WRITTEN QUESTION DATA SHEET

Source of Question: NEW

K/A: 000015/000017 RCP Malfunctions (Loss of RC Flow) / 4
AA2.02-Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Abnormalities in RCP air vent flow paths and/or oil cooling system

Tier: 1 Group: 1 SRO Imp: 3.0
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedures to mitigate the resultant conditions and also recall specific action in AOP-36 for tripping PCPs.***

Palisades Learning Objective: IOTF_CK05.0 053, Given Abnormal Operating plant conditions, determine if an immediate, manual Reactor Trip is required without error

References: AOP-36 step 4.3, EOP-8.0 Section 2.0 entry conditions section 2.0 step 1

Question:

Given the following:

- The Plant is in performing a Plant cooldown for a forced outage in accordance with GOP-9, “Mode 3 ≥ 525°F to Mode 4 or Mode 5”
- PCS at 400°F and 750 psia
- PCPs P-50A and P-50C are in operation
- Then, CV-0910, CCW Supply to Containment, spuriously closes and cannot be opened

For the above Plant conditions, which one of the following describes (1) the criteria for tripping P-50A and P-50C, and (2) the procedure that directs tripping PCPs for that criteria?

a. (1) When more than 10 minutes have elapsed.
(2) AOP-36, “Loss of Component Cooling,”

b. (1) When lower seal temperature exceeds 165°F.
(2) AOP-29, "Primary Coolant Pump Abnormal Conditions."

c. (1) When more than 10 minutes have elapsed.
(2) AOP-31, "Spurious Containment Isolation."

d. (1) When lower seal temperature exceeds 165°F.
(2) ARP-5, “Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12).”

DISTRACTOR ANALYSIS

a. **CORRECT – AOP-36 step 4.3.b.**
b. Plausible if the student believes that AOP-29 includes a step to trip PCPs at 165°F on lower seal for these conditions.
c. Plausible if the student believes AOP-31 applies to this event.
d. Plausible if the student believes ARP-5 includes step to trip PCPs at 165°F on lower seal for these event conditions.

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: **000025 Loss of RHR System / 4**
AA2.06-Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Existence of proper RHR overpressure protection

Tier: 1 Group: 1 SRO Imp: 3.4
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the LTOP train that will still actuate and the appropriate procedures to mitigate the resultant conditions.***

Palisades Learning Objective: ***IOTF_CK03, Given Abnormal Operating plant conditions, select the applicable Abnormal Operating Procedure to mitigate the event***

References: **AOP-17 Attachment 6 (pg 2), AOP-30**

Question:

Given the following conditions:

- The Plant is in MODE 5 when a loss of Shutdown Cooling occurs
- The Control Room Team has entered AOP-30, "Loss of Shutdown Cooling"
- Neither LPSI Pump can be started
- PCS temperature is 175°F and rising
- The Reactor Vessel Head is fully tensioned
- The Pressurizer Manway is installed
- LTOP is inservice as PCS overpressure protection

Then, a loss of 125VDC Panel ED-11-1 occurs.

Which one of the following describes (1) the LTOP train(s) that will remain functional as overpressure protection and (2) additional procedure(s), if any, that the Control Room team will utilize to mitigate above Plant conditions?

a. (1) Right train only.
(2) AOP-17, “Loss of 125V DC Panel(s)."

b. (1) Right train only.
(2) None.

c. (1 Left and Right trains.
(2) None.

d. (1) Left and Right trains.
(2) AOP-17, “Loss of 125V DC Panel(s).”

DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible if student believes AOP-30 contains all required actions.
c. Plausible – see ‘b’ above and also student believes neither LTOP train is affected by the loss of ED-11-1.
d. Plausible- if student believes neither LTOP train is affected by the loss of ED-11-1.

Level of Knowledge: **HIGH** **Difficulty:** **3**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: 000027 Pressurizer Pressure Control System Malfunction / 3
G2.2.38-Knowledge of conditions and limitations in the facility license.

Tier: 1 Group: 1 SRO Imp: 4.5
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from the basis for LCO 3.4.3 to select the appropriate actions for completing a reactor head soak.

Palisades Learning Objective: IOTF_CK09.0 009, Given Abnormal Operating plant conditions and control room references, SELECT the applicable Technical Specification LCO REQUIRED ACTIONS and COMPLETION TIMES

References: LCO 3.4.3; SOP-1B step 4.4.1.d

Question:

The Plant is performing a cooldown for a forced outage to repair Control Rod Drive seals. Current conditions are:

- PCS is stable at 125°F (average of qualified CETs) and 250 psia
- Primary Coolant Pumps (PCPs) P-50A and P-50C are operating
- Shutdown Cooling is in-service
- The 3-hour reactor vessel head soak started 30 minutes ago

Then, a loss of Pressurizer Pressure Control occurs and the Control Room team stops all PCPs. Pressurizer pressure control is then restored. Which one of the following describes the required sequence pertaining to completion of the reactor vessel head soak and subsequent cooldown?

a. 1. Restart PCPs P-50A and P-50C
   2. Complete reactor vessel head soak
   3. Cooldown at or below 40°F/hr

b. 1. Restart PCPs P-50A and P-50C
   2. Complete reactor vessel head soak
   3. Cooldown at or below 20°F/hr

c. 1. Complete reactor vessel head soak
   2. Cooldown at or below 40°F/hr

d. 1. Complete reactor vessel head soak
   2. Cooldown at or below 20°F/hr

DISTRACTOR ANALYSIS

a. Plausible if student believes PCPs are needed for soak and 40 degree CD rate applies.
b. Plausible if student believes PCPs are needed for soak.
c. Plausible if student believes 40 degree CD rate still applies after soak.
d. **CORRECT**

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: 000038 Steam Gen. Tube Rupture / 3
EA2.15-Ability to determine or interpret the following as they apply to a SGTR: Pressure at which to maintain RCS during S/G cooldown
Tier: 1 Group: 1 SRO Imp: 4.4
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate actions for lowering PZR pressure during a SGTR.***
Palisades Learning Objective: TBAF_E01.01 003, Given Plant conditions involving a Steam Generator Tube Rupture, describe the operator actions necessary to minimize Primary to Secondary leakage
References: EOP-5.0 step 17.1

Question:

Given the following:

- A Plant cooldown is in progress due to an S/G tube rupture in the 'A' S/G
- A loss of offsite power occurred coincident with the S/G tube leak
- EOP-5.0, "Steam Generator Tube Rupture Recovery," has been implemented
- PZR pressure is 1100 psia and unable to be lowered due to failure of CV-2117, Pressurizer Auxiliary Spray Valve
- 'A' S/G pressure is 700 psia
- The highest Core Exit Thermocouple temperature is 490°F
- Safety Injection throttling criteria are not met

Which one of the following correctly completes the following statement?

The correct method for lowering PZR pressure is to __(1)__ and the lowest allowable PZR pressure value per EOP-5.0 is __(2)__?

a. (1) open PORV Isolation Valves per SOP-1B, "Primary Coolant System - Cooldown," and cycle one PORV to lower PZR pressure
   (2) 780 psia

b. (1) vent the PZR utilizing the Pressurizer Vent valves per EOP Supplement 39, "Alternate Methods of Reducing PCS Pressure"
   (2) 780 psia

c. (1) open PORV Isolation Valves per SOP-1B, "Primary Coolant System - Cooldown," and cycle one PORV to lower PZR pressure
   (2) 720 psia

d. (1) vent the PZR utilizing the Pressurizer Vent valves per EOP Supplement 39, "Alternate Methods of Reducing PCS Pressure."
   (2) 720 psia

DISTRACTOR ANALYSIS

a. **CORRECT** - pressure maintained less than 940 psia, > 25° sub-cooled, and within 50 psid of isolated S/G (preferred).
b. Plausible if the student believes that EOP-5.0 directs this as the method for lowering pressure.
c. Plausible if the student does not account for the 25°F subcooling requirement of EOP supplement 1.
d. Plausible for a combination of 'b' and 'c'.

Level of Knowledge: HIGH **Difficulty: 4**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW

K/A: CE/E05 Excessive Steam Demand / 4
EA2.2-Ability to determine and interpret the following as they apply to the (Excess Steam Demand): Adherence to appropriate procedures and operation within the limitations in the Facility's license and amendments.

Tier: 1 Group: 1 SRO Imp: 4.2
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from LCO 3.4.5 BASES regarding the minimum numbers of PCPs operating to meet the LCO requirements of LCO 3.4.5.

Palisades Learning Objective: SPS_CK21.0, Given plant conditions and Technical Specifications 3.8.1, 3.8.2, 3.8.9, and 3.8.10 determine the following for the Electrical Distribution system in accordance with Technical Specification 3.8.1, 3.8.2, 3.8.9, and 3.8.10 BASES for the Electrical Distribution system, LCO Section 1.0, and LCO Section 3.0

References: LCO 3.8.1, LCO 3.4.5, LCO 3.4.5 Basis pg B 3.4.5-1

Question:

The Plant tripped from full power in response to a loss of the 'R' bus with a concurrent steam line break outside Containment. EOP 1.0, "Standard Post Trip Actions," has been completed. The steam line break was isolated when the MSIVs were closed. The Plant has been stabilized at 500°F and 2010 psia.

Which one of the following correctly completes the following statement?

LCO 3.8.1, "AC Sources - Operating," is _____(1)_____
LCO 3.4.5, "PCS Loops - MODE 3," is _____(2)_____

a. (1) not met because two AC sources are INOPERABLE.
   (2) not met because no PCPs are operating.

b. (1) not met because one AC source is INOPERABLE.
   (2) met.

c. (1) not met because two AC sources are INOPERABLE.
   (2) met.

d. (1) not met because one AC source is INOPERABLE.
   (2) not met because no PCPs are operating.

DISTRACTOR ANALYSIS

a. Plausible if the student believes that two AC sources are inoperable due to 'R' bus loss AND THE PLANT TRIP.
b. Plausible if the student believes that no PCS loops are inoperable.
c. Plausible for combination of 'a' and b' above.
d. **CORRECT** - At least one PCP needs to be operating to consider a PCS Loop in operation; only one AC source is inoperable when 'R' Bus is lost per LCO 3.8.1 Basis.

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 000058 Loss of DC Power / 6
G2.4.8-Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

Tier: 1 Group: 1 SRO Imp: 4.5
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedure to respond to a loss of DC power.***

Palisades Learning Objective: IOTF_CK12.0, Given an Abnormal Operating plant event and control room references, determine the actions of operations and non-operations department personnel necessary to complete the applicable subsequent actions/operator actions in accordance with Abnormal Operating Procedures

References: AOP-18 section 6.0 step 2

Question:

The Plant has just entered MODE 3 for a forced outage to repair a Main Condenser vacuum leak when the following occurs:

- A loss of Left Train 125V DC Bus (more specifically ED-10R and ED-10L) occurs

Which one of the following completes the following statement for the above conditions?

The Control Room team is required to implement _____ to mitigate this event.

a. AOP-18, “Loss of Left Train DC Power” only

b. AOP-18, “Loss of Left Train DC Power” and EOP-9.0, “Functional Recovery Procedure”

c. AOP-18, “Loss of Left Train DC Power,” AOP-13, “Loss of Preferred AC Bus EY-20,” and AOP-15, “Loss of Preferred AC Bus EY-40”

d. EOP-9.0, “Functional Recovery Procedure” only

DISTRACTOR ANALYSIS

a. Plausible if the student believes that AOP-18 does not require use of EOP-9.0 in lower mode.
b. **CORRECT**
c. Plausible if the student believes that AOP-13 and AOP-15 actions are required (AOP actions are built into AOP-13).
d. Plausible if the student believes that only EOP-9.0 applies.

Level of Knowledge: LOW **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 000024 Emergency Boration / 1
G2.1.32-Ability to explain and apply system limits and precautions.

Tier: 1 Group: 2 SRO Imp: 4.0
Applicable 10CFR55 Section: 43.2 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from LCO 3.2.1 BASES regarding the 10 CFR 100 limits*.**

Palisades Learning Objective: NI_CK20.0, From memory, describe the following for the Nuclear Instrumentation System in accordance with Technical Specification 2.1.1, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.7, 3.3.8, 3.3.9, and 3.9.2

References: LCO 3.1.1 Bases page B3.1.1-3

Question:

Several events require the operating crew to emergency borate in order to establish shutdown margin (SDM). Which one of the following correctly completes the following statement regarding the most limiting analyses that establish the value for SDM in LCO 3.1.1, "Shutdown Margin?"

For the _____(1)_____, if the LCO is violated, then there is a potential to exceed _____(2)_____.

a. (1) boron dilution accident
(2) 10 CFR 100, "Reactor Site Criteria," and the DNBR limits

b. (1) Main Steam Line Break (MSLB) accident
(2) 10 CFR 100, "Reactor Site Criteria," and the DNBR limits

c. (1) boron dilution accident
(2) the 10 CFR 100, "Reactor Site Criteria," limits only

d. (1) Main Steam Line Break (MSLB) accident
(2) the DNBR limits only

DISTRACTOR ANALYSIS

a. Plausible if the student believes 10CFR100 and DNBR limits are affected by dilution acccident.
b. **CORRECT**
c. Plausible if the student believes 10CFR100 limits only are affected by dilution event
d. Plausible if the student believes DNBR limits only are affected by MSLB accident

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Level of Knowledge: LOW **Difficulty: 4**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: 000067 Plant Fire On-site / 9 8
AA2.08-Ability to determine and interpret the following as they apply to the Plant Fire on Site: Limits of affected area

Tier: 1 Group: 2 SRO Imp: 3.6
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedure to mitigate the consequences of an onsite fire.***

Palisades Learning Objective: TBAB_E01.06 005, Given post reactor trip conditions, determine the proper follow-up EOP

References: AOP-40 Step 8 Note, Manual Operator Action Times list, and Attachment 13; EOP-1.0 Attachment 1

Question:

With the Plant at full power, a reactor trip occurs due to a loss of off-site power. During EOP-1.0, "Standard Post Trip Actions," a fire develops in the Auxiliary Building 590' Corridor (Fire Area 13) affecting various safe shutdown equipment and resulting in no AFW Pumps in operation. The Control Room team then refers to AOP-40, "Fire Which Threatens Safety Related Equipment."

Which one of the following describes (1) a potential manual operator action that may be required in the next 60 minutes and (2) the Emergency Operating Procedure the Control Room team will implement after EOP-1.0?

a. (1) Fail ASDVs closed after four ASDVs spuriously open.
(2) EOP-9.0, "Functional Recovery Procedure."

b. (1) Fail ASDVs closed after four ASDVs spuriously open..
(2) EOP-8.0, "Loss of Offsite Power/Forced Circulation Recovery."

c. (1) Isolate PCS Sample lines after spurious operation.
(2) EOP-9.0, "Functional Recovery Procedure."

d. (1) Isolate PCS Sample lines after spurious operation.
(2) EOP-8.0, "Loss of Offsite Power/Forced Circulation Recovery."

DISTRACTOR ANALYSIS

a. Plausible if the student believes all four ASDVs spuriously open for Fire Area 13.
b. Plausible if the student believes all four ASDVs spuriously open for Fire Area 13 and EOP-8.0 applies due to loss of offsite power.
c. **CORRECT** - EOP-9.0 is entered when no AFW is available per AOP-40 Attachment 13.
d. Plausible if the student believes EOP-8.0 applies due to loss of offsite power.

Level of Knowledge: LOW **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 000076 High Reactor Coolant Activity / 9
AA2.06-Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Response of PZR LCS to changes in the letdown flow rate

Tier: 1 Group: 2 SRO Imp: 2.5
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must recall actions in the body of the high reactor coolant activity procedure.***

Palisades Learning Objective: IOTF_CK12.0, Given an Abnormal Operating plant event and control room references, determine the actions of operations and non-operations department personnel necessary to complete the applicable subsequent actions/operator actions in accordance with Abnormal Operating Procedures

References: AOP-33 step 2.2 and 2.3

Question:

With the Plant at stable full power operation, a fuel cladding failure occurs due to loose parts in the reactor coolant system. The Control Room team enters AOP-33, “Fuel Cladding Failure.” Then, the following annunciator status is noted:

- EK-1363, "CONTAINMENT HI RADIATION" alarms
- EK-1126, "CIS INITIATED" is clear

Which one of the following correctly completes the following statement for the above Plant conditions? (Assume all systems respond as designed and no equipment is out of service.)

The Control Room Team will….

a. isolate Letdown and operate the Charging System to maintain desired PZR level using SOP-2A, “Charging and Volume Control Systems.”

b. isolate Letdown and operate the Charging System to maintain desired PZR level using AOP-22, “Pressurizer Level Control Malfunctions.”

c. establish double Charging and Letdown using SOP-2A, “Charging and Volume Control Systems.”

d. isolate Letdown and operate the Charging System to maintain desired PZR level using SOP-1A, “Primary Coolant System,” attachment titled ““T_{AVE} (°F) Pressurizer Level Program.”

DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible if the student believes AOP-22 applies to this event
c. Plausible if the student believes double charging and letdown is required during a fuel cladding failure without a Containment Isolation signal present.
d. Plausible if the student believes SOP-1A attachment applies to this action.

Level of Knowledge: LOW **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: CE/A13 Natural Circ. / 4
AA2.2-Ability to determine and interpret the following as they apply to the (Natural Circulation Operations): Adherence to appropriate procedures and operation within the limitations in the Facility's license and amendments.
Tier: 1 Group: 2 SRO Imp: 3.8
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from LCO Bases 3.4.5 to determine the LCO 3.4.5 action required.

Palisades Learning Objective: TBCORE_CK01.0 014, Given plant conditions involving Emergency Operating Procedure, describe the mitigating strategy of the in use Emergency Operating Procedure in accordance with the Emergency Operating Procedure Bases Document

References: EOP-8.0, step 11, LCO 3.4.5 (PROVIDE), LCO 3.4.5 Bases

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Question:

Given the following:

- On Monday at 0800 a Plant trip occurs due to a loss of all offsite power
- The Control Room team implements EOP-8.0, "Loss of Offsite Power/Forced Circulation Recovery," after completion of EOP-1.0, "Standard Post Trip Actions"
- The Main Steam Isolation Valves (MSIVs) are closed
- HIC-0780A, Steam Dump Controller, is malfunctioning which is preventing the Atmospheric Steam Dump Valves (ADVs) from opening
  - The Reactor Operator reports that T_{AVE} is 541°F and rising

Which one of the following describes (1) the <u>first</u> action required by EOP-8.0 to address the rising T_{AVE}, and (2) LCO 3.4.5, "PCS Loops – MODE 3," requirements that apply to this event.

a. (1) Place P-8B, Steam Driven AFW Pump, in service per SOP-12 "Feedwater System."
(2) Restore offsite power and start at least one PCP by Thursday at 0800.

b. (1) Open an MSIV Bypass Valve and utilize the Turbine Bypass Valve (TBV) per SOP-7, "Main Steam System."
(2) Restore offsite power and start at least one PCP by Thursday at 0800.

c. (1) Place P-8B, Steam Driven AFW Pump, in service per SOP-12 "Feedwater System."
(2) Be in MODE 4 by Tuesday at 0800.

d. (1) Open an MSIV Bypass Valve and utilize the Turbine Bypass Valve (TBV) per SOP-7, "Main Steam System."
(2) Be in MODE 4 by Tuesday at 0800.

DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible but condenser vacuum will not be available due to loss of offsite power.
c. Plausible but LCO 3.4.5.B 24 hr action to MODE 4 would not be required until after LCO 3.4.5.A 72 hr action
d. Plausible combination of 'a' and 'c' above.

Level of Knowledge: HIGH **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: **2010 NRC SRO EXAM**
K/A: 006 Emergency Core Cooling
G2.4.21-Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.

Tier: 2 Group: 1 SRO Imp: 4.6
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate section of EOP-9.0 safety function success path criteria that must be used to mitigate the consequences of the event.***

Palisades Learning Objective: TBAH_E01.01 009, Given plant conditions and Control Room references, determine the in-use Success Paths and their status in accordance with EOP-9.0, Placekeeper and the Resource Assessment Trees

References: EOP-9.0 attachment A; EOP-9.0 basis page 4

Question:

After a Plant trip from full power, the following conditions exist:

- EOP-1.0, "Standard Post-Trip Actions," are complete
- The Control Room team is implementing EOP-9.0, "Functional Recovery Procedure"
- All full length Control Rods are fully inserted
- PCS pressure is 1400 psia and lowering slowly

Which one of the following describes the minimum in-use Success Path acceptance criteria that must be met per EOP-9.0 for the above conditions?

a. RC-1, "CRD Insertion."

b. RC-2, "Boration using CVCS."

c. RC-3, "Boration using SIS."

d. RC-2 and RC-3.

DISTRACTOR ANALYSIS

a. Plausible because all full length control rods are inserted for this event but if SIS is actuated, RC-1 success path acceptance criteria cannot be used.
b. Plausible because emergency boration is in progress because SIS is actuated (<1605 psia) but the higher numbered success path criteria must be used. The student could also select this because PCS pressure is above the shutoff head setpoint of the HPSI pumps.
c. **CORRECT** - Since SIAS is present, RC-3 is the required in use success path.
d. Plausible because RC-2 and RC-3 are both in-use but the higher numbered success path criteria must be used.

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 012 Reactor Protection
A2.06-Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of RPS signal to trip the reactor

Tier: 2 Group: 1 SRO Imp: 4.7
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from LCO Bases 3.3.7 and 3.3.1 to determine if LCO 3.3.7 and 3.3.1 are met as well as recall EAL attributes.

Palisades Learning Objective: NI_CK21.0 006, Given plant conditions and Technical Specification 2.1.1, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.7, 3.3.8, 3.3.9, and 3.9.2 determine the following for the Nuclear Instrumentation System in accordance with Technical Specification 2.1.1, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.7, 3.3.8, 3.3.9, and 3.9.2 BASES for the Nuclear Instrumentation System, LCO Section 1.0, and LCO Section 3.0

References: LCO 3.3.1 bases (Table B3.3.1-1), ARP-21, SEP Supp 1 Wallchart for Mode 1, 2, 3 or 4 (SA3.1)

Question:

A Plant startup is in progress with the reactor at the point of adding heat. Then, Wide Range NI-2/4 detector output fails high. The Reactor does not trip and remains reset. The NCO then trips the reactor using the reactor trip pushbutton on Panel C-06.

Which one of the following describes (1) if classification using the Emergency Plan Implementing Procedures is required, and (2) the LCO(s) that is (are) not met?

a. (1) Emergency classification is required.
(2) LCO 3.3.1, "Reactor Protective System Instrumentation" and LCO 3.3.7, "Post Accident Monitoring Instrumentation."

b. (1) Emergency classification is required.
(2) LCO 3.3.1, "Reactor Protective System Instrumentation" only.

c. (1) Emergency classification is <u>not</u> required.
(2) LCO 3.3.1, "Reactor Protective System Instrumentation" and LCO 3.3.7, "Post Accident Monitoring Instrumentation."

d. (1) Emergency classification is <u>not</u> required.
(2) LCO 3.3.1, "Reactor Protective System Instrumentation" only.

DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible if the student believes only LCO 3.3.1 is not met
c. Plausible also if the student believes emergency classification is not needed since reactor eventually tripped.
d. Plausible also if the student believes only LCO 3.3.1 is not met

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Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 022 Containment Cooling
G2.2.39-Knowledge of less than or equal to one hour Technical Specification action statements for systems.

Tier: 2 Group: 1 SRO Imp: 4.5
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge of LCO 3.0.3 and 3.6.6 and recall the corresponding bases correctly.

Palisades Learning Objective: APTS_E01.14, From memory, and given the following conditions:- An LCO/ORM Specification is not met - The associated Actions are not met or associated Actions are not provided describe the required actions in accordance with Technical Specification LCO-3.0.3 or ORM Section 3.0.3.

References: LCO 3.0.3, LCO 3.6.6 Basis

Question:

The Plant is in MODE 2 with the MSIV Bypass Valves open when Engineering reports that a common equipment operability issue dealing with the Containment Spray Valves has rendered both valves inoperable.

Which one of the following describes (1) Technical Specification required actions and (2) the Technical Specification basis for this action?

a. (1) Immediately initiate action to place the plant in MODE 3 in 6 hrs.
(2) At least one Containment Spray Valve is necessary to mitigate a MSLB where offsite power is available.

b. (1) Within one-hour initiate action to place the plant in MODE 3 in 7 hrs.
(2) At least one Containment Spray Valve is necessary to mitigate a MSLB where offsite power is available.

c. (1) Immediately initiate action to place the plant in MODE 3 in 6 hrs.
(2) At least one Containment Spray Valve is necessary to mitigate a LOCA where offsite power is available.

d. (1) Within one-hour initiate action to place the plant in MODE 3 in 7 hrs.
(2) At least one Containment Spray Valve is necessary to mitigate a LOCA where offsite power is available.

DISTRACTOR ANALYSIS

a. Plausible if the student believes only 6 hrs are allowed to reach MODE 3.
b. **CORRECT**- LCO 3.0.3 allows 1 hr to take action and 7 hrs to reach MODE 3.
c. Plausible if the student believes that mitigation of a LOCA is TS Bases for this condition and only 6 hrs are allowed to reach MODE 3.
d. Plausible if the student believes that mitigation of a LOCA is TS Bases for this condition.

Level of Knowledge: HIGH **Difficulty: 4**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: 063 DC Electrical Distribution
A2.01-Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Grounds
Tier: 2 Group: 1 SRO Imp: 3.2
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply knowledge that describes los of DC bus and assess system conditions to determine LCO 3.8.9 completion requirements. This question also cannot be answered solely with system knowledge.

Palisades Learning Objective: EPS_CK21.0 006, Given plant conditions and Technical Specifications 3.8.4, 3.8.5, 3.8.6, 3.8.7, 3.8.8, 3.8.9, and 3.8.10 determine the following for the 125V DC and AC Power system in accordance with Technical Specification 3.8.4, 3.8.5, 3.8.6, 3.8.7, 3.8.8, 3.8.9, and 3.8.10 BASES for the 125V DC and AC Power system, LCO Section 1.0, and LCO Section 3.0.

References: LCO 3.8.9 (PROVIDE), AOP-17 Attachment 10, AOP-15, LCO 3.8.9 and basis, Tech Spec 1.3 Completion Times (pg 1.3.2)

Question:

Given the following conditions:

- The Plant is at full power
- At 0100 a loss of Preferred AC Bus EY-40 occurred due to a fault on Inverter # 4
- At 0130 a ground fault occurred on DC bus ED-20L resulting the opening of breaker 72-20, 125V DC Tie Bkr ED-20R & ED-20L, and loss of DC bus ED-20L
- At 0155 EY-40 is placed on the bypass regulator and maintenance commenced on Inverter # 4

Based on the given plant conditions, the loss of ED-20L will result in _____(1)_____AND with respect to LCO 3.8.9, "Distribution Systems - Operating," the latest time ED-20L must be restored to OPERABLE status is ___(2)___.

a. (1) the loss of PCP DC Oil Lift Pumps P-81A and P-81C power supply
(2) 0930

b. (1) the loss of PCP DC Oil Lift Pumps P-81B and P-81D power supply
(2) 0930

c. (1) the loss of PCP DC Oil Lift Pumps P-81B and P-81D power supply
(2) 1700

d. (1) the loss of PCP DC Oil Lift Pumps P-81A and P-81C power supply
(2) 1700

DISTRACTOR ANALYSIS

a. Plausible if student believes P-81A and C are lost when ED-20L is lost; LCO completion time is correct.
b. **CORRECT**
c. Plausible-if student incorrectly uses 16 hours (from 0100) limitation instead of 8 hour (from 0130) with completion time extension per TS 1.3.
d. Plausible for combination of 'a' and 'c' above.

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW

K/A: 073 Process Radiation Monitoring
A2.02-Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure

Tier: 2 Group: 1 SRO Imp: 3.2
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate alarm/indication that will occur and associated required action for a process radiation monitor failure. This question also cannot be answered solely with system knowledge.***

Palisades Learning Objective: RMS_T03.00 Given plant conditions, implement the requirements of the Offsite Dose Calculation Manual (ODCM) without error

References: ARP-8, window 71; ODCM Appendix A Table A-1, SOP-38 Attachment 1

Question:

The Plant has just entered MODE 4 during a shutdown for a refueling outage when the detector for RIA-2320, Steam Generator Blowdown Vent monitor fails low.

Which one of the following describes (1) the impact of this malfunction and (2) the action, if any, that must be taken to continue effluent releases?

a. (1) EK-1371, “RADIATION MONITOR SYSTEM CKT FAILURE” alarms.
(2) No action required since monitor is not required to be operable in MODE 4.

b. (1) WARN and FAIL lights on RIA-2320 illuminate.
(2) No action required since monitor is not required to be operable in MODE 4.

c. (1) WARN and FAIL lights on RIA-2320 illuminate.
(2) Obtain S/G Blowdown Ventilation grab samples at least once per 12 hours and analyze sample for gross activity within 24 hours.

d. (1) EK-1371, “RADIATION MONITOR SYSTEM CKT FAILURE” alarms.
(2) Obtain S/G Blowdown Ventilation grab samples at least once per 12 hours and analyze sample for gross activity within 24 hours.

DISTRACTOR ANALYSIS

a. Plausible if the student believes that RIA-2320 is not required in MODE 4.
b. Plausible if the student believes WARN light on RIA will illuminate and that RIA is not required in MODE 4.
c. Plausible if the student believes WARN light on RIA will illuminate.
d. **CORRECT**

Level of Knowledge: LOW **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 035 Steam Generator
A2.04-Ability to (a) predict the impacts of the following malfunctions or operations on the GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Steam flow/feed mismatch

Tier: 2 Group: 2 SRO Imp: 3.8
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedure to mitigate the consequences of a main feedwater transient. This question also cannot be answered solely with system knowledge.***

Palisades Learning Objective: SGWL_CK12.0, From memory, explain how the following effects impact operation of the Steam Generator Water Level Control system: - shrink and swell

References: AOP-2 step 5

Question:

Given the following:

- Plant is at 25% power
- S/G Level control is in AUTOMATIC
- Then, an Atmospheric Steam Dump Valve on the 'B' S/G fails open

Which one of the following correctly completes the following statement?

The 'B' S/G level will initially _____(1)_____ and the Control Room team will utilize ____(2)____ to mitigate the event.

a. (1) rise due to lowering pressure in the ‘B’ S/G
(2) AOP-3, “Main Feedwater Transients”

b. (1) lower due to rising steam flow from the ‘B’ S/G
(2) AOP-3, “Main Feedwater Transients”

c. (1) rise due to lowering pressure in the ‘B’ S/G
(2) AOP-2, “Excessive Load”

d. (1) lower due to rising steam flow from the ‘B’ S/G
(2) AOP-2, “Excessive Load”

DISTRACTOR ANALYSIS

a. Plausible if the student believes feed demand signal will rise (does not recall swell of S/G level due to steam pressure drop and cause demand signal to lower) and also believes AOP-3 will mitigate this event.
b. Plausible if the student believes AOP-3 will mitigate this event.
c. **CORRECT- initial opening of ADV will cause ‘B’ S/G pressure to lower and ‘B’ S/G level to “swell.” AOP-2 contains a section for ADV(s) inadvertently opening.**
d. Plausible if the student believes feed demand signal will not change.

Level of Knowledge: LOW **Difficulty: 4**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW

K/A: 041 Steam Dump/Turbine Bypass Control
G2.4.30-Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.

Tier: 2 Group: 2 SRO Imp: 4.1
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate notifications and documentation requirements for use of ADVs during a plant cooldown.***

Palisades Learning Objective: APOR_E01.02, From memory and given plant conditions involving a non-emergency event, a. determine if the event requires notifications. b. describe the steps required to perform the notifications c. identify the individuals or agencies that require notification in accordance with EN-LI-102, AP-4.00, 10CFR50.72, 10CFR72.75, and 10CFR73.71.

References: Admin 4.00 section 5.4.4.f

Question:

Given the following:

- The Plant is in the process of shutdown for a forced outage
- Atmospheric Steam Valves are planned to be used for the cooldown in accordance with GOP-9, “Mode 3 > 525°F to Mode 4 or Mode 5”

Which one of the following describes (1) any notifications required and (2) any required documentation requirements?

a. (1) Public Affairs, Van Buren Sheriff, and NRC resident.
(2) Use NRC Form 361, “Event Notification Worksheet.”

b. (1) Public Affairs and Van Buren Sheriff only.
(2) Use NRC Form 361, “Event Notification Worksheet.”

c. (1) Public Affairs, and Van Buren Sheriff only.
(2) Record in Operations Narrative Log only.

d. (1) Public Affairs, Van Buren Sheriff, and NRC resident.
(2) Record in Operations Narrative Log only.

DISTRACTOR ANALYSIS

a. Plausible if the student believes that the NRC resident is required to be notified.
b. **CORRECT**
c. Plausible if the student believes narrative log entry only is required.
d. Plausible for combination of 'a' and 'c' above.

Level of Knowledge: LOW **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: 045 Main Turbine Generator
G2.4.4-Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.

Tier: 2 Group: 2 SRO Imp: 4.7
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedure to mitigate the consequences of a turbine high vibration. This question also cannot be answered solely with system knowledge.***

Palisades Learning Objective: EHC_E08.01, Given the Turbine Generator synchronized to the grid, annunciator EK-0105, "TURBINE HI VIBRATION" in alarm, and Turbine vibration readings, determine if a Turbine or Reactor Trip is required in accordance with ARP-1.

References: ARP-1 window#5, EOP-1.0

Question:

Given the following:

- Plant is at 16% power during a power escalation from a refueling outage
- EK-0105, "TURBINE HI VIBRATION," annunciates on Panel C-11
- The Control Room team observes Turbine vibration at 9 mils and rising
- Vibration readings are considered to be valid

Which one of the following completes the following statement?

If turbine vibration exceeds ____(1)____, then _____(2)_____.

a. (1) 10 mils
(2) trip the turbine and enter AOP-1, “Loss of Load.”

b. (1) 10 mils
(2) trip the reactor and enter EOP-1.0, “Reactor Trip Recovery.”

c. (1) 14 mils
(2) trip the turbine and enter AOP-1, “Loss of Load.”

d. (1) 14 mils
(2) trip the reactor and enter EOP-1.0, “Reactor Trip Recovery.”

DISTRACTOR ANALYSIS

a. Plausible if the student believes that 10 mils is trigger for tripping the turbine and that only turbine is tripped at 16% power.
b. Plausible if the student believes that 10 mils is trigger for tripping the reactor.
c. Plausible if the student believes that that only turbine is tripped at 16% power.
d. **CORRECT**.

Level of Knowledge: LOW **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: G2.1.23-Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Tier: 3 Group: SRO Imp: 4.4
Applicable 10CFR55 Section: 43.2 - Facility operating limitations in the technical specifications and their bases.
This exam question meets the criteria for an SRO-only question because the candidate must apply specific knowledge from LCO 3.3.1 and 3.3.9 and their basis to determine the if the LCO is applicable, and if so it is met.

Palisades Learning Objective: NI_CK21.0 007/, Given plant conditions and Technical Specification 2.1.1, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.7, 3.3.8, 3.3.9, and 3.9.2 determine the following for the Nuclear Instrumentation System in accordance with Technical Specification 2.1.1, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.7, 3.3.8, 3.3.9, and 3.9.2 BASES for the Nuclear Instrumentation System, LCO Section 1.0, and LCO Section 3.0

References: LCO 3.3.9 and LCO 3.3.1 (PROVIDE except table 3.3.1-1): LCO table 3.3.1-1; TS Basis 3.3.9 page 2

Question:

Given the following after a Plant shutdown five days ago:

- The Plant is in MODE 5
- All CRDM Clutch Toggle Switches are Caution Tagged OFF
- Source Range Nuclear Instrument 1A is indicating 30 cps
- Source Range Nuclear Instrument 2A is indicating 35 cps
- Wide Range Nuclear Instrument 3A is INOPERABLE due to I&C maintenance
- Wide Range Nuclear Instrument 4A then de-energizes due to an internal power supply fault

Which one of the following describes the status of LCO 3.3.1, "RPS Instrumentation," and LCO 3.3.9, "Neutron Flux Monitoring Channels," for these conditions?

a. LCO 3.3.1 is not applicable.
LCO 3.3.9 is not met due to one or more Neutron Flux Monitoring Channels INOPERABLE.

b. LCO 3.3.1 is not met due to two ZPM Bypass Removal Channels INOPERABLE.
LCO 3.3.9 is not met due to one or more Neutron Flux Monitoring Channels INOPERABLE.

c. LCO 3.3.1 is not met due to two ZPM Bypass Removal Channels INOPERABLE.
LCO 3.3.9 is met.

d. LCO 3.3.1 is not applicable.
LCO 3.3.9 is met.

DISTRACTOR ANALYSIS

a. Student misapplies the definition of a neutron flux monitoring channel for LCO 3.3.9.
b. Student misapplies the definition of a neutron flux monitoring channel for LCO 3.3.9 and believes that LCO 3.3.1 is applicable.
c. Student believes that LCO 3.3.1 is applicable.
d. **CORRECT** - None of the RPS trips associated with WRNIs are applicable in LCO 3.3.1 with either boron greater than refueling or no more than one control rod capable of being withdrawn.

Level of Knowledge: HIGH **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: G2.1.42-Knowledge of new and spent fuel movement procedures.

Tier: 3 Group: SRO Imp: 3.4
Applicable 10CFR55 Section: 43.7 - Fuel Handling Facilities and Procedures. ***This exam question meets the criteria for an SRO-only question because the candidate must apply knowledge from the Refueling Operations and Fuel Handling procedure to determine that the ventilation alignment meets the requirements for conducting fuel moves in the SFP.***

Palisades Learning Objective: IOTD_E01.02 001, Given fuel handling procedures and fuel movement conditions, identify the operating limitations designed to prevent damage to equipment or the fuel assemblies in accordance with SOP-28 and GOP-11 and/or Refueling Procedures

References: GOP-11 section 5.7.1

Question:

Given the following plant conditions:

- The Plant was shutdown 15 days ago for a refueling outage
- Movement of irradiated fuel assemblies removed from the core during the outage is planned in the Spent Fuel Pool
- HS-1894, Fuel Handling Area Exhaust Damper Control Switch, is in the REFUEL position

Which one of the following Fuel Handling Area Ventilation System alignments will MEET the required conditions for performing the above fuel moves?

	V-7 Supply Fan	V-8A Exhaust Fan	V-8B Exhaust Fan
a.	ON	ON	ON
b.	OFF	ON	ON
c.	OFF	ON	OFF
d.	ON	OFF	ON

DISTRACTOR ANALYSIS

a. Plausible if the student believes that since this moves the most amount of air through he Charcoal filter, that this is the correct lineup but with fuel decayed less than 30 days it is not allowed.
b. Plausible if the student believes that this lineup will result in the lowest pressure in the Fuel Handling Building.
c. **CORRECT** - With fuel decayed less than 30 days, only 1 V-8 can be ON and V-7 must be OFF.
d. Plausible if the student correctly believes that only one fan should be off, but also believes that fresh air needs to be supplied to the Fuel Handling Building.

Level of Knowledge: HIGH **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: G2.2.19-Knowledge of maintenance work order requirements.

Tier: 3 Group: SRO Imp: 3.4
Applicable 10CFR55 Section: None - This is an exception to the 10CFR55.43(b) applicability. ***This exam question meets the criteria for an SRO-only question because it is an SRO-only duty perform direct crew operations during emergency events. (task PL-341 251 05 03)***

Palisades Learning Objective: APWC_E08.01 From memory and given a directive to plan a Work Request, describe the items that should be reviewed to determine a WR's acceptability in accordance with EN-WM-100.

References: SEP Supp 1 (EI-1 Wall chart for HOT Conditions), EN-WM-100 section 3.0

Question:

Given the following plant conditions:

- The Plant is at full power
- A Site Area Emergency (SAE) has been declared due to high radioactivity levels on RIA-2327, Stack High Range Monitor, caused by an ongoing waste gas system leak
- The on-duty Shift Manager is the Emergency Director

In accordance with EN-WM-100, "Work Request (WR) Generation, Screening and Classification," which one of the following correctly describes a method that could be implemented to expeditiously repair the leak and stop the release?

Maintenance can be directed to begin work without an approved work package after the.....

a. Shift Manager declares the repair Emergent Work.

b. Shift Manager declares the repair Emergency Maintenance.

c. Plant Manager declares the repair Emergent Work.

d. Plant Manager declares the repair Emergency Maintenance.

DISTRACTOR ANALYSIS

a. Plausible if the student believes emergent work will allow this to occur.
b. **CORRECT**
c. Plausible if the student believes that Plant Manager approval is required for this to occur
d. Combination of a and c above.

Level of Knowledge: LOW **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: 2010 NRC-SRO EXAM
K/A: G2.3.4-Knowledge of radiation exposure limits under normal or emergency conditions.

Tier: 3 Group: SRO Imp: 3.7
Applicable 10CFR55 Section: 43.4 - Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. ***This exam question meets the criteria for an SRO-only question because the candidate must have knowledge of the radiological hazards associated with a rescue of a plant employee during an emergency. This exam questions also meets the requirements of an SRO-only question because performing the duties of the Emergency Plant Manager is an SRO job that cannot be delegated to an RO.***

Palisades Learning Objective: N00153_E18.0

References: EI-2.1, 5.11

Question:

Given the following conditions:

- A General Emergency was declared due to a LOCA with extremely high off-site radioactive release rates
- EOP-1.0, "Standard Post Trip Actions," are completed
- EOP-4.0, "Loss of Coolant Accident Recovery" is being implemented
- The Shift Manager is the acting Emergency Director
- An Nuclear Plant Operator (NPO) has sustained life-threatening injuries in a high dose area while attempting to isolate the uncontrolled release
- The estimated exposure for the rescue is 20 Rem

In accordance with EI-2.1, “Emergency Plant Manager," which one of the following describes the minimum authorization requirements to attempt a rescue of the injured NPO?

a. Any on-shift SRO may authorize the rescue.

b. The Shift Manager may authorize the rescue.

c. Site Vice President permission is required to authorize the rescue.

d. The Radiation Protection Manager and Shift Manager are required to authorize the rescue.

DISTRACTOR ANALYSIS

a. Plausible if the student misinterprets dose limit restrictions for life saving services during an emergency and believes that any SRO can authorize exceeding these dose limits.
b. **CORRECT** - Since the Shift Manager is the Emergency Plant Manager, then he/she can authorize this exposure.
c. Plausible if the student believes the SVP is required to authorize exceeding these dose limits.
d. Plausible if the student believes that both SM and RP manager permission is required authorize exceeding these dose limits.

Level of Knowledge: LOW **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: BANK
K/A: G2.3.6-Ability to approve release permits.

Tier: 3 Group: SRO Imp: 3.8
Applicable 10CFR55 Section: 43.4 - Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various containment conditions. ***This exam questions meets the criteria for an SRO-only question because the candidate must analyze the conditions in the waste gas tanks and apply knowledge of the chemistry requirements to determine the controls that apply. Also, authorizing Waste discharge permits is an SRO-only duty. (task PL-341 012 03 03)***

Palisades Learning Objective: RMS_E02.01 002/, From memory, describe the information expected to be completed on Form CH 6.23-3 (WGDT Release Authorization) prior to authorizing the WGDT release to be initiated in accordance with Form CH 6.23-3

References: CH 6.23

Question:

A waste gas release is being planned for Waste Gas Decay Tanks, T-101C and T-68A. Samples have been completed and analyzed per CH 6.22, “Sampling Waste Gas Decay Tank,” and CH 6.23, “Evaluation and Release of Waste Gas Decay Tank."

The following information is contained on the batch release forms for T-101C and T-68A:
NOTE: Today’s date/time is 9/08/2014@1800

T-101C	T-68A
Sample date/time - 9/05/2014@1400	Sample date/time - 9/07/2014@1500
Isolation pressure – 93 psig	Isolation Pressure – 92 psig
Current pressure – 89 psig	Current Pressure – 99 psig

Which one of the following describes (1) the Waste Gas Decay Tank(s), if any, whose batch release form should be approved for release and (2) the reason for this answer?

a. (1) None.
   (2) Pressure at the start of release exceeds procedure restrictions for both tanks.

b. (1) T-68A only.
   (2) Time since the sample analysis exceeds procedure restrictions for T-101C.

c. (1) T-101C only.
   (2) Pressure at the start of the release exceeds procedure restrictions for T-68A.

d. (1) Both T-68A and T-101C.
   (2) All procedural restrictions for sample times and pressures are met for both tanks.

DISTRACTOR ANALYSIS

a. Plausible if the student believes that a batch must be disapproved if tank pressure has changed by 4 psig from isolation.
b. Plausible if the student believes that the tank must be released within 72 hours (or less) of tank isolation.
c. **CORRECT**
d. Plausible if the student believes that there are no requirements for tank pressure or sample time.

Level of Knowledge: LOW **Difficulty: 2**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: **G2.4.5-Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions.**

Tier: 3 Group: SRO Imp: 4.3
Applicable 10CFR55 Section: 43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. ***This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate procedure and actions required to mitigate*** **a loss of PCS inventory on SDC.**

Palisades Learning Objective: IOTF_CK12.0, Given an Abnormal Operating plant event and control room references, determine the actions of operations and non-operations department personnel necessary to complete the applicable subsequent actions/operator actions in accordance with Abnormal Operating Procedures

References: AOP-23 section 1.0, AOP-30 step 17.c.1 and d.2

Question:

The Control Room team has just exited EOP-8.0, “Loss of Offsite Power/Forced Circulation Recovery” after conducting a natural circulation cooldown to MODE 4. Shutdown Cooling has been placed in service per GOP-9,” Mode 3 ≥ 525°F to Mode 4 or Mode 5.” Then, a loss of PCS inventory is detected:

- Personnel in Containment report that RV-0401, Shutdown Cooling Relief Valve has inadvertently lifted and is stuck open

Which one of the following statements describes (1) the procedure required to be entered for the above plant conditions and (2) a procedurally directed action for these conditions?

a. (1) AOP-23, “Primary Coolant System Leak.”
   (2) Manipulate test lever on RV-0401 to reseat valve.

b. (1) AOP-30, “Loss of Shutdown Cooling.”
   (2) Depressurize PCS to less than 80 psig.

c. (1) AOP-30, “Loss of Shutdown Cooling”
   (2) Manipulate test lever on RV-0401 to reseat valve.

d. (1) AOP-23, “Primary Coolant System Leak.”
   (2) Depressurize PCS to less than 80 psig.

DISTRACTOR ANALYSIS

a. Plausible if the student does not recall that AOP-23 directs use of AOP-30 when SDC is in service.
b. Plausible if the student confuses PCS pressure reduction for RV-3164 (step 17.d.2) with RV-0401 (step 17.c.1).
c. **CORRECT**
d. Plausible combination of a and b above.

Level of Knowledge: LOW **Difficulty: 3**

WRITTEN QUESTION DATA SHEET

Source of Question: NEW
K/A: **G2.4.47-Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.**

Tier: **3** **Group:** **SRO Imp:** **4.2**
Applicable 10CFR55 Section: **43.5 - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. This exam question meets the criteria for an SRO-only question because the candidate must assess the facility conditions given in the stem and use those conditions to select the appropriate actions required to mitigate a steam generator tube leak.**

Palisades Learning Objective: **IOTF_CK16.0, Given an Abnormal Operating event and control room references, evaluate plant response to the event and determine if a plant shutdown should be commenced**

References: **AOP-24 Attachment 2 pg 7**

Question:

The Plant is at full power with the following conditions:

- Chemistry reports a small S/G tube leak of 0.06 gpm has been detected
- The Control Room team enters AOP-24, "Steam Generator Tube Leak"
- Sustained rate of rise of the leak is 0.03 gpm/hour

Which one of the following completes the following statement for the above Plant conditions?

Reduce reactor power __(1)__ and place the Plant in MODE 3 __(2)__.

a. (1) to less than 75% power within 1 hour
   (2) within the next 6 hours

b. (1) to less than 75% power within 1 hour
   (2) within the next 2 hours

c. (1) to less than 50% power within 1 hour
   (2) within the next 6 hours

d. (1) to less than 50% power within 1 hour
   (2) within the next 2 hours

DISTRACTOR ANALYSIS

a. Plausible if the student believes 75% power is initial power reduction target and 6 hours is allowed for Mode 3.
b. Plausible if the student believes 75% is initial power reduction target.
c. Plausible if student believes 6 hours is allowed for Mode 3.
d. **CORRECT**

Level of Knowledge: **HIGH** **Difficulty:** **3**