MSIV air cylinder is pressurized to stroke the MSIV closed in 3-5 seconds.

Proposed Answer: b) Instrument Air bleeds off the bottom portion of the MSIV air cylinder causing the MSIV to slowly close.

Explanation (Optional):

Technical Reference(s): ST-11, OP-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank # Perry 1 INPO # 21861 (Modified to JAF)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 1/1/2001

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of the effects of alterations on core configuration. (CFR: 43.6)

Group #

K/A #

2.2.32

Importance Rating

3.3

Proposed Question:

The purpose of core spiral fuel un-loading is which one of the following?

RO/SRO

S72

- a) it minimizes the possibility of flow induced vibration of nuclear instrumentation
- b) it precludes the formation of moderator filled cavities surrounded on all sides by fuel
- c) it prevents SRM count rates from spiking when fuel is being off-loaded
- d) it enables the completion of a full core off-load in less time

Proposed Answer:

- b) it precludes the formation of moderator filled cavities surrounded on all sides by fuel

Explanation (Optional):

Technical Reference(s):

ITS – Bases, RAP- 7.1.24

(Attach if not previously provided)

RAP-7.1.04B Section 5.10.3

Proposed references to be provided to applicants during examination:

None

Learning Objective:

SDLP-07B, EO 1.13.E, 1.17.G

(As available)

Question Source:

Bank #

JAF LOR # 1332

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

55.43

6

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Component Cooling Water | Group # | 1 | 1 |
| Knowledge of electrical power supplies to the following: (CFR: 41.7) | K/A # 400000 | K2.01 | K2.01 |
| CCW pumps | Importance Rating | 2.9 | 3.0 |

Proposed Question: An electrical transient has occurred and Switchgear L-14 is de-energized.
Which of the following equipment would be lost due to the degraded electrical source?

RO/SRO 53/73

a) 12P-1A, RWCU Pump "A"
b) 15P-2B, RBCLC Pump "B"
c) 11P-2B, SLC Pump "B"
d) 46P-1B, Service Water Pump "B"

Proposed Answer: b) 15P-2B, RBCLC Pump "B"

Explanation (Optional):

Technical Reference(s): OP-46 (Attach if not previously provided)
OP-40

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-15, EO-1.03B (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.

Group #

(CFR: 43.4 / 45.10)

K/A #

2.3.4

Importance Rating

3.1

Proposed Question:

Authorization to receive radiological exposures in excess of 10CFR20 limits is the responsibility of the _____.

RO/SRO

S74

- a) Radiation Protection Manager
- b) Emergency Director
- c) TSC Manager
- d) General Manager- Plant Operations

Proposed Answer:

b) Emergency Director

Explanation (Optional):

Technical Reference(s):

EAP-15, AP-07.05

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

EP-12.5.3, EO-1.20.B

(As available)

Question Source:

Bank #

LaSalle 1INPO # 19298 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

11/20/2000

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

55.43

4

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| CRD Hydraulic | Group # | 2 | 2 |
| Knowledge of electrical power supplies to the following: (CFR: 41.7) | K/A # 201001 | K2.03 | K2.03 |
| Backup SCRAM valve solenoids | Importance Rating | 3.5 | 3.6 |

Proposed Question: WHICH ONE of the following supplies power to the Backup Scram Valves?

- RO/SRO
54/75
- a) 120 VAC UPS
 - b) 125 VDC
 - c) 24 VDC
 - d) 120 VAC RPS

Proposed Answer: b) 125 VDC

Explanation (Optional):

Technical Reference(s): OP-18 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-05, EO-1.04.A (As available)

Question Source: Bank # Oyster Creek 1 INPO # 13001 (Modified to JAF)

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam 4/29/1996

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 7

55.43

Comments:

| | | | |
|--|-------------------|----|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | | 3 |
| Knowledge of the requirements for reviewing and approving release permits. (CFR: 43.4 / 45.10) | Group # | | |
| | K/A # | | 2.3.6 |
| | Importance Rating | | 3.1 |

Proposed Question: You are the Control Room Supervisor when approached by a Shift Chemistry Technician about the need to discharge a Waste Sample Tank to the Lake. The Shift Chemistry Technician has all of the necessary paperwork.

Prior to starting the discharge, it must be approved by _____ (1)
During the discharge, the loss of a circulating water pump will result in _____ (2)

RO/SRO
S76

- a) (1) Shift Manager (2) higher concentration radioactive releases
- b) (1) Chemistry Superintendent (2) higher concentration radioactive releases
- c) (1) Shift Manager (2) lower concentration radioactive releases
- d) (1) Chemistry Superintendent (2) lower concentration radioactive releases

Proposed Answer: a) (1) Shift Manager (2) higher concentration radioactive releases

Explanation (Optional):

Technical Reference(s): SP-1.05 Attachment # 2 (Attach if not previously provided)
OP-49

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-20, EO-1.13.B (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41
55.43 4

Comments:

| | | | |
|---|---|--|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Control Rod and Drive Mechanism | Group # | 2 | 2 |
| Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6) | K/A # 201003 | A2.01 | A2.01 |
| Stuck rod | | | |
| | Importance Rating | 3.4 | 3.6 |
| Proposed Question: | A normal reactor startup is in progress at 7% reactor power and 970 psig RPV pressure. Control Rod 26-35 did not move when given a withdraw signal from it's current notch position 12. Drive water differential pressure has been adjusted to 450 psid. All previous attempts to move this rod have been unsuccessful. | | |
| | The operator's next action should be to . . . | | |
| RO/SRO | a) | Individually SCRAM Control Rod 26-35, then disarm it electrically and hydraulically. | |
| 55/77 | b) | Attempt to move Control Rod 26-35 by performing "Double Clutching." | |
| | c) | Declare Control Rod 26-35 INOPERABLE, then disarm it electrically and hydraulically. | |
| | d) | Raise drive water differential pressure an additional 50 psig and attempt to withdraw Control Rod 26-35. | |
| Proposed Answer: | d) | Raise drive water differential pressure an additional 50 psig and attempt to withdraw Control Rod 26-35. | |
| Explanation (Optional): | | | |
| Technical Reference(s): | AOP-24 | | (Attach if not previously provided) |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-03C, EO-1.15.C | | (As available) |
| Question Source: | Bank # | Quad Cities 1 INPO # 19545 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 8/13/2001 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 5 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RWM | Group # | 2 | 2 |
| Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) | K/A # 201006 | A4.06 | A4.06 |
| Selected rod position indication:P-Spec(Not-BWR6) | Importance Rating | 3.2 | 3.2 |

Proposed Question: A manual SCRAM was inserted based on lowering RPV water level. The condition has been corrected and RPV level has been returned to the Green Band. During the SCRAM, two (2) control rods failed to fully insert. The SNO has attempted to insert control rods using the CRD System per EP-3, Backup Control Rod Insertion. Which of the following conditions could prevent manual control rod insertion?

RO/SRO
56/78

- a) SDIV High Level Over-ride Switch in 'Normal'.
- b) Rod Worth Minimizer Bypass Switch in 'Normal'.
- c) Alternate Rod Insertion (ARI) NOT reset.
- d) Reactor Protection System SCRAM NOT reset.

Proposed Answer:

b) Rod Worth Minimizer Bypass Switch in 'Normal'.

Explanation (Optional):

Technical Reference(s): EP-3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EOP3LP, EO 1.07 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 6, 7
55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RWCU | Group # | 2 | 2 |
| Knowledge of REACTOR WATER CLEANUP SYSTEM design feature(s) and/or interlocks which provide for the following: (CFR: 41.7) | K/A # 204000 | K4.03 | K4.03 |
| Over temperature protection for system components | Importance Rating | 2.9 | 2.9 |

Proposed Question: The plant is performing a reactor startup and heatup, currently at 200 psig.

- Reactor water level control is via Reactor Water Cleanup (RWCU) rejecting to the main condenser hotwell
- Main condenser vacuum has been established with the vacuum pump

The operator is cautioned to carefully monitor system parameters while rejecting. Which of the following RWCU system trips/isolations provide RWCU Demineralizer protection while in this lineup?

RO/SRO

57/79

- a) Cleanup Blowdown Flow Control Valve (12FCV-55) closure on low upstream pressure.
- b) RWCU system isolation on non-regenerative heat exchanger high outlet temperature.
- c) Cleanup Blowdown Flow Control Valve (12FCV-55) closure high downstream pressure.
- d) RWCU system Containment Isolation Valve closure on high system flowrate.

Proposed Answer: b) RWCU system isolation on non-regenerative heat exchanger high outlet temperature.

Explanation (Optional): Per DBD,

- 12FCV-55 closures are to protect system piping from under (vacuum) and over pressure.
- System high temperature isolation protects resin.
- System high flow isolation protects public from excessive releases.

Technical Reference(s): OP-28, ARP 09-4-2-35, DBD System 12 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-12, EO 1.05.c.1 (As available)

Question Source: Bank # Peach Bottom 2 INPO # 18536 (Modified to JAF)

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam 9/19/1997

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7

55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RPIS | Group # | 2 | 2 |
| Ability to monitor automatic operations of the ROD POSITION INFORMATION SYSTEM including: (CFR: 41.7 / 45.7) | K/A # 214000 | A3.02 | A3.02 |
| Alarm and indicating lights | Importance Rating | 3.2 | 3.1 |

Proposed Question: During a plant startup, with reactor power at 12%, control rod 18-11 was selected and the following indications occur:

Annunciator 09-5-2-2, ROD WITHDRAWAL BLOCK

Annunciator 09-5-2-1, RWM ROD BLOCK

A loss of ALL rod position indications on the Four Rod Display occurred

A loss of ALL red Full-Out and green Full-In indications of Full Core Display

Which of the following may be the cause for these indications?

RO/SRO

58/80

a) Loss of 120 VAC Panel 71RBACB5

b) Loss of Panel 71AC10

c) Loss of Reactor Protection System (RPS) Distribution Panel A

d) Loss of Uninterruptible Power Supply (UPS)

Proposed Answer:

d) Loss of Uninterruptible Power Supply (UPS)

Explanation (Optional):

Technical Reference(s): AOP-21 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-03G, EO-1.04, LPAOP, EO-1.01 (As available)

Question Source: Bank # Fermi 2 2 INPO # 7322 (Modified to JAF)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 12/11/1995

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

| | | | |
|---|---|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RBM | Group # | 2 | 2 |
| Ability to predict and/or monitor changes in parameters associated with operating the ROD BLOCK MONITOR SYSTEM controls including: (CFR: 41.5 / 45.5) Trip reference: BWR-3,4,5 | K/A # 215002 | A1.01 | A1.01 |
| | Importance Rating | 2.7 | 2.8 |
| Proposed Question: | While withdrawing control rod 26-27 at 40% power, which of the below is the probable indication of a withdraw rod block? | | |
| | a) SDIV High Level Alarm reading 20 gallons. b) Rod Block Monitor green Push To Setup lamp is lit. c) Control Rod 26-27 has withdrawn more than one (1) notch beyond the other rods in that group. d) All Detector 'A' Bypass lamps are lit on the Four Rod Display. | | |
| RO/SRO | | | |
| 59/81 | | | |
| Proposed Answer: | b) Rod Block Monitor green Push To Setup lamp is lit. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-16 (Attach if not previously provided) | | |
| Proposed references to be provided to applicants during examination: | RAP-7.3.16, Attachment 3 | | |
| Learning Objective: | SDLP-7C, EO-1.05.B.4.F (As available) | | |
| Question Source: | Bank # _____ Modified Bank # _____ (Note changes or attach parent) New NEW Last NRC Exam _____ | | |
| Question History: | | | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge Comprehension or Analysis X | | |
| 10 CFR Part 55 Content: | 55.41 5 55.43 | | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

2

Nuclear Boiler Inst.

Group #

2

2

Knowledge of the effect that a loss or malfunction of the following will have on the NUCLEAR BOILER INSTRUMENTATION :

K/A # 216000

K6.01

K6.01

(CFR: 41.7 / 45.7)

A.C. electrical distribution

Importance Rating

3.1

3.3

Proposed Question:

Given the following plant conditions immediately after a SCRAM from full power:

- Drywell Instrument Run temperature – 120 °F
- Reactor Building temperature – 94 °F
- Reactor pressure – 880 psig

Immediately following a loss of all AC power, **WHAT** is the MINIMUM reactor water level that can be monitored from the control room?

RO/SRO

60/82

a) +44"

b) -150"

c) -145"

d) +164.5"

Proposed Answer:

c) -145"

Explanation (Optional):

Requires evaluation of what indication remains after a loss of all AC power. As a result of automatic backup swap on DC power at least one instrument remains for each response. Must recognize that EOP entry is applicable. Must apply RPV Sat curve to determine correct answer.

Technical Reference(s):

EOP- Caution #1

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

Learning Objective:

EOP2LP, EO-1.01, SDLP-02B, EO-1.10.A, 1.04

(As available)

Question Source:

Bank #

LaSalle 1 INPO # 11671 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

10/6/1995

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

7

55.43

Comments:

| | | | |
|--|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RHR/LPCI: CTMT Spray Mode | Group # | 2 | 2 |
| Knowledge of the physical connections and/or cause effect relationships between RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8) | K/A # 226001 | K1.12 | K1.12 |
| Suppression pool (spray penetration): Plant-Specific | Importance Rating | 3.0 | 3.0 |

Proposed Question: Why does the Torus Spray flowpath of EOP-4, Primary Containment Control, prohibit initiation of Torus Spray if Torus Level is greater than 26 feet?

RO/SRO
61/83

- a) Less than 95% of non-condensable gasses exist in the Torus air space.
- b) The spray header is covered by Torus water level.
- c) The DW to Torus Vent flowpath has been lost.
- d) Initiation of Sprays could bring the Torus to sub-atmospheric conditions.

Proposed Answer: b) The spray header is covered by Torus water level.

Explanation (Optional):

Technical Reference(s): BWROG EPG's (Attach if not previously provided)
EOP4LP

Proposed references to be provided to applicants during examination:

None

Learning Objective: EOP4LP, EO-1.05 (As available)

Question Source: Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41 7

55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| RHR/LPCI: Torus/Pool Spray Mode | Group # | 2 | 2 |
| Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) | K/A # 230000 | A4.02 | A4.02 |
| Spray valves | Importance Rating | 3.8 | 3.6 |

Proposed Question: During a LOCA, the A and C RHR Pumps are injecting in the LPCI Mode. An Operator attempts to place the A loop of RHR in Torus Spray as directed by the Control Room Supervisor.

Without further Operator action, design interlocks will result in which of the following when valve operation is initiated?

| | |
|--------|---|
| RO/SRO | a) The valves may be opened but will immediately close due to a LPCI Initiation signal present. |
| 62/84 | b) 10MOV-39A and 34A will open, but 10MOV-38A will NOT open allowing Torus cooling mode of operation. |
| | c) 10MOV-39A and 38A will open but 10MOV-34A will NOT open allowing Torus spray mode of operation. |
| | d) The valves will NOT open due to a LPCI initiation signal being present unless the initiation signal is first overridden. |

Proposed Answer: d) The valves will NOT open due to a LPCI initiation signal being present unless the initiation signal is first overridden.

Explanation (Optional):

Technical Reference(s): OP-13 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-10, EO-1.05.A.2 (As available)

Question Source: Bank # Fermi 2 2 INPO # 8890 (Modified to JAF)

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam 4/6/1998

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 7

55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Fuel Pool Cooling/Cleanup | Group # | 2 | 2 |
| Knowledge of FUEL POOL COOLING AND CLEAN-UP design feature(s) and/or interlocks which provide for the following: (CFR: 41.7) | K/A # 233000 | K4.03 | K4.03 |
| Maintenance of adequate pool temperature | Importance Rating | 2.8 | 3.1 |

Proposed Question: A design basis of the Fuel Pool Cooling and Cleanup System is to maintain the Spent Fuel Pool outlet temperature below _____ for a peak annual refueling heat load of 10×10^6 BTU/Hr.

RO/SRO 63/85

a) 155 °F
b) 145 °F
c) 135 °F
d) 125 °F

Proposed Answer: c) 135 °F

Explanation (Optional):

Technical Reference(s): OP-30, AOP-53, FSAR (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-19, EO-1.02 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New NEW

Question History: Last NRC Exam _____

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 7
55.43 7

Comments:

| | | | |
|--|--------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Reactor/Turbine Pressure Regulator | Group # | 2 | 2 |
| Knowledge of the operational Implications of the following concepts as they apply to REACTOR/TURBINE PRESSURE REGULATING SYSTEM : (CFR: 41.5 / 45.3) | K/A # 241000 | K5.05 | K5.05 |
| Turbine inlet pressure vs. turbine load | | | |

Importance Rating 2.8 2.9

Proposed Question: Reactor Power is reduced from 100% to 95% by lowering recirculation flow. Turbine Control Valves are repositioned by EHC sensing _____ as compared to _____?

RO/SRO
64/86

- a) RPV Pressure, Pressure Setpoint.
- b) RPV Pressure, Turbine 1st Stage Pressure
- c) Turbine Inlet Pressure, Turbine 1st Stage Pressure
- d) Turbine Inlet Pressure, Pressure Setpoint.

Proposed Answer: d) Turbine Inlet Pressure, Pressure Setpoint.

Explanation (Optional):

Technical Reference(s): SLP-74C (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-74C, EO-1.05.A.4 (As available)

Question Source: Bank # Dresden 2 INPO # 6524 (Modified to JAF)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 3/11/1996

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 5
55.43

Comments:

| | | | |
|---|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 2 | 2 |
| Secondary CTMT | Group # | 2 | 2 |
| Knowledge of the effect that a loss or malfunction of the SECONDARY CONTAINMENT will have on following: (CFR: 41.7 / 45.4) | K/A # 290001 | K3.01 | K3.01 |
| †Off-site radioactive release rates | Importance Rating | 4.0 | 4.4 |

Proposed Question: The plant was operating at 100% power when a large steam leak occurred inside the Reactor Building. SGT Train "A" and "B" are operating at rated flows. Secondary Containment pressure is +1.5" WG.

Off-Site radioactivity release rates are expected to be.....

| | |
|--------|---|
| RO/SRO | a) Ground releases via SGT only |
| 65/87 | b) Ground releases via SGT and Reactor Building Ventilation |
| | c) Elevated releases via SGT and Ground releases via Reactor Building leakage |
| | d) Elevated releases via SGT and Ground releases via Reactor Building Ventilation |

Proposed Answer: c) Elevated releases via SGT and Ground releases via Reactor Building leakage

Explanation (Optional):

Technical Reference(s): OP-51A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: SDLP-16A EO-1.09b, SDLP-66A, EO-1.05.C (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New New

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43

Comments:

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Ability to explain and apply system limits and precautions. (CFR: 41.10 / 43.2 / 45.12) | Group # | | |
| | K/A # | 2.1.32 | 2.1.32 |
| | Importance Rating | 3.4 | 3.8 |

Proposed Question: Prior to returning to two loop operation from one loop operation, which of the following **LIMITS** must be met and what is the **REASON** for that limit?

- a) LIMIT - The temperature difference between the bottom head coolant and the recirc loop coolant in the loop to be started is ≤ 145 deg F.

REASON - To prevent a violation of the RPV pressure and temperature limitation that minimize the chances of brittle fracture from occurring.

- b) LIMIT - The temperature difference between the recirc loop coolant in the loop to be started and the reactor vessel coolant is ≤ 50 deg F.

RO/SRO

REASON - To prevent a violation of the RPV pressure and temperature limitation that minimize the chances of brittle fracture from occurring.

- c) LIMIT - The temperature difference between the bottom head coolant and the recirc loop coolant in the loop to be started is ≤ 145 deg F.

66/88

REASON - To prevent damage to the fuel cladding that would result from the sudden increase in power due to the injection of cold water.

- d) LIMIT - The temperature difference between the recirc loop coolant in the loop to be started and the reactor vessel coolant is ≤ 50 deg F.

REASON - To prevent damage to the fuel cladding that would result from the sudden increase in power due to the injection of cold water.

Proposed Answer: b) LIMIT - The temperature difference between the recirc loop coolant in the loop to be started and the reactor vessel coolant is ≤ 50 deg F.

REASON - To prevent a violation of the RPV pressure and temperature limitation that minimize the chances of brittle fracture from occurring.

Explanation (Optional): UFSAR – Section 14.5.7.2 STARTUP of IDLE Recirculation Pump analysis starts from following conditions- idle loop is filled with 100 ° F water, active loop is at 67% flow, core flow is at 50 %, Core power is 65%. When the idle loop is started at these conditions there is a resultant short duration peak of 90% neutron power with no SCRAM, the analysis predicts that **NO** Damage To Fuel Barrier Occurs.

Based upon the ITS and FSAR analysis;

- Distracter has incorrect limit- it states the difference is between bottom head and idle loop temperature- the SR verifies difference between bottom head coolant temperature & RPV coolant temperature is $\leq 145^{\circ}\text{F}$. The reason it gives is correct for the purpose of the LCO.
- Correct** response has correct limit- The reason it gives is correct for the purpose of the LCO.
- Distracter has incorrect limit- see distracter A. The reason it gives is incorrect based upon UFSAR – Section 14.5.7.2- analysis predicts that **NO** Damage To Fuel Barrier Occurs.
- Distracter has correct limit- The reason it gives is incorrect based upon UFSAR – Section 14.5.7.2- analysis predicts that **NO** Damage To Fuel Barrier Occurs.

Technical Reference(s): ST-26K, ITS SR 3.4.9.3, SR 3.4.9.5 ITS Bases 3.4.9, SR B3.4.9.3, SR B3.4.9.5, FSAR- 14.5.7.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: SDLP-2H, EO- 1.13g (As available)

Question Source: Bank # Dresden 2 INPO # 21373
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 6/14/2002

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of how to conduct and verify valve lineups. (CFR: 41.10 / 45.1 / 45.12) | Group # | | |
| | K/A # | 2.1.29 | 2.1.29 |
| | Importance Rating | 3.4 | 3.3 |

Proposed Question: LCO maintenance to replace the 'A' EDG Jacket Water Cooler has just been completed and restoration is in progress. The valve lineup calls for the Cooler ESW Outlet Isolation Valve, 46ESW-5A, located in 'A' EDG Room, to be locked 4 turns closed.

To complete this valve lineup, you must:

| | |
|--------|--|
| RO/SRO | a) Perform initial positioning, then call for another qualified operator to verify your actions. |
| 67/89 | b) Perform initial positioning in the presence of another qualified operator verifying your actions. |
| | c) Perform initial positioning and N/A the verification requirement. |
| | d) Perform initial positioning and obtain Shift Manager concurrence to waive the verification. |

Proposed Answer: b) Perform initial positioning in the presence of another qualified operator verifying your actions.

Explanation (Optional):

| |
|--|
| a) Cannot independently verify position of throttled valves. |
| b) Correct response. Required because of 'A'. |
| c) Component verification required on all safety related components unless waived. |
| d) SM can waive verification for excessive exposure or hazardous environment. The 'A' EDG Room is neither. |

Technical Reference(s): AP-12.06 Section 7.6 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LPAP-48.03, 48.02 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10

55.43

Comments:

| | | | |
|---|---|--|-------------------------------------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Ability to perform pre-startup procedures for the facility / including operating those controls associated with plant equipment that could affect reactivity. (CFR: 45.1) | Group # | | |
| | K/A # | 2.2.1 | 2.2.1 |
| | Importance Rating | 3.7 | 3.6 |
| Proposed Question: | A plant startup is in progress with the Mode Selector Switch in Startup. Control rods are being withdrawn. | | |
| | <ul style="list-style-type: none"> The Rod Worth Minimizer (RWM) has just failed with 25% of the control rods withdrawn. | | |
| | What action is required? | | |
| RO/SRO | a) | Bypass the RWM, verify all further control rod movements are in compliance using a qualified person, and continue the reactor startup. | |
| 68/90 | b) | Suspend withdrawal of the control rods, manually SCRAM the reactor, and verify operability of the RWM before commencing a reactor startup. | |
| | c) | Suspend withdrawal of the control rods, verify operability of the Rod Block Monitor, and continue the reactor startup. | |
| | d) | Bypass the RWM, fully insert all control rods, and verify operability of the RWM before commencing a reactor startup. | |
| Proposed Answer: | a) | Bypass the RWM, verify all further control rod movements are in compliance using a qualified person, and continue the reactor startup | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-64 Section E.1 | | (Attach if not previously provided) |
| | OP-65 | | |
| Proposed references to be provided to applicants during examination: | | | None |
| Learning Objective: | SDLP-3D, EO-1.15.A, LPAP, EO-46.04 | | (As available) |
| Question Source: | Bank # | Quad Cities 1 INPO # 20445 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 8/13/2001 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 6 | |
| | 55.43 | | |
| Comments: | | | |

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of surveillance procedures. (CFR: 41.10 / 45.13) | Group # | | |
| | K/A # | 2.2.12 | 2.2.12 |
| | Importance Rating | 3.0 | 3.4 |

Proposed Question: The Plant is operating at 98% Reactor power. The Control Room Supervisor has ordered you to perform ST-24J, RCIC Flow Rate and Inservice Test, following maintenance.

During RCIC pump operations:

RO/SRO

69/91

- a) RCIC must be shutdown if Torus water temperature exceeds 95 °F.
- b) EHC Pressure Set must be adjusted to maintain RPV pressure < 1050 psig.
- c) Recirculation flow must be reduced to maintain Reactor power <100%.
- d) Torus cooling must be in service to prevent Torus water temperature from exceeding 105 °F.

Proposed Answer: d) Torus cooling must be in service to prevent Torus water temperature from exceeding 105 °F.

Explanation (Optional):

Technical Reference(s): ST-24J, ITS-3.6.2.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDLP-13, EO-1.13.d (As available)

Question Source: Bank # LaSalle 1 INPO # 19132 (Modified to JAF)

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam 11/20/2000

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 10

55.43

Comments:

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of the process for determining the internal and external effects on core reactivity. (CFR: 43.6) | Group # | | |
| | K/A # | 2.2.34 | 2.2.34 |
| | Importance Rating | 2.8 | 3.2 |

Proposed Question: A Reactor startup from Cold Shutdown is in progress. The ECP was calculated based upon the following:

- Reactor Coolant temperature at 140 °F
- Total Core Flow at 15 X 10⁶ lbm/hr
- At time of criticality, Reactor has been shutdown for 40 hours
- Feedwater temperature 80 °F

Which of the below will result in criticality later in the rod pull sequence than the Predicted ECP?

RO/SRO
70/92

- a) Criticality occurs 30 hours after shutdown.
- b) Feedwater temperature drops to 75 °F.
- c) Total Core Flow is reduced to 10 X 10⁶ lbm/hr.
- d) Reactor Coolant temperature drops to 125 °F.

Proposed Answer: a) Criticality occurs 30 hours after shutdown.

Explanation (Optional):

- a) 30 hours vs. 40 hours results in criticality occurring at a higher Xeon concentration requiring more total rod worth to overcome, therefore later than predicted.
- b) A 5 ° F drop in FW Temperature is a net positive reactivity effect if FW is injecting. If not, there will be no effect. Criticality will occur earlier or as predicted.
- c) Change in core flow is of no effect until core voiding. Criticality as predicted.
Ref. 7.3.25- Single Loop Operation. Attachment #1
 - For two loop operation, 18 mlbm/hr core flow results from 5 mlbm/hr drive flow per loop.
 Ref. ST-23C, Jet Pump Operability Test, Attachment # 3
 - 30% Pump Speed is approximately 6 mlbm/hr drive flow per loop
 - 25% Pump Speed is approximately 5 mlbm/hr drive flow per loop
 Ref. FSAR Section 4.3
 - Pump Speed Control Range 20-100
- d) A reactor coolant drop in temperature is a net positive reactivity effect. Criticality earlier than predicted.

Technical Reference(s): RAP-7.3.13 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LPOP-65A, EO-1.10 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam _____

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis

_____ X _____

10 CFR Part 55 Content:

55.41

1

55.43

6

Comments:

| | | | |
|---|--|--|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of the process for performing a containment purge. (CFR: 43.4 / 45.10) | Group # | | |
| | K/A # | 2.3.9 | 2.3.9 |
| | Importance Rating | 2.5 | 3.4 |
| Proposed Question: | <p>The plant is conducting a shutdown, power is currently 30% and lowering. It is desired to de-inert the Primary Containment (both the Drywell and Torus) as soon as possible to permit containment access for maintenance for a forced outage.</p> <p>Which procedurally allowed flowpath would be used for de-inerting the Primary Containment?</p> <p>a) Through the Standby Gas Treatment System with the Drywell and Torus de-inerted simultaneously.</p> <p>b) Through the Reactor Building Ventilation System with the Drywell de-inerted first and then the Torus de-inerted.</p> <p>c) Through the Reactor Building Ventilation System with the Drywell and Torus de-inerted simultaneously.</p> <p>d) Through the Standby Gas Treatment System with the Drywell de-inerted first and then the Torus de-inerted.</p> | | |
| RO/SRO | | | |
| 71/93 | | | |
| Proposed Answer: | d) Through the Standby Gas Treatment System with the Drywell de-inerted first and then the Torus de-inerted. | | |
| Explanation (Optional): | | | |
| Technical Reference(s): | OP-37 | (Attach if not previously provided) | |
| Proposed references to be provided to applicants during examination: | None | | |
| Learning Objective: | SDLP-1.06C, EO-1.13.C | (As available) | |
| Question Source: | Bank # | Quad Cities 1 INPO # 20444 (Modified to JAF) | |
| | Modified Bank # | (Note changes or attach parent) | |
| | New | | |
| Question History: | Last NRC Exam | 8/13/2001 | |
| (Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) | | | |
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | X | |
| 10 CFR Part 55 Content: | 55.41 | 10 | |
| | 55.43 | | |
| Comments: | | | |

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of EOP implementation hierarchy and coordination with other support procedures.
(CFR: 41.10 / 43.5 / 45.13)

Group #

K/A #

2.4.16

Importance Rating

4.0

Proposed Question:

In an emergency event the reactor scrammed due to high drywell pressure.

The following plant conditions exist:

- Drywell temperature SPDS display DWT "VERTICAL RUN TEMP" indicates 300 deg F.
- RPV pressure is 40 psig and equalized with the drywell.
- RPV water level indications are very erratic and do not correlate well with one another.

Under these circumstances, the operating crew would be required to execute the following Emergency Operating Procedure(s):

RO/SRO

S94

- EOP-4, Primary Containment Control, ONLY.
- EOP-2, RPV Control, AND EOP-4, Primary Containment Control, concurrently ONLY.
- Initially, EOP-2, RPV Control, AND EOP-4, Primary Containment Control, concurrently, Then EOP-2, RPV Control, AND EOP-7, RPV Flooding, concurrently.
- Initially EOP-2, RPV Control, AND EOP-4, Primary Containment Control, concurrently, THEN EOP-7, RPV Flooding, AND EOP-4, Primary Containment Control, concurrently.

Proposed Answer:

- Initially EOP-2, RPV Control, AND EOP-4, Primary Containment Control, concurrently, THEN EOP-7, RPV Flooding, AND EOP-4, Primary Containment Control, concurrently.

Explanation (Optional):

Technical Reference(s):

EOP-2, 4, 7

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

EOP's

Learning Objective:

EOP2LP, EO-1.02, 1.03, EOP4LP, EO-4.02

(As available)

Question Source:

Bank #

JAF LOR # 20005204B04C

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments:

| | | | |
|--|-------------------|-------|-------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of 10 CFR: 20 and related facility radiation control requirements. (CFR: 41.12 / 43.4. 45.9 / 45.10) | Group # | | |
| | K/A # | 2.3.1 | 2.3.1 |
| | Importance Rating | 2.6 | 3.0 |

Proposed Question: As a result of degrading emergency conditions, the Shift Manager has directed you to immediately investigate an equipment problem inside a locked high radiation area. The duty RP technician is outside the Protected Area fence performing surveys. The ERO is not yet staffed.

What action should be taken to expedite your entry?

RO/SRO

72/95

- a) Using the key on any NPO Duty key ring.
- b) Go to the RP office and sign out a key yourself.
- c) Contact and meet the RP tech to obtain a key.
- d) Obtain a radiological master key from the Shift Manager.

Proposed Answer:

d) Obtain a radiological master key from the Shift Manager.

Explanation (Optional):

Technical Reference(s): AP-07.06 (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: LPAP, EO-31.03.H (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New NEW

Question History: Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 12

55.43 4

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of which events related to system operations/status should be reported to outside agencies.

Group #

(CFR: 43.5 / 45.11)

K/A #

2.4.30

Importance Rating

3.6

Proposed Question:

As a result of an error during I/C Surveillance testing at 100% power, the MSIV's inadvertently closed resulting in the following:

- A Full SCRAM on MSIV closure.
- HPCI initiation and injection.
- HPCI tripped by the Operators.
- Operator control of level using Feed and Condensate.
- Operator control of RPV pressure using SRV's.

Which of the below is the earliest required NRC report?

RO/SRO

S96

- Immediate Notification due to an Emergency Plan event declaration.
- One (1) Hour Notification due to violation of the Reactor Coolant System Pressure Safety Limit.
- Four (4) Hour Notification due to ECCS discharge to Reactor Coolant System resulting from a valid signal.
- Eight (8) Hour Notification due to a valid Containment Isolation signal affecting Containment Isolation Valves.

Proposed Answer:

c) Four (4) Hour Notification due to ECCS discharge to Reactor Coolant System resulting from a valid signal.

Explanation (Optional):

- Distracter requires immediate notification of E-Plan declaration. There were no E-Plan declarations required in the stem.
- Distracter requires 1 hour notification upon safety limit violation. Per the stem- no information was given that the RPV pressure safety limit was violated. If the pressure safety limit had been violated, notifications would be required to be made per (50.36 (c)(1) and requirements of (50.72(b)(3) (ii) (b) which requires a 8 hour notification for any event that results in the NPP being in a unanalyzed condition that significantly degrades plant safety. The plant is analyzed to not exceed the pressure safety limit on a closure of MSIV's at power.- see AP-03.11 Attachment # 7.
- Correct response- 4 hour notification is required due to ECCS injection (50.72(b)(2) (iv) (a) - see AP-03.11 Attachment # 7
- Distracter requires 8 hour notification due to valid Containment Isolation signal. Per the stem- Group Isolations did occur on valid low levels- question asked for earliest required notification which at 4 hours per answer 'C'.

Technical Reference(s):

ENN-LI-102, AP-03.11

(Attach if not previously provided)

10CFR 50.36, 50.72 & NUREG-1022 Rev 2.

Proposed references to be provided to applicants during examination:

AP-03.11

Learning Objective:

LPAP-10.06

(As available)

Question Source:

Bank #

Modified Bank #

(Note changes or attach parent)

New

NEW

Question History:

Last NRC Exam

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

55.43

5

Comments:

| | | | |
|---|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of communications procedures associated with EOP implementation. (CFR: 41.10 / 45.13) | Group # | | |
| | K/A # | 2.4.15 | 2.4.15 |
| | Importance Rating | 3.0 | 3.5 |

Proposed Question: The Shift Manager has implemented the Emergency Plan based on high Drywell pressure and assigned an Operator as the NRC Communicator.
WHICH ONE of the following describes when communications with the NRC may be secured?

RO/SRO
73/97

- a) Technical Support Center is activated
- b) NRC disconnects or authorizes securing line
- c) Transient is over and the plant is recovering
- d) Once initial classification notice is provided to the NRC

Proposed Answer: b) NRC disconnects or authorizes securing line

Explanation (Optional):

Technical Reference(s): EAP-1.1 attachment 14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EP-12.5.5.1, EO-2.07 (As available)

Question Source: Bank # Limerick 1 INPO # 12345 (Modified to JAF)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 1/20/1998

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage. (CFR: 43.5 / 45.12) | Group # | | |
| | K/A # | 2.4.26 | 2.4.26 |
| | Importance Rating | 2.9 | 3.3 |

Proposed Question: Given the following conditions:

- You are responding to an electrical fire as a member of the plant's fire brigade team.
- You have brought a Class B/C fire extinguisher to the scene.
- Other members have rigged a fire hose with a solid-stream nozzle.

Which one of the following actions should be taken?

RO/SRO 74/98

- Do not use the fire hose. Put the fire out with the Class B/C fire extinguisher.
- Use the fire hose first. If it does not put out the fire, use the Class B/C fire extinguisher.
- Wait for the fire brigade member assigned to bring a Class D fire extinguisher, then use the Class D fire extinguisher.
- Do not use the Class B/C fire extinguisher. Put the fire out with the fire hose.

Proposed Answer: a) Do not use the fire hose. Put the fire out with the Class B/C fire extinguisher.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective: SDL-76, EO-1.05.A (As available)

Question Source: Bank # LaSalle 1 INPO # 11156
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam 10/9/1995

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

| | | | |
|--|-------------------|--------|--------|
| Examination Outline Cross-reference: | Level | RO | SRO |
| | Tier # | 3 | 3 |
| Knowledge of the RO's responsibilities in emergency plan implementation. (CFR: 45.11) | Group # | | |
| | K/A # | 2.4.39 | 2.4.39 |
| | Importance Rating | 3.3 | 3.1 |

Proposed Question: You are a licensed Reactor Operator on dayshift, working on the FIN Team. You do not have assigned responsibilities in the Emergency Response Organization (ERO). A transient occurs that results in the declaration of an ALERT Emergency and Protected Area Evacuation. To which of the following locations do you report?

RO/SRO
75/99

- a) The Operations Support Center (OSC).
- b) The Training Building assembly area.
- c) The Technical Support Center (TSC).
- d) The Offsite Assembly Area (Airport).

Proposed Answer: b) The Training Building assembly area.

Explanation (Optional):

Technical Reference(s): EAP-10 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EP-12.5.3, EO-1.18 (As available)

Question Source: Bank # Duane Arnold 1 INPO # 8781 (Modified to JAF)

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam 9/20/1999

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.
(CFR 43.5 / 45.12)

Group #

K/A #

2.4.22

Importance Rating

4.0

Proposed Question:

If Torus level cannot be maintained above 10.75 feet, EOP-4, Primary Containment Control, directs the operator to ensure the HPCI turbine is tripped.

Which of the following describes the bases for RCIC and HPCI operation under the same EOP circumstances (ie, Torus water level cannot be maintained above 10.75 feet)?

RO/SRO

S100

- a) RCIC operation may continue ONLY if it is the last operable high pressure injection source available to provide adequate core cooling.
- b) RCIC must be secured at the same time as HPCI to minimize the containment pressure rise.
- c) RCIC operation may continue because the turbine exhaust energy does not exceed the vent capability of the containment.
- d) RCIC must be secured prior to HPCI to prevent erratic turbine operation due to exhaust back pressure fluctuation.

Proposed Answer:

- c) RCIC operation may continue because the turbine exhaust energy does not exceed the vent capability of the containment.

Explanation (Optional):

Technical Reference(s):

EPG/ REV 2

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

None

Learning Objective:

EOP4LP, EO-1.05

(As available)

Question Source:

Bank #

Fermi 2 2 INPO# 19714 (Modified to JAF)

Modified Bank #

(Note changes or attach parent)

New

Question History:

Last NRC Exam

6/14/2001

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

5

Comments: